

**AN ANTHROPOLOGICAL STUDY OF PASTORALISM AS A FOOD  
SYSTEM IN LAIKIPIA COUNTY, RIFT VALLEY, KENYA**

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## **DECLARATION**

This thesis is my original work and has not been submitted for examination in any other university.

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This thesis has been submitted for examination with our approval as the university supervisors.

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## **DEDICATION**

I dedicate this work to my mother, Gladys Muhonja Ombeva, my sister Celine Herman, My brother Michael Anyanzwa, My sister-in-law and nieces Lucy Anyasi, Kate Midega and Kimberly Muhonja; and my nephew Ethan Gadi for giving me the strength to carry on with my pursuit for knowledge and academic growth. May this be a motivation for the entire family to pursue success through academic excellence.

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## **ABSTRACT**

This anthropological study explored pastoralism as a food system and examined the actors, their roles, perceptions and described the institutional settings and changes (rules, regulations, values and norms) of the food system. It was conducted among pastoralists in Laikipia County, Rift Valley, Kenya. The study adopted a descriptive design and utilized the new institutionalism theoretical framework to look into the actors, their roles, perceptions, relationships and institutional changes of the food system. Qualitative data was collected using in-depth interviews, unstructured observations, key informant interviews and focus group discussions. Data was analyzed based on emerging themes and study findings presented in narratives supported by verbatim quotes and photographs from the research site. The findings established that the food system had different actors along the value chain with different roles, perceptions and bargaining power. The actors' level of engagement varied along the value chain. In the food system production, processing and packaging, distribution and consumption of livestock products was guided by formal and informal institutions namely; rules, regulations, values and norms. These institutions were defined by actors with different roles and bargaining power whose perceptions influenced the institutional setting of the food system. Institutional changes in the pastoral food system included commercialization of herding; private land tenure system practices and the decentralization of livestock services. The concept of co-management of livestock markets which promote actor involvement and participation in food system processes is significant and further research to explore this concept is necessary. Advocacy strategies to agitate for increased scholarship and sensitive policies geared towards sustainability of the food system are recommended.

## **ABBREVIATIONS AND ACRONYMS**

ASALs	- Arid and Semi-arid Lands
ASDSP	- Agricultural Sector Development Support Programme
AWF	- African Wildlife Foundation
CETRAD	- Center for Training and Integrated Research in ASAL development
CFS	- Committee on World Food Security
CPRs	- Common Pool Resources
ECDs	- Early Childhood Development Centers
EZ	- Employed Zones
FAO	- Food and Agriculture Organization
FMD	- Foot and Mouth Disease
GOK	- Government of Kenya
HPG	- Humanitarian Policy Group
IFAD	- International Fund for Agriculture and Development
IIED	- International Institute for Environment and Development
IIRR	- International Institute of Rural Reconstruction
ILRI	- International Livestock Research Institute
KES	- Kenyan Shillings
KHE	- Kenya Horticultural Export
KNBS	- Kenya National Bureau of Statistics
LLMA	- Laikipia Livestock Marketing Authority
LMAs	- Livestock Marketing Authorities
LPC	- Laikipia Permaculture Centre
MFZ	- Mixed Farming Zones
MMFZ	- Marginally Mixed Farming Zones
NACOSTI	- National Commission for Science, Technology and Innovation
NDMA	- National Drought Management Authority
NEMA	- National Environmental Management Authority
NRC	- Norwegian Refugee Council
NRLT	- Northern Range Land Trust
ODI	- Overseas Development Institute
PZ	- Pastoral Zones
RPLRP	- Regional Pastoral Livelihoods Resilience Project
SNV	- The Netherlands Development Organization
SWP	- Sudan Working Paper
UAE	- United Arab Emirates

## CHAPTER ONE: BACKGROUND TO THE STUDY

### 1.1 Introduction

Pastoralism as a local food system has historically been present throughout the world. As a food system pastoralism entails a small number of intermediaries with short supply chains and generally a close geographical proximity between production and consumption (Colonna *et al.* 2013; Erikson, 2008). Pastoralism can also be viewed as an economic and social food system that is qualified by mobility (De Haan *et al.* 2016). Morton and Meadows (2000) define pastoralism as a pastoral production system in which 50 per cent of the gross household revenues that is the total value of marketed production plus the projected value of subsistence production that is consumed within the household coming from livestock and livestock-related activities.

IFAD (2009) additionally, posits that in pastoralism the types of livestock kept vary according to climatic conditions, environments, common pool resources (CPRs) like water, and other natural resources, and geographical locale. As a result, pastoralism takes wide-ranging forms that are inclined to particular natural, political and economic environments. Anthropologists identify transhumance and nomadism as the two main modes of pastoralism. Transhumance involves seasonal movements of pastoralists with a permanent settlement while nomadism entails migration of entire villages from one area to another in search of pastures and water and as they are sedentary (Ferraro and Andreatta, 2012).

According to global economic statistics, over a billion people depend on livestock directly or indirectly for food (Catley *et al.* 2013; FAO, 2009). IFAD (2009) acknowledges that pastoralism continues to inhabit zones that have limited potential

for crop cultivation due to erratic rainfall. Currently, close to 200 million primary actors across the globe generate income through pastoralism where conventional farming is not viable. Pastoralism is said to account for 10 per cent of all the world meat that is produced (NRC, 2014). Moreover, pastoralism utilizes about twenty-five per cent of the earth's land surface area to sustain its population mostly found in developing countries (Dong *et al.*, 2011). In Sub-Saharan Africa, 16 per cent of the population is estimated to rely on pastoralism (Rass, 2015).

Different food systems co-exist through interactions from one mode of production to the other (Orban, 2015). The current food systems have in the last 50 years doubled production yet this has not met the current food needs (De Schutter, 2014). These food systems are currently faced with a challenge of meeting the global to local food needs of a population projected to be 9 billion people by 2050 (FAO, 2014). Social anthropological perspectives regard these global to local food challenges as not just a result of population growth, but as the outcome of problems related to access, distribution and governance of common pool resources for the production of food and thus the need for re-orientation of the current food systems to respond to this global food situation (Haller, 2013; Godfray *et al.* 2010). In-depth descriptions accessed through anthropological studies contribute to new knowledge needed to interrogate these food systems.

The domestic, local (pastoralism), and regional food systems in Kenya are interconnected and supplement one another to sustain the communities (Colonna *et al.*, 2013). Pastoralism makes significant contributions in meeting the food needs of its actors though mostly practised in the arid and semi-arid lands with unreliable rainfall to support rain-fed agriculture as an alternative source of livelihood such as in

Laikipia County (Ikeya and Fratkin, 2005). While the economic and livelihood aspects on pastoralism have been studied extensively, there is limited literature on the actors, institutions and linkages there in. Such data is needed to contextualize and interrogate pastoralism as a food system and inform the reorientation of relevant policies aimed at attaining food sustainability locally and globally. A food system analysis of pastoralism therefore provides in-depth understanding of these dynamics.

## **1.2 Statement of the Problem**

Over three quarters of land in Kenya consists of arid and semi-arid lands, with minimal crop production taking place (Huho and Kosonei, 2013). In Kenya, pastoralism is mostly practised in the arid and semi-arid areas such as Laikipia County. Despite the unfavorable climatic conditions, the food system thrives to account for over 70 per cent of the national livestock herd raised through ranching and pastoralism (GOK, 2008). The livestock sub-sector has notable influence on the economy and is reported to employ nationally close to 50 per cent of Kenya's agricultural labour force (Farmer and Mbwika, 2012). There is also an increasing demand for livestock and livestock products for global and national markets (GOK, 2015).

Pastoralism displays social and ecological resilience despite persistent droughts, conflicts and famines (Catley et al., 2013). The use of common pool resources such as water and pasture in this food system is defined by actor perceptions and varying bargaining power positions (Lind and Barrero, 2014; Haller et al, 2013; Yurco, 2011). The food system actors have limited influence on political and economic processes yet are most vulnerable to policies that barely favor their way of life (HPG, 2009; IFAD 2009). Interestingly though, with increased global demands, the emergent

trends are that sedentary pastoralists are becoming more adaptive to the political systems and more dependent on the market systems (Haller et al., 2013). As a result, both formal and informal institutional structures are continuously in a transition from fit to misfit and back to fit creating the need for further research on pastoralism as a food system.

A social anthropological food system analysis of pastoralism in Laikipia County was conducted. The study established actors, their roles, perceptions and institutional settings and responded to the following research questions:

- i. Who are the actors and what are their roles in the pastoralism?
- ii. How is the pastoralism perceived by various actors in relation to food sustainability?
- iii. How are institutional settings and changes affecting pastoralism?

### **1.3 Objectives of the Study**

#### **1.3.1 Overall Objective**

To carry out an anthropological study of pastoralism in Laikipia County, Rift Valley, Kenya.

#### **1.3.2 Specific Objectives**

- i. To establish the actors and their roles in pastoralism.
- ii. To determine the actor perceptions of pastoralism in relation to food sustainability.
- iii. To describe the institutional settings and changes of pastoralism.

### **1.4 Assumptions of the Study**

This study was guided by the following assumptions:



1. There are different actors with varying roles within pastoralism.
2. Actors express varying perceptions of pastoralism in relation to food sustainability.
3. Pastoralism as a food system is affected by changes in its institutional settings.

### **1.5 Justification of the Study**

The information that this study generated will be useful to policy makers in formulating sound policies that are sensitive to the universal right to food and that value the contributions of the pastoral food system and its actors. Furthermore, the information will be used to achieve the three pillars of vision 2030 as well as the sustainable development goals by ensuring that the actors, their roles as well as perceptions about pastoralism and institutional changes are captured to address the position of pastoralism in development. For interventionists and other organizations working with pastoral communities, the information generated will be used to advocate for a more rational understanding of pastoralism and its contributions to the economic and social well-being of the actors.

The study findings are also useful to academicians as the information adds to the growing body of knowledge on pastoralism and it will similarly create an understanding of who the actors are, what roles the various actors play in the food system, their perceptions about the food system, and also the effects of institutional transformations on the food system and the practice of pastoralism.

### **1.6 Scope and limitations of the study**

The anthropological study focused on pastoralism in Laikipia County in the Rift Valley region of Kenya to establish the actors, their roles, perceptions and institutional changes. The study explored actors along the value chain, their roles,

perceptions and institutional changes and its effects on the functioning of the food system.

The study was descriptive in nature and relied upon qualitative methods of data collection. A small number of participants were part of the study on pastoralism in Laikipia County to allow for in-depth analysis. The information collected can only be generalized to the theoretical population.

### **1.7 Definition of Key Terms**

*Actors*- Individuals or stakeholders, male and female, young and old, who participate directly or indirectly in pastoralism.

*Common pool resources*- natural resources shared by pastoralists such as pasture, lands and water.

*Food system*- An interdependent network of stakeholders recognized within a given area and directly or indirectly creates a flow of goods and services aimed at satisfying the food needs of the consumers within and beyond.

*Institutions*- Both formal and informal rules, regulations, values and norms of the pastoral food system.

*Institutional change*- Alterations in rules, regulations, values and norms that influence the operations of the food system.

*Livestock buyers*- An actor other than a pastoralist, who actively frequent livestock markets to partake in trade in pastoral products in Laikipia, Rift Valley.

*Livestock broker*- A young pastoral man or woman who actively participates in livestock trade through price speculation.

*Morans*- They are age-related Maasai young men who have undergone circumcision at the same time and are considered to be community warriors.

*Pastoralism*- The rearing of livestock as the primary means of livelihood which connotes the pastoral way of life entailing ownership of livestock with mobility as a key factor.

*Pastoralist*- One whose means of livelihood is tied to livestock rearing.

*Perceptions*- A society's means of justification for engaging in a given livelihood founded on customs, beliefs, values and attitudes which are social, cultural or symbolically constituting local knowledge.

*Food sustainability*- It looks into the conditions under which food in the pastoral food system is produced and further circulated until reaching consumption as well as the consequences this has in relation to poverty and inequality, right to food, food security, socio-ecological resilience, and environmental integrity.

*Value chain*- A set of stages that a given food item passes through in the process of meeting the producers' and consumer demands, and marketing standards.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter reviews the existing literature on different aspects of the pastoral food system. The chapter reviews issues on pastoralism in relation to: actors and their roles, actors' perceptions and the effects of institutional changes. The chapter also outlines and describes the theoretical framework, its relevance and the conceptual framework guiding the study.

### **2.2 Pastoralism**

According to Ferraro and Andreatta (2012), pastoralism endeavours to sustain its actors through raising of domestic animals such as cattle, camels, goats, sheep, yaks, horses, and donkeys that can be used for their products (milk, meat, wool, skins and hides) and for transportation and trade. Globally, estimates indicate that 100-200 million people are totally or partly reliant on pastoralism as a way of life both economically and culturally (Belvaux, 2010). Moreover, it accounts for nearly a billion head of animals that include camels, cattle, and smaller livestock (Dong et al., 2011). In Africa, 16 per cent of the population in sub-Saharan Africa is estimated to rely on pastoralism (Rass, 2015).

According to Fratkin (2004), pastoralism utilizes communal ownership of land and kinship ties (close-knit familial relations that extend beyond the nuclear family) which ensure mutual herding and defense. Pastoralism interacts with other food systems where the pastoral diets of wild plants, game, fish, grains and other commodities are purchased through the sale of, or trade in, livestock and its products (milk, meat, hides and wool) in a bid to supplement the diets of its actors (Ikeya and Fratkin, 2005). Milk and its products account for sixty to sixty-five per cent of the dietary energy

consumed by pastoralists in the wet seasons in comparison to meat, blood and cereals mostly consumed when the dry season sets in as milk production decreases (Fratkin, 2001).

Pastoralists occupy the savannah, arid deserts, high plateaus, or sub-arctic forests and tundra where the supply of rainfall is low and reliance on rain-fed agriculture as a mode of food production is a big challenge (Ikeya and Fratkin, 2005). As a result, pastoralists throughout their food production have struggled with aspects like droughts, conflicts and famines but they have in turn displayed their resourcefulness, entrepreneurship and innovativeness as necessary modes for adaptation within their environments (Catley et al., 2013). The survival of pastoralism is dependent on mobility of the pastoralists to find access to pasture and water for their animals and, to a small extent, carry out activities such as trade aimed at supplementing their diets (Fratkin, 2001; 2004).

Mobility among the pastoralists has paved way for the extensive utilization of rangelands as common pool resources (CPRs) through the full use of culture and its attributes (Kaye-Zwiebel and King, 2014). The undisputed resilience and adaptability that pastoralism upholds are not only limited to the occupation of the most unproductive lands but also in the lives and livelihoods of its actors. Pastoralists continue to practice pastoralism as a mode of subsistence despite the continued loss of pastureland to crop farmers and urban areas, increased commoditization and the out-migration to, and settlement of poor pastoralists in urban areas (Ikeya and Fratkin, 2005). The pastoralists are also known to have little or no influence on political and economic processes and are most vulnerable to policies that barely favour their way of life (HPG, 2009).

In Kenya, pastoralism is portrayed as the cause of conflicts when it comes to common pool resources, land degradation, outbreak of diseases and even the cause of land invasions (Shanahan, 2013). According to Farmer and Mbwika (2012), the livestock population in Kenya is comprised of: 14.1 million indigenous cattle, 3.4 million exotic cattle that are primarily kept for dairy, 17.1 million sheep, 27.4 million goats and 3 million camels. The country's consumption of livestock products stands at 15-16 kilogrammes of red meat which translates to 600,000 metric tons a year (GOK, 2015). The perceptions and knowledge that the pastoralists hold such as reciprocity and sharing as social norms that can reduce household risk exposure, promote cohesion and cooperation which effectively support proper resource-use, are ignored in evaluating pastoralism in the ASALs (Kaye-Zwiebel and King, 2014).

### **2.3 Actors and their Roles in the Pastoral Food System**

Pastoralism as a mode of food production is based on rearing and caring for large herds of domesticated livestock as primary subsistence and it applies to people who are dependent on diverse livestock in diverse environmental and social contexts in which they exploit their meat and, in some cases, not even for food (Ferraro and Andreatta, 2012). It is a people's way of life that caters for their economic, settlement needs and social demands through continued reliance on large-scale herding (Evans-Pritchard, 1940). Pastoralists have access to and use their animals and crucial resources in line with rules of ownership and control that vary based on the gender of actors who perform different roles (Bonvillain, 2013). According to Evans-Pritchard (1940), among the Nuer of Southern Sudan, boys were tasked with cattle herding, where they learnt to value their livestock, men (who include boys who are in the adolescent stage or older and have been ritually initiated into manhood) were, and are, responsible for herding cattle. Women, girls and young boys were tasked with milking

the cattle twice a day. According to Bonvillain (2013), men and boys in pastoral systems generally tend to the animals while the women and children carry out related tasks such as milking, dressing hides and skins, and watching over animals. However, the gender and age division of labour differ from one pastoral society to another for example; in some pastoral systems people of any age and either gender may assist with herding animals to and from grazing lands.

In every society that practises pastoralism, the pastoral food systems entail more than just the mode of livestock production and include also consumption systems that support large global populations and natural resource management systems which support a wide range of services and products that have global valuation (Davies, 2007). With the persistence of the traditional pastoral way of life, livelihoods are substantially or wholly from livestock that forage on naturally occurring rangelands (Kaye-Zwiebel and King, 2014). Pastoralism carries the opportunity for particularly the arid and semi-arid lands which are very unsuitable for widespread agriculture or more intensive or sedentary forms of animal husbandry that are economically invaluable (Hesse and Macgregor, 2006).

However, with increasing scientific knowledge based on research, pastoralists and pastoralism demonstrate that significant contributions to local, national and regional economies can be made from this mode of subsistence (Jensen, 2009). The Horn of Africa and East Africa are home to the largest groups of pastoralists in the world who can be found in Kenya, Somalia, Ethiopia and Uganda in areas where other forms of livelihoods can barely take place (NRC, 2014). In the East African region pastoralism supports up to 20 million people both as a way of life and an essential livelihood. East Africa is home to the largest number of pastoral and agro-pastoral livestock groups in

Africa and within the region the Sudan has the largest number of pastoral and agro-pastoral groups that is made up of 18 million cattle, 18 million goats and 22 million sheep (Rass, 2015).

In Kenya, the pastoral groups inhabit ASALs (Davies, 2007), which are geographically located in the north, east and south of the country and in total they account for 36 per cent of the total population which is around 14 million people (GOK, 2014). The pastoralists continuously face environmental stresses as they constantly navigate the hot and dry climate of the ASALs in search of grazing land and water sources (Pavanello, 2009). Within the country four livelihood categories exist, namely, pastoralism, agro-pastoralism, mixed farming, and marginal agriculture. In the country, 11 counties are classified as arid, 19 as semi-arid and 6 as having pockets of arid and semi-arid conditions (ILRI, 2008). In addition, it is estimated that over 60 per cent of all livestock in Kenya are found in the ASALs and they make a contribution of 90 per cent towards the employment of the local populations in the said areas. Furthermore, the livestock sector which is heavily supported by the arid and semi-arid lands accounts for nearly 10 per cent of the Gross Domestic Product (GDP) nationally (GOK, 2008).

According to Farmer and Mbwika (2012), locally, Kenyans consume on average between 15 and 16 kilogrammes of red meat per person leading to a national total of approximately 600,000 metric tonnes of red meat consumed annually. Cattle accounts for nearly 77 per cent of the red meat consumed, and 80 to 90 per cent of the local meat consumed in the supply chain comes from the pastoralists. Aside from cattle, sheep and goats contribute 30 per cent of the bulk of red meat consumed and are mostly reared by pastoralists (GOK, 2008). Davies (2007) acknowledges that by the



year 2000, government reports indicated that the worth of Kenya's livestock stood at around USD 6 billion while the annual milk value stood at USD 67-107 million. With such evident contribution towards the food value chain the sector alone is estimated to support close to 50 per cent of the agricultural labour-sector in the country while also accounting for 30 per cent of the total marketed agricultural products (GOK, 2008).

Farmer and Mbwika (2012) acknowledge that within Kenya, the market for meat consumption is structured in regard to income with a majority coming from the middle class. They argue that pastoral meat and other animal products find their way into the markets of the two large cities due to the high demand of the products such as the Kenyan delicacy of *nyama choma* (roast meat). Davies (2007) points to the fact that milk has a higher economic input as it is used in most subsistence economies through either direct consumption or processing into yogurt and other storable products. Regionally, meat production from pastoralism accounts for 1 per cent of Kenyan meat exports which are steadily increasing as from 2005 when the Kenya Meat Commission abattoirs were reopened. Furthermore, Kenyan meat supplies from pastoralists have been able to reach the Tanzanian market within the East African region and, internationally, the United Arab Emirates (UAE). Current trends show that new markets are being opened up in Qatar, Oman, Kuwait, Somalia and Egypt (Farmer and Mbwika, 2012).

Despite the literature, gaps still exist that need to be addressed to give pastoralism the benefit and relevance as a food system. According to Davies (2007), the direct values that are derived from pastoralism are hard to know due to the low quantity of data available and the extreme divergence of the few data sets that exist. The realization of the existing and upcoming new markets for Kenya's beef cattle is a promising sign for

pastoral potential to be fully realized in beef production. With the expansion of beef markets for Kenya beyond the Horn of Africa, Middle East and European Union beef markets and the growing local demands, pastoralists' contribution to the beef value chain is worth noting (GOK, 2008). The value addition that pastoralism makes towards the beef value chain is hardly mentioned by most governments which view this mode of production as backward with little potential for improvement, resulting in most governments with pastoral groups becoming more and more unwilling to invest in pastoral production systems (Rass, 2015).

#### **2.4 The Economic and Ecosystemic Impact of Pastoralism**

Davies (2007), in total economic valuation of pastoralism, acknowledges that pastoral systems look beyond the mode of livestock production and focus also on consumption systems that support a large global population, and natural resource management systems which support a wide range of services and products that are globally valued. Worldwide statistics suggest that over a billion people depend on livestock and 70 per cent of the people living on less than a dollar a day are at least partially dependent on livestock for their livelihood (FAO, 2009). Pastoralism makes significant contributions to local, national and regional economies with livestock production occupying two thirds of the global dry lands, and extensive pastoralism known to be supporting 100-200 million households globally (Jensen, 2009).

According to FAO (2009), livestock production is arguably the fastest growing agricultural subsector, and a World Bank report for 2007 estimates that in various developing countries, the livestock sector accounts for 50-80 per cent of GDP. In East Africa, where pastoralism utilizes about 50 per cent of the total land surface, a significant contribution towards the region's countries' economies are GDP

contributions of : 16 per cent to Kenya, 45 per cent to Tanzania and 32 per cent to Uganda (Elhadi et al., 2015). Farmer and Mbwika (2012) argue that in Kenya, the livestock sector employs close to 50 per cent of the agricultural labour force and it is a primary source of livelihood for the 6 million pastoralists that live in the country's arid and semi-arid lands.

Locally, the livestock sector within the ASALs accounts for close to 90 per cent of the employment rate of the local populations in those areas and it is also the source for meeting the domestic demands for meat, milk and dairy products, and other livestock products while accounting for nearly 30 per cent of the total marketed products (GOK, 2008). Nationally, Kenya's livestock sector continues to be of great importance with milk production estimated to contribute close to 50 per cent of the total value of livestock which is nearly over KES 40 billion annually (Davies, 2007). GOK (2008) acknowledges that the livestock sector, which is largely supported by pastoralism, accounted for about 10 per cent of the entire GDP of the country and about 42 per cent of the agricultural GDP. Internationally, the sector earns the country foreign exchange through the export of live animals, hides and skins, dairy products and the sale of processed products.

The export markets for Kenya are very low and meat exports accounts for only 1 per cent of all Kenya's meat production. However, significant meat exports have been experienced since 2005 when the Kenya Meat Commission abattoir was reopened as an export-licensed facility for use by private exporters. The only known existing consistent markets for meat exports are Tanzania and The United Arab Emirates. However, in 2010 several large new markets were opened and others expanded. These included Qatar, Oman, Kuwait, Somalia and Egypt. Kenya is a minor exporter of

livestock, with the annual export numbers not exceeding 7,500 head. The livestock exports are only significant in Mauritius and Burundi which import Kenyan cattle and goats, respectively (Farmer and Mbwika, 2012).

The pastoral ecosystems are known to face numerous challenges, chief among them being unpredictable rainfall and drought occurrences (Elhadi et al., 2015). In Africa, forty per cent of the sub-Saharan region is considered to be ASALs (Kaye-Zwiebel and King, 2014), while in Kenya over 80 per cent of the country's land mass is in the ASALs, with livestock being the main activity in these areas (Schilling et al., 2012). The ecosystemic variations in such areas where pastoralists are found calls for adaptability for productivity to be achieved and sustained in the face of environmental variability and resilience to periodic but unpredictable cycles of droughts and floods but are built into pastoral livelihoods, institutions and knowledge systems (Hesse, 2009).

The contributions of pastoralism to the county, national and international economies are heavily devalued and hardly fully recognized. According to Davies (2007), part of the challenge is the poor quality of livestock population data in Kenya and the fact that livestock population censuses are not equipped to cope with the dynamic nature of pastoral systems and the rapid rates of herd growth and shrinkage according to climatic conditions. Worth noting, however, are the limited data on pastoralism in Kenya and the few attempts made to quantify the gross contribution of pastoralism to Kenya's economy.

## **2.5 Socio-cultural and Symbolic Significance of pastoralism**

Pastoralists, wherever they practice pastoralism, are not a homogenous group (NRC, 2014). They exhibit heterogeneous characteristics through variations in ethnicity and socio-cultural set-ups, production forms and strategies they rely upon such as the degree of mobility or sedentarisation. Other differences are the key livestock types, engagement and dependence on pastoral activities, management practices, geographical location as well as trade through markets or lack thereof (Bushell, 2010). Pastoralism, therefore, stands out as a livestock production system based on extensive land use and often some form of herd mobility (Dong et al., 2011). Livestock ownership is essentially the backbone of the pastoral economy and, hence, viewed as more than just a unit of production. Livestock determines social status and provides access to insurance in times of stress (HPG, 2009). Ahmed (2014), suggests that livestock among pastoralists is viewed as a food system and store of value, wealth, power, and authority in areas where pastoralists practice their daily lives without being reached by modern banking systems and market economy. In Africa, especially sub-Saharan Africa where pastoralism is prominently practised, it is evident that the social significance of livestock illustrates how pastoral practices generate wealth and how the wealth generated transforms itself into power and authority.

Among the north-western pastoralists of Kenya, livestock possession plays multiple social, economic and religious roles in livelihoods such as providing a regular source of food in the form of milk, meat and blood for household members as well as cash income to pay for cereals, education, health care and other services (Schilling et al., 2012). Ahmed (2014) argues that among Sudanese pastoralists such as the Nuer, livestock is used as a store of value in the sense that they are the most important means for investing the surplus generated by the household; hence, they act as the

pastoralists' bank. In traditional Nuer society, for instance, Bonvillain (2013) notes that cattle were circulated among families when prospective husbands gave cattle to the kin of their intended wives as part of bride wealth and also as payments from the family of a killer to the family of the victim. According to Ahmed (2014), hides, wool, and other animal products are well looked after as they form part of the day-to-day pastoral households. Additionally, the small ruminants are mainly used as a means of exchange to satisfy the needs for the goods they do not produce.

The symbolic significance of pastoral livestock could be felt through sacrifices of cattle to honour the spirits at life cycle rituals and in times of social or psychic stress. The cattle used for the purpose could not be bought with money that came from disrespectful sources for the case of the Nuer. An example is the money earned for work considered demeaning or dirty such as custodial or servant work (Bonvillain, 2013). Livestock, therefore, is a fundamental form of pastoral capital besides functioning as a means of production storage, transportation and transfer of food and wealth (Schilling et al., 2012). According to Ahmed (2014), pastoralists who have large herds tend to lend some animals to those who have smaller herds or no herds at all, or to those who lost their herds due to droughts, epidemics and civil wars in order to keep them moving with the group. The poor households then become closely linked to relatives and in turn give necessary political support when need arises.

## **2.6 Institutional Change and the Right to Food**

According to FAO (2009), pastoralism is the most economically, culturally and socially appropriate strategy for maintaining the well-being of communities in dry lands as it can simultaneously provide secure livelihoods, conserve ecosystem services, promote wildlife conservation and honour cultural values and traditions.

Across the world pastoralist cultures are known to share key institutional and cultural adaptations that promote resilience in environments which are characteristic of low productivity and high resource variability (Kaye-Zwiebel and King, 2014). Oba (2012) adds that the indigenous system of range management has complex features reflecting the interrelationships between human adaptation, environmental variability, systems of land use and local decision-making systems. As such, the traditional management systems in the dry lands of Africa need to be responsive to variability and uncertainty. Pastoralists' management strategies have been known to include seasonal movements, use of tree leaves and pods during dry seasons, burning of old pastures, and feeding on crop residues (Belvaux, 2010). Yurco (2011) argues that traditionally pastoralists have engaged in negotiations and seasonal herd movements between wet and dry season grazing areas over rangeland landscapes. For a group like the Maasai, they have largely held land communally and ownership of the land has been as a result of membership in the community where each herder is entitled to grazing area, available water and other resources necessary for producing livestock.

Kaye-Zwiebel and King (2014) note that pastoralists' institutions utilize extensive rangelands as common pool resources (CPRs) and manage them through customary polycentric governance systems and social networks. Thus, institutions that exist function differently. According to Belvaux (2010), in many East African pastoral communities, selection of grazing sites is aided by scouts who report on the condition of distant pastures and make estimates of how long the fodder and water will sustain the number of livestock they have. However, livestock owners face the risk of property loss that is witnessed through severe environmental conditions like droughts, diseases, changes in social relations and theft to which their livestock is prone to as a result of migration in search of pasture and water (Swallow, 2015).

However, with time the pastoralists' way of life has been interfered with and so they are unable to meet their households' livelihood needs and maintain ecological resources (Kaye-Zwiebel and King, 2014). According to HPG (2009), in Kenya, policies on land and natural resource management that allow access to and security of land tenure, and recognition of communal and pastoral land tenure in laws and policies exists but little regard is being given to customary land laws leading to governmental abuse of the land rights of pastoralists and with time, pastoral lands have continued to be appropriated for other uses. Kaye-Zwiebel and King (2014) argue that institutional changes have been brought through indirect drivers of change such as land appropriation, restrictions on mobility and increased human and livestock densities which create year-round pressures on available rangelands, often leading to land degradation and further loss of grazing resources.

In Kenya, the constitution and policies in place guiding choice-making for decentralization in the management of resources through a devolved system (HPG, 2009), is applicable in Laikipia County. Laikipia County is located in the Rift Valley region and one dominant pastoral community that is found in the county is that of the Laikipia Maasai found in the semi-arid and arid areas, and occupy small community group ranches (GOK, 2015). Before colonial rule a council of elders was in existence within the Maasai Laikipia community and was authorized to allocate members with resource use and mediate outsiders' access to rangelands. The elders then developed a common language and social norms that allowed for environmental management which included judicious grazing activities to prevent complete destruction of grass roots as well as regular burns of regional grassland areas to aid in the regeneration of new growth. The resource governance structure was replicated as communities were governed by councils in small, autonomous groupings and they would adopt



strategies, norms, and rules that reflected changing ecological conditions (Yurco, 2011). All this ensured that common property regimes in addition to cultural norms were flexible enough for livestock movement across seasonal pastures, giving enough time for degraded areas to recover and mitigation of conflicts among members sharing common resources.

Over time in Laikipia, land tenure has changed from the colonial period when local resource controls forced sedentarisation and establishment of protected wildlife areas coupled with the British establishing private land ownership and creating individually owned farms and commercial ranches. All this done while taking advantage of seasonal herd movements of the Maasai pastoralists and settled farmers in such areas (Yurco, 2011). At independence, large-scale buying of ranches through government sponsored settlement schemes and privately owned land buying companies took effect (Laikipia Wildlife Forum, 2012). Earlier policies by the British had influenced sedentarisation leading to shifts in land use patterns and by independence a push towards livestock production and small-scale agriculture was on the rise with the realization of community-owned group ranches (Yurco, 2011). With the county government of Laikipia, ownership of land has changed and land that is held under private large-scale ranches is close to 40 per cent and covers close to 34 per cent of the county's geographical location. Communally owned group ranches in that are in Laikipia North sub-county account for 7 per cent, and the rest is government ownership (Laikipia Wildlife Forum, 2012).

## **2.7 Knowledge Gaps**

From the literature reviewed, this study realized knowledge gaps that existed about the pastoral food system. The individual and community livelihoods among pastoralists tend to revolve around a flexible and highly adaptable actor, who relies on the institutions that give him or her roles to function in a given manner based on practical indigenous knowledge. Traditionally, within pastoral communities the use of CPRs has been placed under institutional settings, perceptions, and roles that actors abide by. Authority figures within the community develop common language and social norms that allow for proper policy formulation and management of the CPRs that is vital for the persistent practice of pastoral food activities (Yurco, 2011). However, the literature shows that pastoralism has continued to be under appreciated and studies indicate that it is viewed as the leading cause of land degradation and loss of grazing land (Kaye-Zwiebel and King, 2014). Moreover, its contribution to the economy of nations such as Kenya has continued to be ignored yet statistics indicates that as a food system it employs close to 50 per cent of the agricultural (crop and livestock) labour force in Kenya (GOK, 2008).

The existence of social norms and values that were ignored during British Colonial rule in limiting the pastoral herd movements have a bearing on proper management of CPRs (water and pasturelands) by members of the pastoral food system (Yurco, 2011). Davies (2007) notes that the poor quality of livestock data that exists is due to the lack of proper livestock population censuses that cannot cope with the dynamic nature of pastoral systems. As a result, the need to integrate local knowledge and scientific knowledge is of importance for understanding the pastoral food system. This study, therefore, sought to provide additional knowledge on who the actors are in

the pastoral food system, their roles, their perceptions as well as the institutional settings and changes existing in the pastoral food system in Laikipia County.

## **2.8 Theoretical Framework**

### **2.8.1 New Institutionalism Theory**

The study used new institutionalism theory which has its roots in the study of the role of institutions that exist in societies and communities and how important they are towards resource utilization. Haller (2002:8) defines institutions as, “the regulative devices which define who is allowed to use what kind of resources at what time and under what circumstances”. He believes that human beings are capable of organizing and developing institutions that allow for sustainable resource use especially in common pool resources such as water and pasture among the pastoral communities (Haller et al., 2013). Common pool resources are the open access resources that everyone has got unrestricted access to in any community to allow for sustenance to occur. The common pool resources in communities are governed by common property systems which are established based on perceptions and knowledge of the actors. The common pool resources allow for open access for members and restricted access for non-members and they are scattered over wide ranges. Haller (2008) posits that in communities such as the pastoral ones where common property exists, the ownership of such property is bestowed on the local groups, villages, lineages or kinship groups which regulate access through authorization for members in the group and members from outside the group (Haller, 2002).

Institutions are, therefore, viewed both as formal and informal rules of the game. These institutions, through perceptions and knowledge, create incentives for groups and individuals that structure actions and interactions of actors especially with

economic activities to allow for collective action and sustainable resource use. The institutions enable individuals to form expectations about the others' conduct in a bid to encourage coordination and cooperation. Such institutions like the property rights systems or laws are developed by the state or the formal institutions, in this case the national government and the county governments. Others are developed by local communities that are then embedded into their cultures, religion, economic and social ways of life or, simply, what Haller (2002) refers to as the informal institutions, which enable transactions to occur.

The informal institutions have local actors who are in-charge because they establish rules and regulations about access towards the common pool resources. With the rules and regulations they develop institutions that cope with any challenge that they need to address through a continuous fit- misfit- and fit relationship. That is, the rules and regulations as well as the social norms, values, and attitudes that are established keep on changing with changing circumstances in order to accommodate the survival of the community. All this happens in the presence of resources such as time scales, quotas and technical regulations (Haller et al., 2013). Monitoring and sanctioning boards within the communities and societies exist to uphold the rules and regulations such as the council of elders, priests, and young men such as the warrior age classes. Furthermore, the societies and communities rely upon close-knit relations among members as monitoring and sanctioning devices (Haller, 2002). The transformation of institutions and their sustainability is, therefore, reliant on embracing an individual-actor approach, where institutional constraints, incentives, ideology and power dynamics exist (Ensminger, 1996).

Through collective action during challenges, the actions of agents and subjects will bring about a transformation of institutions into new institutions and commitments towards problem-solving are sustained (Ostrom, 1990). A relationship where perceptions and knowledge are utilized is then created allowing for the productive forces and production relations to flourish from a societal level. With time social rules are redefined and renewed but based on the material ground as a productive force. In other words, with changes in population density output does not decline but it forces the society to use new techniques and new institutional arrangements for its survival (Haller, 2002). Haller (2002) believes that for a society or social group to survive, the concern should not only be on the natural environment but should similarly include the institutions which govern and control the group's use of the natural environment.

### **2.8.2 Relevance of the Theory to the Study**

New institutionalism theory holds that institutions, whether formal or informal, are responsible for changes in rules and regulations which the actors, individuals with the power to act in a given manner, adhere to or conform with and even restructure them. This results in various perceptions of how pastoralism is practised and viewed. New institutionalism theory gives an explanation for interactions between individual actors and the ecosystem where formal and informal rules governing the use of resources and ensuring collective action is attained. It also explains the role that both formal and informal institutions co-operate and coordinate to ensure collective action and sustainable resource use and management. The theory is, therefore, relevant in order to allow for the study to establish the relationship that exists for the roles that various actors play in the pastoral food system and the perceptions that are held by various actors about the food system. Additionally, the theory describes how institutional

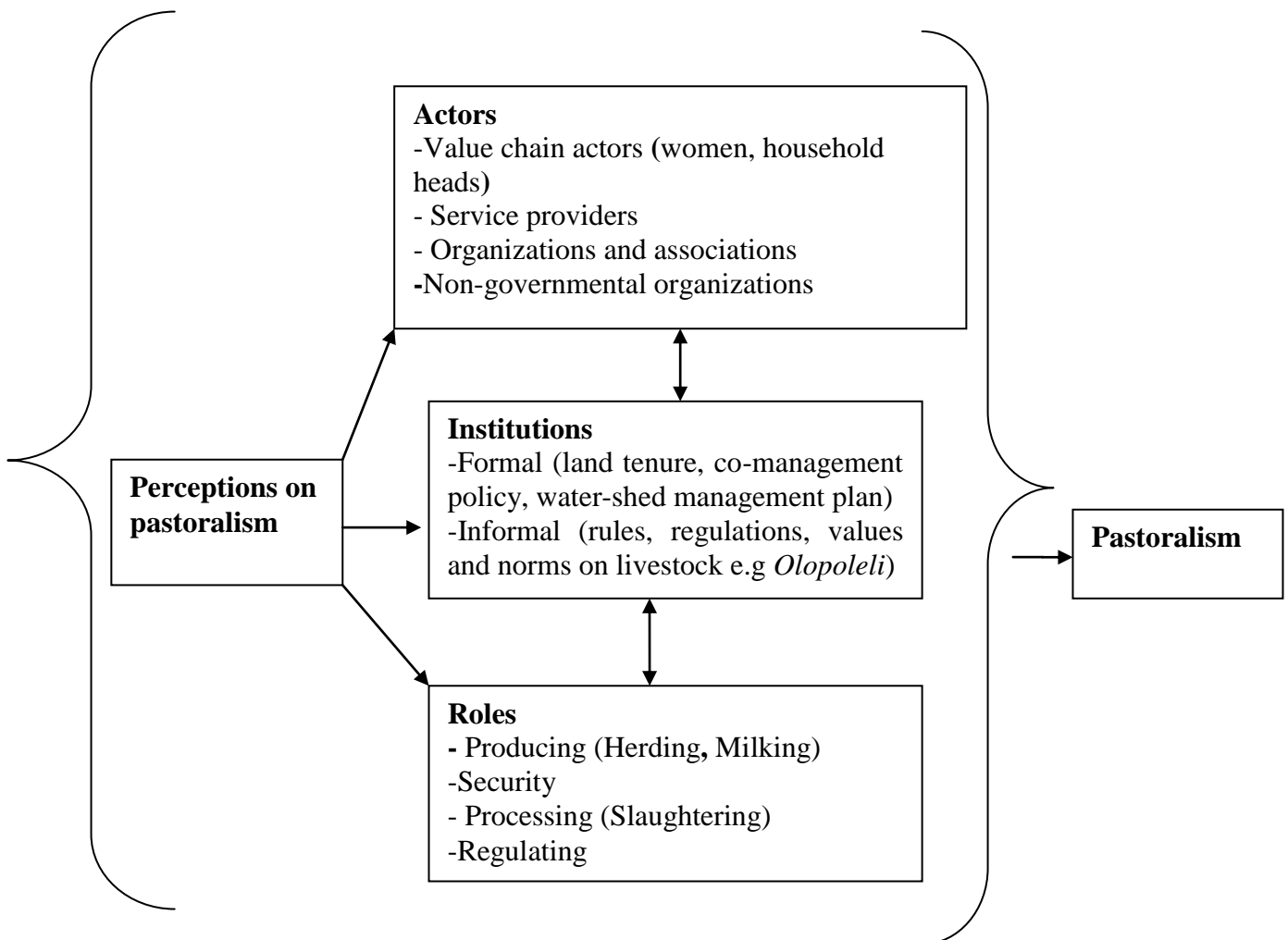
changes, both public and private, are transforming the pastoral food system to remain relevant and sustainable.

This theory offers an opportunity to look at the actor's action and the possible outcomes that he or she seeks and allows for aggregation of decisions taken by the actor to bring about institutional change. It helps in explaining the action-choice approach that the individual actor develops and how this leads to institutional changes and also the impact institutional changes have on the individual actor. In addition, the theory is relevant to the study in explaining the reasons why social and cultural institutions are still relevant in current pastoral food systems despite the continued neglect and pressures.

## **2.9 Conceptual Framework**

The conceptual framework that guided this study is as shown in Fig. 2.1. In relation to this study, for the pastoral food system to exist and be sustained there are perceptions about the significance of the food system that actors have to adhere to specified roles in pastoralism that are dictated by formal and informal rules of the game that exists in pastoralism. The actors include the Maasai pastoralists, traders in livestock and state actors (county and national government representatives), representatives of co-existing food systems (small-holder farmers), service providers (transporters, processors, distributors and food merchants), community leaders (council of elders, young men, *morans*, especially those forming the warrior age-groups, *Laibon*, women leaders, women groups) and others in Laikipia county who interact in the pastoral food system. A relationship exists between the actors in pastoralism with institutions (both formal and informal). Actors' Perceptions about pastoralism in relation to food sustainability influence the institutions that manage and regulate the food system.

Similarly, various actors will be influenced to engage in various processes of the food system based on the significance they perceive about pastoralism. These perceptions will also guide the establishment of roles for different actors. Institutions and actors interactions will be based on the capacity of actors in the food system to conform to rules, regulations and norms governing the use of CPRs leading to the modification of policies. In addition, the actors' interactions with the institutions will influence changes in rules and regulations that will lead to better management of CPRs and creation of new policies for the food system's sustainability. The institutions will also establish the roles that various actors will respond to in the pastoral food system. The actors through their set activities will respond to the roles within the food system.



**Figure 2.1 Conceptual Framework (Source: Author)**

## **CHAPTER THREE: METHODOLOGY**

### **3.1 Introduction**

This chapter presents the context within which the study was conducted. The chapter describes the research site, study design, study population and the unit of analysis, sample size and sampling procedures, data collection methods and analysis. In addition, it also discusses the ethical considerations of the study.

### **3.2 Research site**

This study was conducted in Laikipia County in the Rift Valley region of Kenya (Figure 3.1). According to the Kenya National Bureau of Statistics (KNBS, 2013), Laikipia County covers a surface area of 9,462 square kilometres with an estimated total population of 391,597 with 193,379 males and 198,218 females. This study was carried out in three administrative sub-counties of Laikipia East, Laikipia North and Laikipia West which are also geographically equivalent to the constituencies (GOK, 2015). The Maasai largely occupy the gazetted group ranches in Mukogodo East and West wards of Laikipia North sub-county and the forests of Rumuruti and Marmanet (Lind and Barrero, 2014; GOK, 2015).

The selection of the research site was based on the existence of the pastoralist zones, the presence of pastoral activities, and the predominant inhabitation of the sub-county by the Maasai pastoralists and the co-existence of the pastoral livelihood with other livelihood zones. According to the National Drought Management Authority (NDMA, 2017) the sub-county has four categories of livelihood zones: Mixed farming zones (MFZ), marginally mixed farming zones (MMFZ), pastoral zones (PZ) and the employed zones (EZ).



Laikipia lands consist of 20.5 per cent viable land for crop production while 79.5 per cent is unviable for crop production (GOK, 2015). Land is used variously; large-scale ranching takes up 37 per cent; pastoralism 32 per cent; 21 per cent for small-holder farmers, and five per cent for wildlife-based tourism (Butynski and De Jong, 2014).

Over the years, the patterns of pastoral food production, processing, distribution and consumption in Laikipia have been rapidly incorporated into larger food systems with many competing land uses and interests and a variety of domestic and foreign capital all having an impact on the pastoral livelihoods and opportunities. Therefore, evidence on how pastoral food systems and livelihoods have changed and continue to evolve in order to remain relevant can be established and used to establish the linkages pastoralism has with the other food systems (Lind and Barrero, 2014). Beyond that, Laikipia offers insights into what future pastoralism has in the face of intensified transition to an economy penetrated by capitalism and outside interests and connected to broader regional and national markets (Letai and Lind, 2013).

The Maasai people who are mainly nomads inhabit the larger Laikipia North Sub-county of Laikipia County. They are very much dependent on land and livestock for their upkeep and livelihood. Culturally, the Maasai identify themselves as all those who speak the *maa* language and they occupy the Great Rift Valley region in Kenya and are also found in the neighbouring country of Tanzania (Tarayia, 2004). In the Maasai community, initiation plays a major role in division of labour among the boys and girls. At the age of 5 years old, a boy begins to receive teachings from his father on how to care for and support the livestock family (Morner, 2006). In addition, at this early age the young boys herd calves, lambs and kids close to home while the

girls help the young children and their mothers in doing household chores (Tarayia, 2004).

When the boys are 10 years, they have learnt main responsibilities they have towards the livestock. In a bid to attain adulthood, both boys and girls undergo circumcision as a rite of passage. Age-related boys undergo group circumcision, a ceremony that signals a boy's transition from childhood to manhood. After circumcision, the age-related boys live together in a particular place isolated from their families as they bond together as warriors that the Maasai refer to as the *morans*. They learn their main responsibilities on how to defend their homes and livestock from wild animals and rival communities as well as search for new pasture for their livestock (Mornier, 2006). In regards to housing, the Maasai boys and girls live with their mothers in the houses built in large enclosures forming homesteads called *enkangs* that may have between twenty or thirty houses arranged in a circle. Their fathers, in most cases move in with their junior wives and young children to live in nearby almost identical houses of their own. These identical houses are in most cases surrounded by a thorn fence for protection and the Maasai livestock are usually penned-up in the middle of the enclosure at night (Tarayia, 2004).

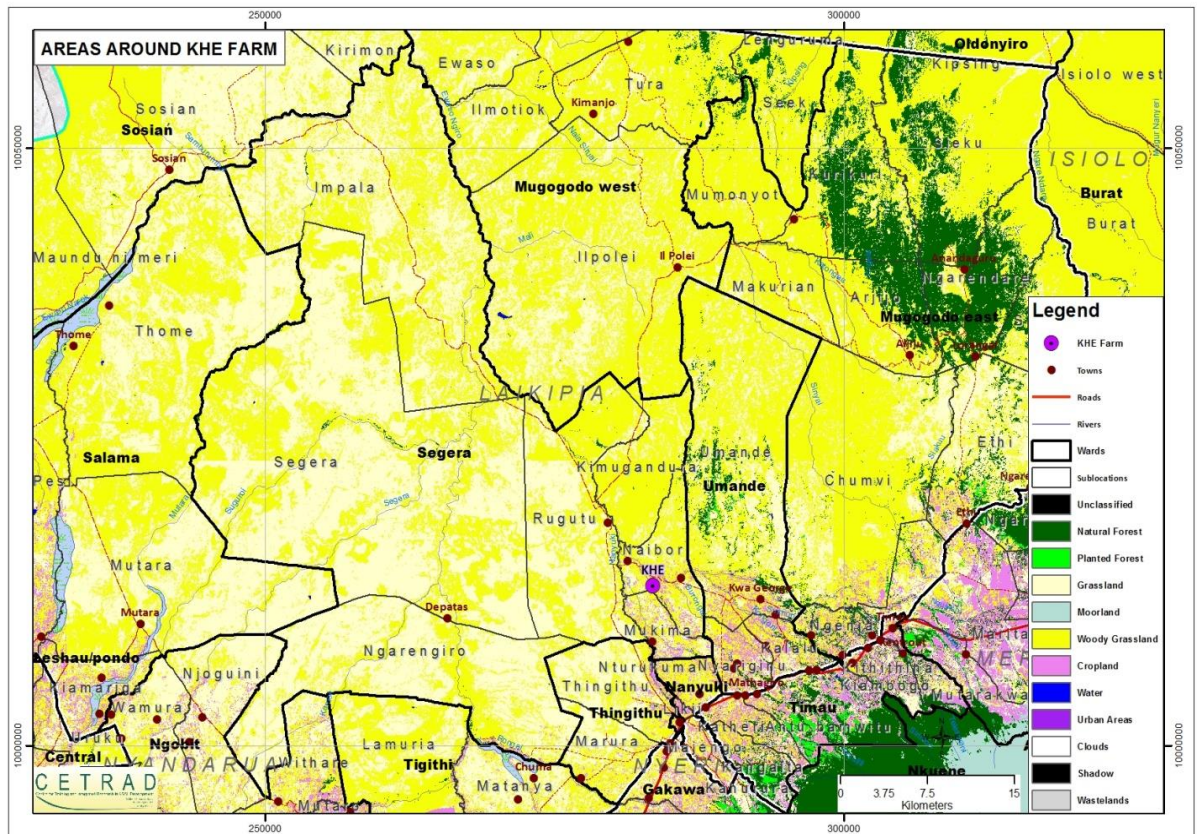


Figure 3.1: Map of the study area; Laikipia North sub-county (Source: CETRAD)

### 3.3 Research Design

The descriptive study design allowed for generation of in-depth information that makes addition to the existing knowledge on pastoralism from an anthropological perspective in Laikipia County of Kenya. The study relied upon: in-depth interviews with the pastoralists, and household and market observations in the preliminary and extensive research phases that ran concurrently. Key informant interviews for actors who interact with the pastoralists either directly or indirectly and focus group discussions with the youth, men and women pastoralists carried out in the extensive research phase. These research methods elicited data on: actors and their roles, actor perceptions on the food system and institutional settings and changes within the food system and effects of the changes on pastoralism. This led to the production of Qualitative data aligned to the research objectives.

### **3.4 Study population and unit of analysis**

The study population consisted of the Maasai community and other actors involved in the pastoral way of life whether directly or indirectly in Laikipia County.

The community constituted the unit of analysis of the food system.

### **3.5 Sample Size and Sampling Procedure**

The study sampled a total of 50 pastoral households. The 50 pastoral households were conveniently sampled. In the community group ranch of Ilpolei a total of 25 pastoral households were interviewed based on the availability and the willingness of the pastoral household members to participate in the study. Outside the community group ranches in the vast Segera ward a total of 25 pastoral households were also sampled based on the willingness and availability of the pastoral household members. The study used the list of all pastoral households that was obtained from the local chiefs in Laikipia North sub-county in Ilpolei Community Group Ranch as well as Naibor areas as a sampling frame.

### **3.6 Data collection methods**

The study involved collection of both primary and secondary data. The data collection methods utilized was as follows:

#### **3.6.1 In-depth interviews**

In-depth interviews were carried out in both the preliminary and extensive research phase to address the objectives on actors and their roles and perceptions of the food system. At the preliminary phase, five informal in-depth interviews alongside unstructured observations were conducted with participants identified through a local research assistant to mainly map actors to be targeted for the different interviews at the extensive research phase.

The pastoralists were the main participants in the interviews and were identified from two livelihood zones, namely, the pastoral zones of Mukogodo East and Mukogodo West Wards and the Marginally Mixed Farming Zones of Segera Ward. Twenty-five pastoralists were interviewed in each of these two livelihood zones. The in-depth interviews collected information on who are the actors at the household, community and county and national levels within pastoralism; what roles they play in the food system as well as their perceptions. The data was collected using an in-depth interview guide Appendix 2.

### **3.6.2 Unstructured Observation Method**

An observation guide was used to collect data on observable actor characteristics and their roles. Through the direct and indirect observations within the households and in the pastoral markets information on actors, roles played by actors and products gotten within the food system and how they are used was collected and recorded in field notes. Data from the observations reinforced information obtained through in-depth interviews at the preliminary and extensive research phases. An unstructured observation guide was used to collect the information, Appendix 3.

### **3.6.3 Key Informant Interviews**

Key informant interviews were conducted to mainly address the objective on institutional changes in the food system and their effects on pastoralism. The interviews also reinforced data obtained through in-depth interviews, unstructured observations and discussions on the actor, their roles and perceptions. A total of 15 key informant interviews were sampled from the county. The key informants included: state and non-state actors from the county and national levels. Other relevant participants were also included in the study to capture information relevant to

the study objectives. Key informant guides were used to collect the information, Appendix 4.

#### **3.6.4 Focus Group Discussions**

Focus group discussions were conducted with community level actors based in Mukogodo East ward. The focus group discussions responded to the research objectives on actor perceptions and institutional changes of the food system and the effects on pastoralism in Laikipia County. The three focus group discussions disaggregated by age and gender were conducted with 7men, 8women and 10 youth different from individuals who had participated in the in-depth interviews for the purpose of data triangulation.

The Focus Group discussants were purposively selected from the community members believed by the researcher to be knowledgeable about the subject under discussion. The youth group comprised of Morans in the age bracket of 21-25 years old while the men and women groups included individuals aged above 25 years and married. Audio recordings of the discussions with permission from the discussants were obtained. Data collected included; the recorded opinions of discussants and also notes taken during the discussions including basic demographic information of the discussants. The Focus Group Discussions were conducted using a focus group discussion guide, Appendix 5.

#### **3.6.5 Secondary resources**

Secondary data were obtain from already collected and published data from books, journals, theses, government (county and national) reports and other publications relevant to the research topic. This continued to be used throughout the study.

### **3.7 Data Processing and Analysis**

Qualitative data from the in-depth interviews, focus group discussions, unstructured observations and key informant interviews were recorded, transcribed and translated into English. Data from the field notes was also transcribed and organized into text for analysis alongside the audio transcripts. This qualitative data was analyzed thematically by manually coding and identification of emerging themes in line with study objectives. Direct quotations and narratives were used in presenting the findings.

### **3.8 Ethical Considerations**

This study adhered to the code of ethics in anthropological research. The study took into consideration the study population, the study subjects, the approving authorities and the agent. The researcher sought approval and permission from the National Commission for Science, Technology and Innovation (NACOSTI) and obtained verbal consent from the participants. The study population was well informed of their rights to choose to or not to participate in the study. They were also briefed on the nature of inquiry and its objectives. Interviews and discussions were conducted to the convenience of the participants and confidentiality was assured and maintained throughout the study.

The findings of the study will be disseminated and shared with the scientific community through publications. Copies of the final thesis will also be made available at the University of Nairobi Library for academic submission and reference.

## CHAPTER FOUR

### PASTORALISM IN LAIKIPIA COUNTY

#### 4.1 Introduction

This chapter presents the findings of the study on; the actors and their roles, their perceptions on the significance of pastoralism and the institutional settings and changes experienced in pastoralism in Laikipia County, Rift Valley, Kenya.

#### 4.2 Actors and their Roles in Pastoralism

Actors were identified through mapping informed by in-depth interviews and unstructured observations at the preliminary phase.

Actor roles were identified along the value chain through in-depth interviews and unstructured observations. These findings were reinforced with additional information from key informants and focus group discussants. The actors were identified based on their roles along the value chain as in Table 4.1.

**Table 4.1: Value chain actors at the household**

Actors	Production and consumption roles	Processing, Packaging and Distribution roles	Actors' decision-making
<b>Household Heads</b>	Overseeing management of livestock health (Spraying and dipping, injecting the livestock and purchasing veterinary drugs) Herding of livestock and hiring of herdsmen Coordination of livestock security Counting livestock Milking livestock in the absence of the woman and the girl child. Consumption of milk, meat and blood	Slaughtering selected livestock Selling of livestock manure	Decision on livestock sales and slaughter Provision of finances for household food supplementation Hiring and paying of herdsmen Delegating slaughtering of livestock to Morans/ herdsmen Delegating of livestock health management to Morans/ herdsmen
<b>Women</b>	Milking cows, sheep and goats Herding the small stocks Coordinating livestock hygiene like cleaning of sheds Identifying and separating the injured and sick livestock Consumption of milk, meat and blood	Preserving of meat by smoking and drying Processing milk to extract cooking oil and fermented milk [ <i>mala</i> ] Preparing of food including milk, blood and meat after slaughter Distribution of meat and milk for household consumption and for sale.	Decision on household food composition and supplementation In the absence of the household head; -Hiring and paying a herdsman -Injecting, spraying, herding and counting the livestock -Purchasing veterinary drugs
<b>First wives</b>	Head of own household. Delegation of livestock rearing duties to grand children Consumption of milk, meat and blood	Delegation of processing and distribution roles to son's wives	Decision on the sale of livestock Control of all the livestock



<b>Elders</b>	Advice on proper pasture lands for livestock Leading customary / ritual activities like pouring libation to summon the spirits to bring rain Consumption of milk, meat and blood	Not directly engaged in processing and distribution but offer guidance	Decision on livestock inheritance for distribution of among family members Control of entire homestead property especially livestock
<b>Morans</b>	Grazing the livestock Providing security to the livestock Administering the drugs, injecting and spraying livestock Consumption of milk, meat and blood	Slaughtering of livestock.	Lacks decision-making capacity on livestock and work mainly under authority of household heads
<b>Herdsmen</b>	Livestock herding. Administering the drugs, injecting and spraying livestock Fencing of livestock sheds. Provision of security to livestock. Consumption of milk, meat and blood	Slaughtering of livestock.	Lacks decision-making capacity on livestock but can decide to work or disengage as hired labour
<b>Young boys</b>	Herding small stocks (calves, goats and sheep) Milking of livestock Consumption of milk, meat and blood	Ensure the small stocks are counted in the absence of the girl child Separate the small stocks from the larger livestock in absence of the girl child	Lacks decision-making capacity and mainly work under authority of the household heads
<b>Young girls</b>	Separates small stocks from the larger livestock Herding small stocks near the household Fetching water for livestock and cleaning of sheds Counting the livestock Consumption of milk, meat and blood	Milking in the absence of the woman of the household	Lacks decision-making capacity and mainly work under supervision of their mothers

### 4.3 Value chain actors at household level and their roles

**Household heads:** The study results revealed that men among the Maasai pastoralists are the overall decision-makers at the household level as in Table 4.1. They make decisions to control livestock activities as the main source of livelihood. They define access to pasture and water for the livestock. In instances where they retreat to town centers in search of formal employment, they then delegate their roles to morans or hired herdsmen. Moreover, the household heads make decisions on the processing, distribution and consumption of livestock and its products for instance, when to slaughter a cow, a goat or sheep.

They were also found by the study to offer security to the livestock against wild animals especially at night and against outsider invasion and livestock health

management. When livestock diseases infest the livestock, in addition to seeking veterinary services they also use cultural methods as curative methods. Like in the case of mastitis they take elephant faeces and burn them while allowing the smoke from the burnt faeces to come into direct contact with the cow's udder. Roles of household heads are as reported by one man from a pastoral livelihood zone:

*They are the ones who are responsible for injecting and dipping the livestock especially the cattle because when it comes to injecting especially these cows and bulls, it is very hard for women, as the cows and bulls are strong with a tough skin and such livestock is left for the men to treat. This is because men can easily control them since they have the muscles and can subdue the animals. (Male, 31 years, IDI, Ilpolei).*

**Morans:** The study was informed that, these are mainly young unmarried men aged 21-25 within the households are given tasks often in the absence of the household head or by virtue of delegation. They are charged primarily with grazing the livestock, purchasing veterinary drugs, injecting and spraying, providing security and also slaughtering the livestock. The morans hence act under the authority of the household heads and are limited in their decision-making capacities in relation to the livestock.

**Young boys:** Study results demonstrated that, they are guided by both older men and women of the households in ensuring that they understand and execute their given roles such as herding small stock. This limits their decision-making but also provides an opportunity for molding them into the pastoral food system and the livestock keeping process. A male informant from Mutirithia region when asked about the roles of the young boys had this to say:

*Young boys who are of age and who have not undergone initiation, help in milking the livestock. They also herd the young goats and sheep. Young boys who are old enough as from 10 years and above graze the livestock. They also help in cleaning the livestock sheds. (Male, 28years, IDI, Mutirithia).*

**Herdsmen:** The study results revealed that, they are Maasai pastoral men who do not own any personal livestock and have little or no formal education that can allow them to seek formal employment. Herdsmen carry out household heads' delegated livestock roles at a monthly pay. These delegated household heads' roles included: livestock disease management of foot and mouth disease (FMD), anthrax, brucellosis, East Coast Fever and pneumonia; livestock management through fencing of livestock sheds, security provision, slaughtering and counting of the household livestock before and after grazing. In the absence of the woman of the household, the herdsmen also milk the livestock as a special role as illustrated by an excerpt from a youth focus group discussion:

*Livestock are beneficial as they currently create employment for men and morans who are unable to go to towns and get formal employment. Those who remain behind and have no livestock are being employed as herdsmen by those who have left for town centres. More often herdsmen are those men who dropped out of school but for those who have finished secondary school education for morans they leave for town centres in search of office jobs. (Youth FGD, males, Ilpolei).*

**Women:** The study found that women are mainly responsible for milking the livestock. From practice, it is usually done twice a day; early in the morning before they are taken to the grazing fields and in the evening when they are brought back by the men, herders or morans. Women are seen to have a higher bargaining power with regards to milk use and disposal of the product's surplus. They decide on the use of the milk within and outside the household including; how much milk to preserve for future use. Women decide to sell off any surplus milk supply from the household level in available community livestock markets and town centers. In community livestock markets such as Doldol and Kimanjo the women bring fermented milk that they sell off as a beverage to livestock traders, brokers and other actors engaged in livestock marketing activities on specified market days. Women also rely on

numerous skills in meat preservation techniques like smoking, roasting and frying to preserve the meat for a period more than 20 days. Moreover, women also process and conserve the surplus milk through fermentation process that is significantly regarded as the best beverage to give to a guest when they visit commonly referred to as *mala*.

The study was also informed that women are also tasked with ensuring the hygiene of livestock sheds and the identification / separation of injured and sick livestock. In the absence of the household heads, women also perform special roles including being in-charge of herding the livestock in situations where the men cannot hire herdsmen and morans are in school. Outside the community group ranches, women herd the small stocks such as sheep and goats and are primarily concerned with fulfilling household chores. Women use livestock skins as a source of beddings especially for the elderly women. They reserve the right to on the use of the skins including on whether to sell.

**First wives:** In the community group ranches where men marry more than one wife, the study found that the first wives take charge of household livestock as the men move to live in nearby compounds with their junior wives. In this way, the first wives then tend to have an influence and a role to play in food system. In this scenario, women have to decide on the sale of livestock and can delegate roles such as milking roles to her son's wives and grazing of young livestock like calves to her grandchildren.

**Young girls:** They are usually aged 7-12 years and were found by the study carrying out roles delegated to them by older women and these roles are defined in relation to the roles that the women of the household have to play in livestock keeping. The girls are considered to be young with no decision-making power and only execute orders

handed down to them. A male informant when asked about the roles of young girls within the value chain had this to say:

*Young girls fetch water, clean the livestock sheds, help in counting the livestock when they come from the grazing fields, give the livestock water, look after the young goats and lambs which are left to graze here at home. They also help in milking if they are old enough. (Male, 25 years, IDI, Ilpolei).*

**Elders:** In the community group ranches, the study revealed that the senior most members of the family usually considered as elders in particular the elderly men are in most cases the main controllers of the entire homesteads and resources. Pastoral homesteads are usually a collection of a number of households belonging to the married sons of the elderly man. In some circumstances, with special considerations, the homesteads may contain a married daughter's household especially when she comes back and claims that the husband is not a good provider.

The study further demonstrated that elders make decisions regarding which livestock will be sold and inherited by whom. They are also responsible for community religious ceremonies like the pouring libation to thank or ask God for rains. Their role is mainly advisory and for guidance on food system activities. For instance, discussants in one of the FGDs indicated this as shown in the following excerpt:

*In some cases when we have long spells of drought we set aside grazing land to allow growth grass to grow and we direct people to graze in specifically designated areas. The areas are selected during the rainy periods so that during the dry periods, the livestock, especially cattle, can be taken to graze in the pasture areas that were secluded. We also sit and decide and say how to punish someone who takes their cattle into the secluded lands such as taking a he-goat from them. (FGD with men, males, Ilpolei).*

Other discussants in a youth focus group discussion with morans had this to say:

*The elders can say that we have a very big land and they will say that from that mountain no cattle and other livestock should go to ensure that grass can grow. When it comes to water they may decide that no one's goats and/or any other livestock should be taken to drink water from a given water source that*

*is available. As regards negotiations with other groups, the elders act on behalf of the community and will go and talk to the elders in the opposite camp in order to gain access to the areas under their jurisdiction. (Youth FGD, males, Ilpolei).*

Within the marginally mixed farming zones of Segera ward where pastoralists are also found, the study results indicated that elders do not control homesteads and resources there in. This is because in the more urban settings the pastoral membership is diverse with representation of different Maasai clans from different community group ranches and in addition, individual land ownership has diminished the elders' roles. Within such areas the influence of the elders on property and inheritance is extremely diminished.

#### **4.4 State, non-state and service providers as actors in pastoralism**

The study found that state, non-state and service providers are directly and indirectly involved in the food system activities and processes as government representatives, organizations and associations, non-governmental organizations and service providers affiliated to the pastoralists as illustrated in Table 4.2.

**Table 4.2: State, non-state and service providers as actors in pastoralism**

<b>Actors</b>	<b>Roles within the Value chain</b>
<b>Organizations and associations</b>	
<b>Laikipia Livestock marketing Authority</b>	Offer pastoral members with employment opportunities. Provides livestock inputs Promotes use of drought resistant breeds Promotes use of slaughterhouse Promotes co-management of livestock markets. Regulates community development projects such as hay production projects.
<b>Community ranch management groups</b>	Obtaining approvals for income-generating activities Paying of herdsmen accompanying the livestock Making grazing agreements with private ranches such as sand harvesting Managing the common pool resources mainly water and pasture
<b>Credit Associations</b>	Provides financial services such as loans to pastoral actors. Provides money transfer services such as M-pesa.
<b>Loata Sand Dealers' cooperative society</b>	Managing income-generated from sand harvesting activities. Re-investment of the income into community projects on education and employment
<b>Twala women group</b>	Provide participation of women in pastoralism
<b>State Actors</b>	
<b>Veterinary officers</b>	Conducting training with pastoralists on proper use of veterinary medicines for their livestock Conducting disease surveillance in livestock markets and stock routes Inspecting meat at the slaughterhouse before release for public consumption
<b>Livestock production officers</b>	Training on proper animal husbandry Advising pastoralists on good markets to sale off their livestock.

	Offering extension services Advice the pastoralists on the importance of having livestock marketing authorities. Advice on proper rangeland use and combating the invasive <i>Opuntia</i> plant species
<b>Police officers</b>	Providing security in livestock markets
<b>County market officials</b>	Collecting sales taxes on behalf of the county government
<b>County slaughterhouse management groups</b>	Providing health assurance on pastoral livestock products to consumers Ensuring processed pastoral foods meet all the legal requirements before release to the general public
<b>Agricultural sector development support programme (ASDSP)</b>	Emphasis on use of machines to weigh livestock products before selling them off Emphasis on the formation of Livestock marketing authorities Advocating for the use of quality inputs in livestock rearing
<b>Non-state actors</b>	
<b>Non-governmental organizations working with pastoralists in Laikipia County</b>	Improving financial services Improving the infrastructural settings of livestock markets Advocating for the concept of co-management of livestock markets Eradicating invasive plant through community participation Advocating for proper pasture and water management Emphasis on observation of carrying capacity and utilization of holistic management Empowering pastoralists to explore alternative income-generation
<b>Service providers</b>	
<b>Livestock brokers</b>	Purchase of livestock Rearing acquired livestock to sell at a later date as live or dead weight Processing livestock from markets through slaughtering into livestock products like meat Distributing processed livestock products to butchers within the county
<b>Livestock Buyers</b>	Purchase livestock from pastoral markets Processing livestock from markets into dead weight (livestock products like meat) at slaughterhouses. Distributions of livestock products to customers in designated markets within and outside the county of Laikipia.
<b>Food merchants</b>	Purchasing livestock and livestock products mainly milk. Selling food and livestock products including meat and milk
<b>Agro-vets</b>	Assess, diagnose and advise pastoralists on livestock diseases Sell veterinary drugs in livestock markets and town centres.
<b>Livestock transporters</b>	Contracted by Livestock buyers Ferrying of livestock and livestock products from livestock markets
<b>Livestock loaders</b>	Hired casually by livestock buyers Pack livestock onto waiting vehicles
<b>Livestock clerks</b>	Employed by Laikipia livestock marketing authority Count the number of livestock purchased in livestock markets.

#### 4.4.1 Organizations and Associations as value chain actors

The study was also informed of organizations and associations that regulate and provide services like finance that encourage livestock rearing and trade within the food system by linking actors to the pastoral community.

**Laikipia Livestock Marketing Authority:** It is a community-led organization that was revealed as encouraging community participation in regulating livestock trade through Livestock Marketing Authorities (LMAs). The LMAs emphasis on the

adoption of the core concept of co-management of livestock markets that guarantee increased pastoral involvement in livestock marketing in the pastoral counties of Isiolo, Samburu and Laikipia. In Laikipia County, the Laikipia Livestock Marketing Authority (LLMA) operates in available livestock markets encouraging equitable distribution of collected sales tax between the pastoral communities and county government. The community share is controlled by the LLMA leadership which ploughs it into agreed upon community projects through public participation such as education of the pastoral children. An officer of the authority reported that:

*The fifty per cent that is left with the authority is used differently; ten per cent is used to pay counting clerks such as me and other employees of the authority. Twenty per cent is left with the authority as savings while the other twenty per cent is used on community initiated projects such as giving bursaries to school going children in the community like here in Kimanjo, investing in bee keeping, hay production and building of slaughter houses. The amount collected is also used to improve the community's infrastructure. (Male, 37 years, KII, Kimanjo).*

**Community ranch management groups:** They are associations that the study results found to be concerned with regulating the utilization of community resources especially available pastureland and water. They rely on group constitutions that divide the community group ranch lands into: grazing zones, settlement zones and conservation zones. To avoid depletion of resources community ranch management groups encourage holistic management of available grazing lands in the 13 community group ranches in the larger Laikipia North sub-county. A Veterinary Health Officer reported that:

*We have only 13 community group ranches in Laikipia North sub-county. These are Ilpolei, Kijabe, Lekuruki, Makurian, Ilgwesi, Morupusi, Kurikuri, Munichoi, Musul, Tiamut, Koija, Ilmotiok and Nkilorit group ranches. (Male, KII, Doldol).*



They also provide alternatives to limited pasturelands to members through making agreements with private ranchers like Oljogi for pastoral livestock to graze at a fee in privately-owned ranches. Additionally, the groups regulate income-generating activities like sand harvesting and camping sites for tourists. Moreover, they also obtain necessary approvals from government regulatory authorities. For example, the Ilpolei community group ranch management liaises with the National Environmental Management Authority (NEMA) to obtain environmental safety assessment certifications for sand harvesting activities.

**Credit associations:** They are community-led financial institutions notably, Nasaruni Rural Sacco providing financial services such as money transfer services and loans to the food system actors in the absence of national and international finance institutions that the study was informed of. They facilitate livestock trade through provision of M-Pesa services to actors in livestock markets. In addition, allows the pastoralists to use livestock as collateral to obtain loans and also liaising with established banks in Nanyuki town for easy access to money for pastoral actors in the group ranches. A manager from Nasaruni Rural Sacco had this to say:

*The pastoralists are mostly involved in selling and buying of livestock and as Nasaruni Rural Sacco we offer varied loan packages to them and other to allow them participate continuously in livestock trade. We offer: developmental, educational and emergency loans. Developmental loans are used in building permanent houses to replace the pastoralists' grass-thatched manyattas. Educational loans pay their children's school fees especially in the month of January when livestock market prices have fluctuated and most are experiencing low sales. This prevents them from selling off their livestock at low prices and they can sale their livestock later when the prices are better and profitable. We also offer emergency loans to pastoralists to cater for hospital bills or pay possible court fines. However, the emergency loans are more applicable in medical emergencies. (Manager, Nasaruni Rural Sacco, KII, Kimanjo).*

**Loata Sand Dealers' Cooperative Society:** A financial service provider that the study results found concerned with regulating and redistribution of income generated from sand harvesting conducted in five group ranches and other privately-owned ranches. The income is directed to pastoral projects targeting education and employment for the youth, women and men in the group ranches. One such project among the youth is the building of accommodation facilities in town centres (like Ilpolei) which are link towns to livestock markets as elaborated in the excerpt:

*As a cooperative society we are tasked with pricing of sand harvested by big harvesters from Nanyuki town and other areas. The cooperative society is an entity with membership from 5 group ranches of Ilpolei, Munichoi, Morupusi, Kurikuri and Makurian where sand harvesting taking place. It ensures that all member groups equally benefit from the sand harvesting and the benefits are utilized for economic growth. Moreover, we also extend our membership to private ranches of Murogo, Kitarpei, Silagan, Leruk, and Molo. We then ensure that every group ranch gets 26 lorries which the group ranch chairman organizes the groups of men, women and morans and allocates the lorries per group and they benefit from the sand harvesting tax they collect and inject into respective projects. For the private ranches we allocate five lorries per ranch so that they can also benefit from the proceeds of sand harvesting from their own ranches. (Manager, Loata Sand Dealers' cooperative society, KII, Ilpolei).*

**Twala Women Group:** It is a women's group that the study results showed that it provides services such as education to the girl-child aimed at outlining the significant role of girls and women in the food system. Outside the community group ranches the Laikipia Permaculture Centre (LPC) works with women groups in community group ranches such as Twala Women Group advocating for a holistic management of pastoral lands and strict observation of the carrying capacity of the rangelands available. They also emphasis on the reliance on alternative sources of income such as bee-keeping, growing aloe vera, establishment of bead galleries and other income-generating activities like conference halls and accommodation cottages. The Manager of Twala Cultural Centre had this to say:

*We started Twala Cultural Centre because as women we do all the domestic work. We are responsible for taking care of the livestock by cleaning the livestock sheds, milking, taking care of sick and injured livestock but we barely benefit from them directly. We are not allowed to sell even a goat as our tradition prohibits us and recognizes men as the sole livestock. So they are allowed to sell the livestock and when they do sell we cannot even get some of the money for our own development projects that benefit us as women. All we get is little money from the sale of small products such as milk or manure and livestock skins but the chunk of the money goes to the owners. So as women we decided to wake up and start our own group where we rear our own livestock and carry out income generating activities such as renting out cottages, growing aloe vera and providing conference facilities that would ensure we get money for our children to go to school especially girls and we started this in 2007. (Manager, Twala Cultural Centre, KII, Ilpolei).*

#### **4.4.2 State actors**

The results revealed that, these are national and county government actors, who regulate, process, distribute, provide services and add to the consumption in pastoralism as results of the study established. They are either employees of the County or national governments working with the food system.

**Police officers:** They are employees of national government that the study found to be tasked with providing security to people and property. They work with county governments to provide security to pastoral communities. They patrol the livestock markets and secure the trading environment and interests of food system actors. The police officers handle any case of livestock theft and arrest suspected individuals to reinforce the law on free and fair trade. A male livestock broker stated that:

*The police are responsible for security. As we go about trading you can see the police moving around and ensuring that anyone caught stealing is dealt with. They also ensure that you get your true sales and nobody takes advantage of you and that is why it is easy for us to get involved in livestock trading. (Male, 32 years, KII, Kimanjo).*

**County market officials:** The study found that, they are government employees who represent the county government in livestock markets through sales tax collection from buyers and livestock sellers. They also sit down with the Laikipia Livestock

Marketing Authority (LLMA) to equally share the day's collections. A clerk at LLMA had this to say:

*The county government is involved in collecting sales tax through county livestock market officials. They tax 30 shillings per goat and per sheep bought and sold which is paid by the buyer and sellers of the livestock. For cattle, they take 200 shillings from the buyer and from the seller. (Male, 24 years, KII, Doldol).*

**Livestock counting clerks:** They are employees of the Laikipia livestock marketing authority that were found to carry out physical counts of livestock in the markets. They keep tabs on loaded livestock bought by livestock buyers. They also work closely with county market officials to ensure that the buyers and sellers pay sales tax as per the number of livestock bought or sold.

**Veterinary officers:** They are county government employees who provide livestock disease control that the study was notified of. They mainly conduct regular vaccination drives, training of pastoralists on proper use of veterinary drugs and impose quarantines in the event of detectable notifiable diseases in the food system. They also conduct disease surveillance along the two main stock routes and livestock markets in Laikipia North sub-county given that these are areas with high and frequent human-livestock interactions a key marker for disease surveillance. The veterinary officers also conduct meat inspections in slaughterhouses for declaration as fit for human consumption.

**Livestock production officers:** The study was informed of county government employees who provide animal production, livestock marketing, rangeland management and extension services to the food system. In animal production, they train pastoralists on proper animal husbandry methods which include: the best drought resistant breeds to stock, the best livestock feeding practises, the right dewormers to

use and proper livestock housing structures to have. In livestock marketing, pastoralists are advised on the right livestock markets to sell off their livestock and the need to form Livestock Marketing Authorities. With regards to rangeland management actors are advised on how to maximize and utilize the rangelands effectively and also deal with the menace of receding rangelands caused by the invasive plant species of *Opuntia*. Similarly, extension services are offered to actors with an emphasis on api-culture. Plate 4.1 shows the *Opuntia* invasive plant species and its adverse effects on pasture lands.



**Plate 4.1: A photo of the *Opuntia* invasive plant on the left and its adverse effects on the group ranch land on the right.**

**Slaughter house management groups:** The study found that they are employees of the county government and are in-charge of the day-to-day operations in both the public and privately-owned slaughterhouses. They work with a team of skinners, slaughterers and meat inspectors to declare livestock products either fit or unfit for human consumption. The group actively processes pastoral food through slaughterhouse operations and ensure the food meets the required health standards.

They also ensure that food transportation meets all the safety and legal requirements before being transported to desired destinations. Additionally, they ensure proper handling of unfit processed foods and distribution of processed foods to the required consumers. A female butcher in JuaKali town had this to say:

*After I purchase a goat from the pastoralists or Naibor livestock market, I take it to a slaughter house. The nearest slaughter house we have is a privately-owned slaughterhouse. The other slaughterhouses are in Nanyuki town which is very far from here. In the slaughterhouse here in Juakali town, a veterinary officer from Timau area inspects the goat after a Muslim has slaughtered it. He inspects the meat and the green offals (matumbo) and red offals and declares them fit or unfit for human consumption. If declared fit, I sell to the residents of Juakali town to prepare in their homes based on the kilo scaling, for example, half a kilo of goat meat goes for 200 shillings. I also prepare the meat and serve it to customers accompanied with chapati, rice or ugali. (Female, 37 years, KII, Juakali).*

**Agricultural sector Development Support Programme:** Study results revealed that they are national actors linked to the ministry of agriculture implementing the agricultural sector development plan, a flagship project of Kenya's vision 2030. They are hosted within the county government and are involved in the formulation and activation of agriculture products value chains including that of beef and milk. They work with pastoralists to increase market value for their livestock and products. They encourage pastoralists to enhance value of their livestock and products trading by applying weighing scale measurements. They also work with pastoralists to introduce drought resistant livestock breeds. They work with pastoralists and other stakeholders in the formation of marketing associations such as the Laikipia Livestock Marketing Authority and promote electronic marketing of livestock and products.

Furthermore, the study findings showed that they advocate for the use of quality inputs in livestock rearing such as dewormers and salts and discouraged from purchasing such inputs from the stockists (open markets) that have been exposed to

poor storage and high temperatures rendering the products to be of low quality. For access to quality inputs they encourage the food system actors to invest in building of agro-vets that are operated by the Laikipia Livestock Marketing Authority.

#### **4.4.3 Non-state actors in pastoralism**

The study was notified of non-governmental organizations that regulate and provide financial services that directly and indirectly influence the operations of pastoralism. These actors included: *Regenesis Limited*, African Wildlife Foundation (AWF), the Netherlands Development Organization (SNV), and the Regional Pastoral Livelihoods Resilience project (RPLRP), Laikipia Permaculture centre (LPC) and the African Conservation Centre (ACC). These actors provide: financial support for credit facilities and alternative income generation; improvement of the market infrastructure; adoption of livestock markets co-management; countering the adverse effects of the invasive *Opuntia* on the rangelands and advocacy for proper management of pasture lands.

#### **4.4.4 Service providers in pastoralism**

**Agro-vets:** The study found that there are entrepreneurial, qualified and experienced veterinary officers situated near livestock markets such as Doldol and Kimanjo and in town centres of Ilpolei and Juakali who contribute towards livestock's health through provision of veterinary drugs. Others are itinerant and frequent the county during market days to sell off their veterinary drugs. The agro-vets also engage in short consultation service provision with the pastoralists before prescribing any veterinary drug. A certified freelance veterinarian operating in Laikipia County markets, who was a key informant, from Nyeri County reported thus:

*I operate my mobile agro-vet store targeting livestock keepers in various livestock markets that they attend. It is not stationed here in Kimanjo market*

*or any other one market but I go from one market to another depending on the market day. I have been selling my veterinary drugs to the pastoralists for over 5 years. I sell dewormers and acaricides mostly to livestock keepers from these pastoral regions of Kimanjo and other areas with livestock markets such as Doldol, Naibor and I even cross over into Isiolo County to sell in Oldonyiro market. (Female, 28 years, KII, Kimanjo).*

The study also indicated that, there are few non-qualified agro-vets/stockists with cheap and low quality veterinary drugs and supplies. These stockists lack proper knowledge on handling, storage and prescription of veterinary drugs and supplies and often sell abused products to unknowing pastoralists.

**Food Merchants:** The study findings indicated that there are local butchers, hoteliers and milk vendors found within the town centres nearing the pastoral zones. In town centres such as Ilpolei, Juakali, Naibor and Doldol the women sell off surplus fresh household milk to butchers and hoteliers. The food merchants purchase livestock and its products mainly goats and milk from the pastoralists and process them for sale. Local butchers and hoteliers sell raw livestock products as well as ready-to-eat food to town centre residents and other pastoral actors heading for livestock markets. The livestock is taken to slaughterhouses for inspection, butchering and declaration as meat fit for human consumption. Milk is sold as readymade tea and other processed milk beverages. It is also sold in varying quantities to customers who prefer to purchase fresh milk as a raw product.

**Livestock Brokers:** The study was also informed that, there are young and middle-aged pastoral men and women operating in livestock markets. They are skilled in livestock trade with good bargaining skills allowing them to buy livestock from fellow pastoralists at lower asking price and later resell to livestock buyers and butchers at a profit. In some instances, the livestock brokers rear the livestock for a



period of time before reselling them at a later date to either livestock buyers in livestock markets or to butchers at slaughterhouses. For livestock brokers they are driven by profit-maximization in their livestock transactions. A female livestock broker from Kimanjo market had this to say:

*I buy and sell; goats and sheep due to their high demand among butchers and other livestock buyers. I buy the young livestock and take care of them until they mature and later sell them. I ensure I treat the kids and lambs against livestock diseases, give them dewormers and salt, graze them and when they grow and gain weight I sale them off to willing buyers from Nairobi, Nyeri and Karatina who visit Kimanjo market and at the Nanyuki slaughter house. I also sell them to Doldol slaughter house when I need a better price than what the markets offer me as I prefer to sell at a wholesale price. (Female, 32 years, KII, Kimanjo).*

**Livestock buyers:** The study was notified of individuals, mostly from outside the pastoral zones who trade in livestock. These buyers come to livestock markets from as far as Nairobi City County to participate in trading at Kimanjo, Doldol, Naibor, Rumuruti and Ngarengiro as well as markets in the neighbouring county of Isiolo namely, Oldonyiro and Kipsing. They mostly buy cattle, goats and sheep and a few camels. The buyers buy livestock with the intention of processing into meat and other products to maximize on profit. The processed food targets urban markets where there is a high customer base and demand. The processing is done through slaughterhouses and products supplied to butcheries, supermarkets, food outlets, hotels, and institutions with existing business arrangements. Their customers' base is spread across destinations markets in Laikipia, Nyeri, Murang'a and Nairobi counties as illustrated in the excerpt:

*I buy camels from the livestock markets here in Laikipia County and transport them to Huruma slaughter house in Nairobi City County. After slaughtering the camels, I supply the meat to hotels and restaurants in Eastleigh, South B and South C where members of the Somali ethnic group are found and love to indulge in camel meat. (Male, 70 years, KII, Kimanjo).*

**Livestock loaders:** They are young pastoral men with limited education who were found by the study to provide livestock loading services in livestock markets. They

are employed casually by livestock buyers during market days and earn a daily wage from systematically packing livestock onto waiting buyer trucks.

**Livestock transporters:** They are businessmen that the study showed that, they provide transport services to livestock buyers for purchased livestock from markets to desired designations within and outside the county of Laikipia. Within the county of Laikipia, they transport the purchased livestock to areas like Endana and Nanyuki town. Outside the county of Laikipia the livestock is transported to Nyeri, Nairobi, Karatina, Murang'a and other areas as well as to slaughterhouses and farms for breeding purposes before selling off in other available profitable markets.

#### **4.3 Perceptions on the significance of Pastoralism**

This section outlines the perceptions about pastoralism as a food system held by value chain actors at the household and state, non-state and service providers as actors. It describes the values, beliefs, social and symbolic significance of pastoralism.

##### **4.3.1 Perceptions of value chain actors at the household**

The study findings demonstrate that, pastoralists identified as value chain actors in this study have numerous perceptions about the food system. These perceptions are expressed as cultural and social beliefs entrenched in their way of life. The pastoralists view pastoralism as an adequate food getting system. To construct their diet they get milk, meat, blood and oil directly from the food system and also sell livestock and by-products and use the income to supplement their nutritional and other needs. They regard household heads as the sole owners of the livestock and inheritance is through the male lineage. Men are considered the custodians of the lineage and thus assume control over property and household headship in the Maasai culture.

The study results further indicated that the household heads in the food system hold the belief that all livestock on earth belongs to them. This belief is even expressed in their food consumption practises. Since pastoralists believe that sole ownership of cattle is granted to them by the creator, *Ngai*, God, consumption of meat is therefore a social process that is engendered with men and women eating different parts as is culturally determined. For example, household heads consume: the head, right limb and throat; the morans, the future owners and leaders consume: the neck, chest and ribs. Women, despite their high level of involvement in livestock rearing activities consume the intestines and the left front limbs as they are less regarded in livestock ownership. Young girls consume the back meat while the older women seen as consume the lower back meat and the tail as they are valued for the role they play in the continuity of the community.

Livestock is regarded as a source of prestige and thus, the more a household accumulates the more respect and acknowledgement they get as the study found. Additionally, the art of livestock rearing and accumulation is a measure of wealth. They believe that certain livestock colours signify affluence and hence should not just be sold off. For instance, among the *Irkinyango* clan the brown coloured cattle are regarded as a source of endless wealth and as they are capable of reproducing rapidly and are only sold after breeding at least five times. Selling of such coloured cattle is comparable to inviting poverty into the community and household.

The results from the study also showed that, the community also had a preference for the white and black coloured goats as they reproduce quickly increasing one's wealth and thus, regarded as a source of blessings. The study also found that the community argues that livestock is a source of currency. When sold the proceeds help meet basic household needs like purchasing of foodstuffs to supplement their diets, paying

tuition, providing start-up capital for businesses and catering for medical emergencies. Moreover, they also value livestock as a source of development. Financial associations like Nasaruni Rural Sacco accept livestock as collateral hence, allowing pastoralists to access loans. Given the communities value of livestock for prestige, wealth and income, many households have accumulated as many livestock as possible. This however, is resulting into pressure on the carrying capacity of the rangelands.

The study findings also demonstrated that, the foundations of the nuclear family in pastoralism are pegged on how a man's wealth that is measured by the number of livestock accumulated. For one, to a form family that they require livestock to pay bride price and acquire a wife. For the household heads with many livestock they can acquire several wives and establish new compounds especially within the community group ranches. Livestock notably, cattle and shoats (goats and sheep), are used as bride wealth. For example, a sheep is given to the mother-in-law by the son-in-law to seek for blessings and prosperity for his new established family.

Livestock are seen to be key markers of ceremonies and important events in the community like marriages as the study results informed. For instance, a marriage ceremony is only sealed when a white coloured sheep with black stripes around the neck is slaughtered to symbolize the unbreakable bond of the marriage union between husband and wife. For initiation ceremonies to bless the initiates and form an unbreakable bond with the livestock a black coloured goat is slaughtered and the initiate is allowed to sleep on the hide and bleed on it as a symbolic gesture to mark the unity between the livestock and initiates.

The study findings also revealed that livestock products such as milk, blood and meat have social significance in pastoralism. Household heads and elders use milk to bless initiates. They also use it as libation when appeasing the gods like during the dry periods to summon them to bring rains. Women use the milk as medicine when they mix it with some special herbs and administer it to their children to prevent and treat coughs and influenza. Women also regard milk as the best and safest cooking oil compared to industrially processed oils and fats. They process the milk and extract cooking oil. The household heads additionally use the extracted oil in ritualistic ceremonies like initiation.

The study found that, the community values blood as a re-energizing product usually given to invalids. The blood is administered as a drink in company of special herbs and milk. For example, it is administered to women after child birth. Household heads administer the blood together with meat to sick members as medicine.

#### **4.3.2 Perceptions of state, non-state and service providers as actors in pastoralism**

The study results demonstrated that veterinary officers point to the use of cultural methods in livestock disease control which they disregard as they do not treat the disease and hence endangers the livestock with a possibility of causing outbreak if not contained. The Maasai use a burning bird nest on the cow's udder as a treatment for mastitis which according to veterinary officers does not work. The Agricultural Sector Development Support Programme (ASDSP) working with veterinary officers' advocate for the direct sourcing of proper livestock inputs in pastoralism and advice against overreliance on small-scale agro-vets who have low quality inputs. The community's practice of that relegates the role of herding sheep and goats to women

has informed the ASDSP perception of the beef value chain in pastoralism. The sector has developed the beef value chain of sheep and goats believed to be household livestock. This is to cater for women's access to benefits as both genders are directly involved in production at the household level and can thus gain.

The study also illustrated that livestock production officers regard the practice by pastoralists to accumulate livestock as a sign of wealth as being harmful to the ecosystem. According to them it creates pressure on the carrying capacity of the rangelands. The non-governmental organizations and service providers regard pastoralism as a source of employment for pastoralists and a means of financing community development. They consider the community as key stakeholders in community development as well as in business.

#### **4.4 Institutional Changes in Pastoralism**

Largely, the sub-county of Laikipia North has been and continuous to be dependent on the pastoral food system amid numerous formal and informal institutional changes. The institutional changes in the food system occur on three levels: within the community group ranches, outside the community group ranches and changes influenced by the devolved system of governance that stated in 2013.

##### **4.4.1: Institutional changes within the community group ranches**

###### **Changes in value chain actor roles**

The study found that as household heads leave their primary roles in pastoralism actors' roles are changing both in group ranches and marginally mixed farming zones. Education has altered the roles played by the morans as they opt to leave for town centres in search of formal employment. This has in turn resulted in the outsourcing of primary producer roles at the household level through employment of herdsmen to

cater for morans roles. In households where the services of herdsmen and morans are lacking after the household head departs in search of formal employment, the women of the household are left in-charge to assume household heads' roles as herdsmen, owners and authority figures. Women take control of other roles such as health management of the livestock as elaborated in the excerpt:

*As a woman, I am tasked with milking the livestock in the morning and in the evening when they come from grazing. I am the one who takes care of my goats and cattle as well as children. I herd the livestock when we cannot afford the services of a herder and when children have gone to school. I also buy the veterinary drugs, inject, spray, and also herd the livestock and decide on selling of the livestock. (Female, 28 years, IDI, Mutirithia).*

**Pasture and Water as common pool resources:** The study results also illustrated that in the past, the food system was confined to the community group ranches where informal and formal rules and regulations governed the use of common pool resources like water, land and pasture. However, as the increased demand for pasture and water in the face of receding rangelands has led to changes in the formal rules and regulations operating within the food system and country at large. The adoption and utilization of a new constitution has led to the establishment of two levels of governance; the county and national governance, which has led to changes in the institutions operating within the community group ranches and beyond.

The study found that traditionally, rules limiting the use of pasturelands did not exist and one could graze their livestock in any part of the communal land. However, with time, prolonged spells of drought and the outgrowth of the invasive *Opuntia* plant species have led to the emphasis on the adoption of the concept of holistic management of community group ranches. There is also a constitution used in the group ranches and offers sanctions as elaborated in the excerpt:

*In our group ranch constitution we rules like when it rains a given area is set aside for grass to grow and also water to be preserved. Then during the dry periods the conservation zones are opened up by elders to ensure that our livestock get pasture and water. We also have rules that prohibit access to conserved resources such as washing of clothes and fetching of water in given areas. There are rangers commissioned by the elders to arrest offenders. Offenders are normally punished by elders who take a he-goat in case of first time offenses. However, if they are repeat offenders, they are taken to the police and jailed for trespassing. (Male, 35 years, KII, Ilpolei).*

In community group ranches the lack of access to permanent river water supply is a major cause of water shortage as the study was informed. The pastoralists only have access to seasonal rivers and have thus engaged private ranches for alternative water sources like boreholes. Informal agreements between group ranches and private ranch owners sustain the food system with group ranch chairmen negotiating pasture and water access in private ranches as elaborated in the excerpt:

*We only have seasonal rivers in Ilpolei of Sunyei, Twala, Nolumpwa and Lampaa. During the dry season we rely on the river bases for water which is hard for our livestock to survive. As a result, we have 2 boreholes we rely upon that feed Ilpolei community group ranch. The private ranch of Oljogi constructed one for us in partnership with the Ministry of Water and Irrigation. We are then charged as a community group ranch management to look for diesel in order to pump water to the town centre and schools that we have of Ilpolei Primary and Ilpolei Secondary Schools. Another borehole that was also constructed by the Northern Range Land Trust (NRLT) but it is low in water supply now. (Manager, 34 years, KII, Ilpolei).*

Additionally, study results demonstrated that there are efforts to enhance water conservation through collaborations with non-state actors promoting water shed management and control receding rangelands. This has been through the construction of gabions to prevent soil erosion and tackling of the invasive *Opuntia* in the group ranches like Ilpolei. The collaboration points to a resource management driven institutional change where the pastoral community works with other actors for conservation of the rangelands.



**Alternative income-generation:** The study was notified of prolonged droughts, water shortages and widespread invasion of *Opuntia* plant which had led to group ranch managements diversifying their income-generating activities. In the midst of unpredictable water and pasture availability pastoralists are now engaged in sand harvesting to generate financial support. The provision of financial services such as loans and money transfer services to all food system actors in group ranches and beyond is another institutional change resulting from the empowerment of pastoralists. Access to financial services and livestock marketing has altered pastoralism as practiced in community group ranches with pastoralists now taking up permanent residence. This can be seen through the group ranch constitutions' structure which outlines settlement zones for the construction of permanent structures. Moreover, financial services like development loans now allow pastoralists to gain from livestock activities. For example, pastoralists use livestock as collateral for loans to engage in businesses like owning motorbikes and cars for public transportation. In group ranches, the modes of transportation have changed from using donkeys to motorized transportation to access marketing avenues, service provision and financial service facilities.

**Organizations and associations:** In community group ranches, affiliated organizations and associations were found by the study to influence and affect the formal and informal rules and regulations operating in pastoralism. They regulate and provide financial and non-financial services to actors within the food system. They regulate income generating by ploughing it back into community projects such as: offering of bursaries to school children, catering for funeral expenses, hay production projects and building of slaughter houses.

#### **4.4.2: Institutional changes outside the community group ranches.**

In the marginally mixed farming zones, the study found that, pastoralists still experience limited access to pasturelands and water. Water shortages were found to be warranted by irrigation activities of agriculturalists like Kenya Horticultural Export (KHE) and Sirimon on River Nanyuki. The small-scale and large-scale farmers in Karionga have direct access to the river waters and divert the water in most cases limiting pastoralists' access. To cope with this situation, the pastoralists file complaints with the area chief; however, in most cases the complaints are not acted upon hence they resort to demonstrations that culminate into a temporary stop of water diversion. Consequently, the pastoralists then rely on purchasing water from boreholes and available dams. In Mutirithia area actors rely on a dam that was dug before the devolved government.

On the issue of pasture, the study was informed that, pastoralists have acquired private land in areas like Mutirithia where most of them have purchased several individual plots. On these plots, they build permanent residences and also utilize other plots as grazing lands. The individual ownership of land is not only confined to Mutirithia area of Segera ward but also Karionga that is predominantly owned by large-scale and small-scale farmers like the Kenya Horticultural Export company (KHE) and Sirimon. The food system's change in land tenure system is evident through the numerous posters advertising plots of land for sale as shown in Plate 4.2.



**Plate 4.2: An advertisement of land for sale in Mutirithia area**

The study findings also demonstrated that some pastoralists in the marginally mixed farming zones also cope with low pasture supply for their livestock by hiring grazing plots from their agricultural neighbours. In most cases, these neighbours are absentee landlords and often fence off their lands and rent them out for grazing at a monthly fee. Pastoralists were also found to have developed other innovative ways to guarantee access to pasture. For instance, in Mutirithia they sneak their cattle into the privately-owned ranches at night and the small stocks during the day. However, when private ranchers take note of the invasion, they involve the police for enforcement of law on the herders now viewed as trespassers. Herders often escape and livestock is arrested leaving the pastoralists to reclaim their herds at a costly fee of KES 500 per cow. An informant had this to say:

*When it comes to livestock grazing we are having a problem due to the lack of pasture caused by overstocking amongst pastoralists. Another factor is that we all practice private land ownership as we own our plots in JuaKali, Mutirithia and Naibor. As a result, you cannot go on grazing anywhere like in the community group ranches unless you take the livestock to the private ranches like the one that is across here. For my household we decided to buy two separate pieces of land. We fenced one and we keep our goats and sheep while in the second one, we have fenced it and let the grass to grow. (Manager, 34 years, KII, Karionga).*

The study further illustrated that pastoralists rely on seasonal migration that allows livestock to be moved along the available stock routes in search of pasture and water during the dry seasons. A key informant reported that:

*During the dry seasons the livestock are moved along stock routes to places with available pastures and water. Laikipia North sub-county has several stock routes that include: one from Kirimon to Kimkandura or to Endana. However, when the situation gets dire, we move to Mount Kenya and the Arbedare ranges in Nyandarua... (Male, 42 years, KII, Doldol).*

Another informant added that:

*We deal with limited pastures by renting farms to graze our livestock. Others decide to migrate into the private ranches available or move their livestock along stock routes. (Female, 27 years, IDI, Karionga).*

In marginally mixed farming zones, the study found that transportation is motorized and donkeys that were traditionally used for transportation are now being utilized in economic activities. Actors use the donkeys to fetch water from River Nanyuki and supply to the businesses and JuaKali town residents. An informant from Juakali reported that:

*The donkeys used to be kept a while back but nowadays most people no longer keep donkeys as they have bought motorbikes and cars. Nowadays, the donkeys are used to fetch water and sell to butcheries, hotels and even Juakali town residents. (Male, 30 years, KII, Juakali).*

#### **4.4.3: Institutional changes in pastoralism resulting from devolved governance**

The study findings indicated that, the change in the system of governance in Kenya from a national-led system of governance to a devolved system had led to changes in the institutions operating in the food system. For instance, building of dams is no longer a priority for the county government and the existing dams were built by the previous system of governance. This affects access to water for pastoralism which relies on water from dams and boreholes given their limited access to river water.

The study revealed that livestock health was a mandate of the national government dispensed through the ministry of livestock. With devolution, livestock health is now a county government function, which has led to increased transaction costs for the pastoralists. For instance, the cost of vaccination has doubled from KES 70 per cow to KES 150.

The study found that, in relation to the relative prices of livestock, pastoralists had little or no returns before the introduction of county governance. Individual auctioneers were in charge of livestock markets and they determined the sales tax collection and distribution to the disadvantage of pastoral communities. However, with devolution, regulators such as the Laikipia Livestock Marketing Authority have entrenched community participation in livestock markets. Through the adoption of the co-management policy pastoralists can benefit from the returns generated from livestock marketing activities. Community infrastructural developments like rehabilitation of cattle dips, building of slaughterhouses are markers of the community engagement and gains.

Moreover, the study also found that the roles of regulators and service providers in pastoralism are also changing in the devolved government structure. For instance, veterinary officers, previously employees of the national government and now county officers have taken up management and administrative roles as elaborated by the excerpt:

*When we look at the old system of governance, the slaughterhouse belonged to the County Council of Laikipia. The management of the slaughterhouse was the county council's priority while we, the veterinarians, were employees of the central government and we were tasked with the hygiene and sanitation, and service delivery. However, with devolved governance ownership of the slaughter house shifted from the county council to the county government and it's now managed by the Ministry of Agriculture, Livestock and Fisheries within the county. As a result, the slaughterhouse inherited two groups of*

*county council employees the flares and veterinarians who are county employees and the offal cleaners who are private employees. (Male, 38 years, KII, Nanyuki).*

The study results revealed that with devolution slaughterhouse operations are now more regulated and monitored through introduction of permits and certificates for livestock processing. For instance, to curb livestock theft the county government has instituted no-objection permits that allow for movement of livestock from the pastoral zones to the slaughterhouses. Movement permits ensure livestock health standards are met and they are issued by the county of livestock origin. A certificate of transportation allows for meat declared fit for human consumption transported to butchers and other relevant avenues while a certificate of condemnation is required for meat that is unfit for human consumption.

However, for revenue collection study was informed that the county government had increased the sales tax collection from livestock trade. Under the national government structure, for instance, the sales tax was KES 20 for the purchase and sell of a goat or sheep but has increased to between KES 30 and KES 40 while for cattle has moved from KES 100 to KES 200. This has led to increased transaction costs in pastoralism.

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The discussion is guided by the specific research objectives, namely, (i) to establish the actors and their roles in pastoralism, (ii) to determine the actor perceptions of pastoralism in relation to food sustainability and (iii) to describe the institutional settings and changes of pastoralism. The study identifies actors in pastoralism along the value chain at the household, and in organizations and associations, state, non-state and service providers. It also determines the actors' perceptions expressed in their values, beliefs, attitudes as well as issues of bargaining power of different actors in pastoralism. Further, it also describes the changes in the institutional setting of pastoralism, namely, formal and informal rules, regulations and norms that define relationships, resource management and use.

#### **5.1 Actors and their roles in pastoralism.**

The actors have been identified along the value chain at the household and at state, non-state and service providers in pastoralism. Pastoralism as a livestock production system encompasses multiple wide-ranging interests across; sectors, discipline, states and non-state groups (Young *et al.*, 2012). These actors play different but complementary production, distribution, consumption and regulatory roles defined by their position within the food system. The actors engage in pastoralism, and livestock and its products such as meat, milk, oil, blood, manure and hides are used by pastoralists and non-pastoralists in Laikipia County and beyond. According to Young *et al* (2012:1) pastoral livestock production makes remarkable contribution to securing livelihoods within and beyond the food system. Pastoralism sustains actors through the raising of domestic animals and also uses them for transportation and

trade (Ferraro and Andreatta, 2012). Currently, 100-200 million people are totally or partly reliant on pastoralism as a way of life both economically and culturally (Belvaux, 2010). At the household, rules governing gender roles among pastoralists exist to allow access to livestock products (Bonvillain, 2013). For example, milking is regarded as a woman's role and young girls who are above 10 years of age.

Pastoralists identified as heads of households, women, morans, elders, young boys and girls, and herdsmen are the primary producers in pastoralism and mainly found at the household level. The Maasai as a community follow a strict division of labour that is organized on age group and gender roles that all members ascribe to. Men in the Maasai community are heads of the household, owners of livestock and traditionally responsible for security and provision of medical care to livestock (Bee *et al.*, 2002:12). Men are responsible for herding and selling meat animals (Blench, 2001:42; Evans-Pritchard; 1940:82). According to Kituyi (1990), in line with the traditional practice, family members are responsible for slaughtering at the household and the household head retains the overall responsibility of deciding who to slaughter and in most cases delegates the roles of slaughtering to a moran. Haller (2013) thus acknowledges that the ownership of livestock is based on patrikin groups and exchanges of livestock are based on kinship groups through marriage, debts and fines. Kituyi (1990) also concurs that livestock management among the pastoralists have primarily depended upon livestock exchanges where pastoralists with relative abundance of livestock give to those with less abundance.

Women at the household level are responsible for milking and fermenting milk, herding especially the calves, kids and lambs while at home, cleaning the livestock sheds and also processing the milk further to extract cooking oil. The oil extracts can



be used to prepare vegetables that pastoralists get from exchanges made with non-pastoral actors (Ferraro and Andreatta, 2012). According to Blench (2001:42) and Morner (2006:16) acknowledge that women in pastoral populations are normally assigned the right to milk, conduct dairy processing and beyond that they may or may not sell milk but usually have control over the proceeds. Bee *et al.* (2002:13) add that apart from milking and milk processing pastoral women also draw water and collect firewood, cook and prepare food, take care of calves, small livestock and young sick animals. Similarly, according to Niamir (1991:3), the role of women in herding livestock is an aspect that had long been neglected, mainly because of the assumption that men were responsible for livestock and women for cultivation. There is need for further research own gender and roles in pastoralism in relation to use and access rights.

Morans are usually tasked by household heads with herding, slaughtering selected livestock for household consumption, health management of livestock and providing security. The morans are tasked with defending and protecting their livestock from wild animals and rival tribes, searching for new pastures for their livestock and supporting their parents as pastoralists in general (Morner, 2006:16). Additionally, Bee *et al.* (2002:13) acknowledge that morans provide security for the community and educate the young ones on matters related to animal husbandry, resource use and good manners and more importantly they move with livestock in search of pasture.

Young boys are introduced to herding of livestock by being given the responsibility of herding calves, kids and lambs near their homes but as they get older at the age of 10, they begin to herd the larger stocks. According to Tarayia (2004:194) young boys at an early age herd calves, lambs and kids close to home. Morner (2006:16) points out

that when a boy is about five years old, his father takes the responsibility of teaching him how to take care of and support their livestock herds. And after about 10 years of age, the boy is tasked with the main responsibilities of the livestock. Additionally, the young boys herd livestock by strictly adhering to grazing schemes give to them by elders (Hauff, 2003:6).

Young girls help with house chores such as preparing tea and milking when they are of age. Similarly, Tarayia (2004:194) concurs that young girls in the Maasai community help their mothers with young children and also keep their mothers company doing household chores. Young girls therefore, seemed to play more of support roles in relation to household chores as opposed to young boys who had key roles in tending to the livestock. However, according to FAO (2017) girls tend to do more small stock and calf herding and less cattle herding than boys.

The elders play an important role in pastoralism as they control property in the larger household before passing them down as inheritance to the male children. Presently women are not entitled to any livestock and land inheritance. Kameri-Mbote (2002:14) acknowledges that property, namely, livestock and land is controlled and held by elders and household heads with women only owning household goods but also having rights of use of livestock and land. Elders lead in customary or ritual activities such as pouring libation to appease the gods for rain in instances of prolonged droughts in order to get pasture and water for their livestock. They also are the decision makers on possible pasture lands and watering points. Bee et al. (2002:13) list the duties of the elders such as advising, maintaining discipline and order, teaching and educating the younger generations, determining the use of common pool resources especially grazing lands and maintaining good relations with

neighbouring communities. Elders therefore were and still are key decision makers in the Maasai community especially in the community group ranches in issues of livestock.

First wives are seen to assume household headship and control property as their husbands move to live with the younger wives in nearby compounds. Hauff (2003:7) argument that despite household heads being in control of cattle holdings, the role of women in cattle changing hands and ownership over resources cannot be ignored as it's through their mothers that males receive cattle which household heads handing over to mothers to take care of until their sons get to maturity. This is more visible in a polygamous setting where the first is left to take care of her household. Likewise, FAO (2017) indicates that women sometimes assume men's responsibilities especially in recent times when men migrate to town centres to engage in trading in livestock activities or other non-livestock related activities. This implies a shift in gender roles and responsibilities in pastoral households, an aspect for further research.

Herdsmen are pastoralists who herd livestock owned by fellow pastoralists for a monthly fee and carrying out other tasks such as slaughtering, providing security and livestock health on behalf of the men and morans who are traditionally expected to perform but are not around to. FAO (2017) list a variety of strategies that households with little labour adopt to overcome the severity of labour shortages such as: the joining with other households in cooperative herding and watering, expansion of households through marriage, taking in impoverished dependants or borrowing a child, usually from close relatives and more recently involves the hiring of labour for herding.

Service providers and food vendors trade in livestock products, namely, of milk and meat and also provide livestock inputs like salts and veterinary drugs to control livestock diseases. Slaughterhouse managers ensure that the livestock that is brought for slaughter by the butchers and hoteliers are fit for human consumption before releasing the slaughter stock. Other actors are the livestock brokers who buy and re-sell pastoral livestock in livestock markets. Lengoiboni *et al.* (2011:5) point out that livestock provides pastoralists not only with sustenance at the household level, but also through livestock sales or exchange of livestock products, they provide a means for financing basic needs.

Community organizations and associations are involved in reinforcing pastoralism through strengthening community participation in livestock markets as well as development projects. As a result, employment and credit access opportunities for pastoralists have ensured more returns from livestock rearing. This cements the position of pastoralism as not only being a major source of subsistence at the household level but also a major income generator for the pastoral communities (Bee *et al.* 2002:22).

Livestock buyers from other counties like Nyeri and Nairobi buy and sell livestock from Laikipia County. Apart from the livestock buyers other actors who facilitate the trade in livestock and livestock products include: transporters who move the pastoral livestock to designated counties that livestock buyers prefer, police officers who provide security, County market officials who collect sales tax and monitor the livestock markets proceedings. There also are, government and non-governmental actors promoting good pastoral practices such as water shed management and co-management of livestock markets. According to Young *et al* (2012:3) pastoralism as

a livelihood system involves a wide range of government departments at both federal and state levels as well as non-state actors. The implication is that the pastoralism is not only a local food system that the Maasai pastoral community actors benefit from but also it is a county and national food system that sustains more than the primary Maasai household actors.

## **5.2 Actor perceptions of pastoralism in relation to food sustainability.**

Pastoralism continues to be important to global population that it supports especially given its economic contributions and the provision of food to those who rely on it as a mode of subsistence (Dong and Colleagues 2011). In Laikipia North Sub-County pastoralism is the main livelihood mode that residents rely upon. Pastoralism is embedded in community values, norms, beliefs and attitudes. According to Ferraro and Andreatta (2013) familial ties are important in pastoralism which is enhanced through values, beliefs and attitudes of pastoralists entrenched in the Maasai culture. In the study area, pastoralists regard livestock as their source of livelihood, prestige and a measure of wealth.

Livestock products mainly milk, blood and meat are consumed at the household level. Moreover, the livestock and products can be sold to generate income for other household needs such as paying tuition for school-going children. Lengoiboni *et al.* (2011) concur that livestock provides sustenance for pastoralists and is a means for financing basic needs obtained through livestock sales or exchange of livestock products. Similarly, Morner (2006:16) and Bee *et al.* (2002:9) agree that Maasai livestock signify wealth and status. Tarayia (2004:191) also expresses similar sentiments that livestock is the equivalent of a modern savings bank account. However, unlike the Maasai who attribute cattle skin color to prestige and wealth, for

the Bahima of Uganda a cow's skin colour was merely used to signify beauty. A dark red brown colour was the most preferred colour in identifying the most beautiful cows (Mallarach, 2008).

Livestock are seen as key ceremonial markers in pastoral communities. According to Bee *et al.* (2002:9), livestock among the pastoralists are important assets in marriage and rituals as they cement social bonds and ties. Similarly, Morton and Meadows (2000:17) report that livestock are useful as bride wealth and other marriage payments. During initiation milk and blood are used to bless the initiates and is also poured as libation by the elders as a peace offering to the gods and ancestors. The understanding of the cycle of life and when rain will fall is a preserve of the elders as is also discussed by Tarayia (2004:191).

Livestock products including milk, meat, blood and oils are viewed as food components as well as medicinal and often then mixed with herbs. Meat is normally preserved by mixing it with a fat and stored in tin containers and eaten when need arises or as a supplement to other foods (Tarayia, 2004:191; Blench, 2001:31). According to Oiye *et al.* (2009:241) milk and milk products are highly recommended for the young children and it is a common practice to add herbs to fresh or boiled milk as they are believed to have nutritious and medical value helping children to fight diseases. Bee *et al.* (2002:10) highlight that women after giving birth are provided with a special diet usually comprising of meat, milk, soup, fats and blood. Similar diets are also given to family members who fall ill (Tarayia, 2004). Men who are the household heads consume special parts of the slaughtered animals like the right limb meat. Women and girls are given the intestines and other parts of the animal seen to

be of lesser value. Bee *et al.* (2002:10) acknowledges the Maasai's socially determined eating habits that are based on age and sex.

### **5.3 Institutional changes in Pastoralism**

According to Lengoiboni *et al.* (2011:6) households are the basic units of production for pastoralism. At the household level, actors are involved in production, processing, distribution and consumption. This is heavily dependent on the proper management of common pool resources (CPRs) mainly, water and pasture. In the community group ranches and the marginally mixed farming zones, this is done through formal and informal rules and regulations that govern access to and use of the resources. Kaye-Zwiebel and King (2014) acknowledge that pastoralists who occupy the expansive rangelands utilize CPRs through the over-reliance on customary, polycentric governance systems and social networks. Lesorogol (2008) argues that social norms, codes of conduct and conventions that permeate social life are undersigned. The social structures are designed carefully and have influence on pastoralism.

#### **5.3.1 Institutional changes within and outside the community group ranches**

##### **Pasture and water management as common pool resources**

The management of pasture, water and land as common pool resources in pastoralism is governed by actors with different bargaining power through institutions namely, formal and informal rules, regulations and norms. These institutions govern pastoralism in within and outside the community group ranches of Laikipia County to define the roles of actors, their perceptions and activities in the food system. The constitution and the co-management plan are examples of institutions of pastoralists in Laikipia County. Land use patterns and water access and use have changed in the community group ranches with the adoption of community developed constitution

segmenting community land into conservation, settlement and grazing zones. Water which is an essential resource in pastoralism, yet whose access has been challenging given its scarcity is being managed through the water-shed management plan. The plan constructs gabions and dams as reservoirs of water for the pastoralists in the group ranches.

Kaye-Zwiebel and King (2014) recognize institutions and view the utilization of extensive rangelands as an outcome of customary polycentric governance system and social networks that allow for proper management of the common pool resources. In Addition, Haller (2013) adds that the followers and kinsmen ensure that they monitor the pastures and water. Sanctions are normally issued out to anyone who accesses the pastures and water without having gained proper user rights from the kinsmen.

Communal land rights allow only for user rights while in the marginally mixed farming zones allow for private land ownership. Haller (2013) acknowledges that among the *Mbeza* of Zambia the individual ownership of land and property is weakly defined and the head of the household is simply expected to act as an administrator or manager of cattle. Tarayia (2004) highlights that for generations; the Maasai have customs regulating occupation of land that is strictly governed by natural laws that give the Maasai rights to control and use the land as communal land. A pastoralist therefore can be party to both land modalities as they try to leverage for water and pasture access. Haller (2013) points to a similar arrangement among the *Mbeza* which allows for clear movements between the villages and the cattle camps in the Kafue flats of Zambia. Pastoralists in Laikipia also move along stock routes around Mount Kenya region in search of water and pasture in addition to their access of the same within and outside the community group ranches. Tarayia (2004:202) acknowledges



that beyond the communal group ranches the change in land tenure system has led to the onset of privatization of land. Thus, the value of land through a market transaction becomes beneficial to pastoralism.

Ensminger (1996) argues that power processes and ideology for equal and fair distribution of access to pasture are in place to legitimize the status quo even if actual property rights of common pool resources create great losses. Haller (2013) also states that in scenarios where pastures are not sufficient the supervisors of pasture areas are normally consulted for other grazing camps. With the entry of the commoditization of land, the practice of pastoralism has changed but it still holds onto some aspects of the cultural practice of large livestock rearing (Kituyi, 1990). Haller (2013) adds that privatization occurs when individuals with strong economic interests and bargaining powers are able to use either formal or informal institutions to use land exclusively. For this to happen institutional incentives and strong bargaining powers with links to the state are important to cover the high transaction costs that transform common pool resources such as pasture into a private property regime.

The agriculturalists are continuously taking control of the pasturelands that once belonged solely to the pastoralists (Ikeya and Fratkin, 2005). In addition, Haller (2013) points out that common property prevails to give access to common pool resources such as water as long as it is clear that group membership can be used to also exclude groups that one does not want. This results into conflicts and demonstrations over water usage.

Commercialization of pastoralism has been enhanced through the encouragement of livestock marketing that is pegged on the co-management system of livestock markets. Household heads and morans are taking up formal employment and leaving

their culturally assigned roles in pastoralism to be outsourced. According to FAO (2017) households with limited supply of labour are currently hiring herdsmen to herd, slaughter and provide security to the household livestock. Additionally, Niamir (1991:3) acknowledges that are women now having more important roles in herding as men leave the pastoral economies for urban wages and other attractions. This therefore, implies that women become responsible for both the small stocks and large livestock in pastoralism. Similarly, Kituyi (1990) adds that the entrenchment of the money economy and the commoditization of labor are responsible for the changing actor roles in pastoralism.

Alternative income-generating activities are key source for pastoralism with money generated from sand harvesting and other activities in group ranches being ploughed into acquisition of common pool resources such as land and pasture that encourage livestock rearing. According to Homewood *et al.* (2012:3) households diversify into other income generating activities through necessity, risk management, and for the most well-off to build a portfolio of investments that goes well beyond, while still encompassing, pastoralist production and trade. In the study area, organizations and associations like the Laikipia Livestock Marketing Authority allows for more participation of pastoralists in pastoralism through employment opportunities and compounded returns from livestock trade.

Motorization of transportation has led to the involvement of state, non-state and service providers as actors in pastoralism and allowed for trade in livestock and its products from available markets to become easier. According to IIRR (2013:81) specialized vehicles for transporting livestock are expensive but ordinary lorries are modified by using partitions to support the standing livestock. The buyers then must

be willing to pay a premium price to cover the cost of transport and bulking to transporters. Additionally, Bekure *et al* (1991:148) transport is a venture of investment where sons of rich households can purchase minibuses, and pick-ups that can be used to transport people and goods.

### **5.3.2 Institutional changes in pastoralism resulting from devolved governance**

With the inception of national and county governments functions that were initially executed by the state actors have changed. Livestock health management has been relegated to the pastoralists for example vaccination which was readily offered by veterinary officers under the national government is currently offered only in instances of disease outbreaks and the pastoralists have to cater for the routine vaccinations.

In livestock markets the role of auctioneers as revenue collectors and distribution has been replaced with the co-management strategy that ensures community and county government's participation in transactions. With their involvement there has been an increase in revenue collection, shared returns and community-led development. However, this has also resulted in increased levies for sales tax paid by the pastoralists and buyers. This then translates to increased relative prices in pastoralism linked to the changing institutional settings (Ensminger, 1996).

Regulators and service providers' roles have also changed. For instance, veterinary officers at the slaughterhouses are taking up management and administrative roles in addition to livestock health and hygiene. Slaughterhouse operations are now also being regulated through permits and certifications before processed foods can be declared fit for human consumption. This implies that the dispensation of the

devolution has impacted the practice of pastoralism by establishing an economic and commercial perspective of the food system.

In summary, an anthropological study of pastoralism as a food system in Laikipia County, Rift Valley, Kenya is characterized by roles, perceptions and institutional settings and changes. These elements shape the actors' roles; their values, beliefs and attitudes; and the rules, regulations and norms that set the basis for operations (institutional setting) in pastoralism and change the actors' roles, values, beliefs and attitudes. First, value chain actors at the household perform different roles ranging from production to consumption. While state, non-state, and service providers as actors regulate and provide technical, financial and non-financial services to the food system.

Further, perceptions about pastoralism are expressed in the values, beliefs and attitudes and in the use of livestock products by the value chain actors at the household. They view pastoralism as an adequate food getting system, a source of livelihood, prestige and wealth. State, non-state and service providers as actors concur with in the view of pastoralism as a local food system capable of feeding into the regional and national food systems.

Finally, institutional settings and changes influence pastoralism. Changes in the institutional settings lead to transformations in the food system such as: value chain actor roles; use and management of common pool resources; and alternative income generation activities for the production of food. Devolved governance structures result in changes in the functions and roles of regulators and service providers as actors in pastoralism.

## **5.4 Conclusion**

The analysis and reflections advanced in the study lead to conclusions that can be drawn from an anthropological study of pastoralism as a food system in Laikipia County, Rift Valley, Kenya. The study investigated who the actors in pastoralism were and the roles they played, actors' perceptions and institutional settings and changes. The study established that value chain actors at the household level are the Maasai pastoralists who performed varied roles in line with the Maasai cultural division of labour. State, non-state and service providers as actors regulated and provided services in the food system.

Different roles of value chain actors at the household give actors different decision making capabilities and bargaining powers in the food system. The ultimate decision makers are men as household heads who solely own the livestock and decide on the use of livestock and key products, access to and use of common pool resources. Women have limited decision making capacity while morans, young boys and girls and herdsmen lack decision making capacities with regards to livestock. Further analysis revealed that value chain actors' roles are changing with household heads and morans who are leaving the food system in search of formal employment. As a result, women are taking up roles previously a preserve for household heads and morans like hiring of herdsmen and engaging in trade in livestock and its products.

Values, beliefs and attitudes about pastoralism in relation to food sustainability were also identified such as: the food system being the source of livelihood, prestige and wealth, and an adequate food getting system among value chain actors at the household were important for pastoral activities to be conducted effectively and efficiently. In addition, state, non-state and service providers' perception of the food

system and its products as a source of livelihood allowed for regulation and provision of technical, financial and non-financial services through the participation of organizations and associations, non-governmental and both the national and county government actors.

In institutional setting and change, the study found that actors' roles are defined and redefined by rules, regulations and norms in the community and the national and county governments. Community participation in marketing through the adoption of co-management of livestock markets was an inclusive policy leading to community-led development. In addition, conservation of common pool resources through watershed management strategy, holistic management of pasturelands, private land ownership patterns among pastoralists, and the engagement in alternative income generation activities were identified as institutional changes in the food system. Changes in provision of veterinary services and tackling of the invasive *Opuntia* plant were evident as institutional changes occasioned by devolved governance.

This study has established that value chain actors at the household, state, non-state and service providers as actors and co-management of livestock markets are vital in regulating and providing services to enhance pastoralism as a food system.

## **5.5 Recommendations**

From the study, the following recommendations are evident;

1. With regards to actors' roles, there are value chain actors with different bargaining power and perceptions who play varied roles at the household. These roles are defined by informal and formal rules, regulations and norms in pastoralism. Therefore, there is need for broader studies targeting larger sets of

the study population to elaborate on the food system actors, their roles, perceptions and institutional settings and changes.

2. Value chain actors at the household perceive pastoralism as a source of livelihood and an adequate food getting system through income-generation and activities engaged in to supplement their dietary requirements. State, non-state and service providers as actors agree with the value chain actors at the household that pastoralism is an adequate food getting system that should be promoted. However, they also look at household actors and how their culture does not put all actors at an equal level to benefit from pastoralism like women's lack ownership rights. As such, there is the need for further studies to elaborate on the interaction of perceptions and gender dynamics.
3. Changes in the roles of pastoralists as seen in the hiring of herdsmen among value chain actors at the household leads to outsourcing of labor. The changes in the informal and formal management of common pool resources of pasture, land and water necessitates changes in rules, regulations and norms governing the access and use of these resources within devolved governance. Further research on devolved governance and its influence on pastoralism to inform policy is recommended.

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**APPENDICES**

**APPENDIX 1: CONSENT FORM**

**AN ANTHROPOLOGICAL STUDY OF PASTORALISM IN LAIKIPIA COUNTY, RIFT VALLEY, KENYA.**

Investigator: Edwin Ambani Ameso

**Introduction**

I am **Edwin Ambani Ameso** from the University of Nairobi, Institute of Anthropology, gender and African studies. I am conducting a study entitled: **AN ANTHROPOLOGICAL STUDY OF PASTORALISM IN LAIKIPIA COUNTY, KENYA.**

**Purpose**

The study seeks to understand pastoralism from an anthropological perspective through establishing: actors and their roles, their perceptions and effects of institutional changes to the pastoral food system. The study will seek the opinions of producers, distributors, processors, consumers, regulators and service providers in the food system.

**Procedure**

If you agree to participate in the study you will be asked questions about the nature of your interaction and roles played in the pastoral food system. Your participation will add knowledge on how the food system adds value to the domestic, county and national economies while observing the actors', their roles, perceptions and effects of institutional changes. The information will also provide more insights into food sustainability debates and how nations' world over can handle food insecurity without underestimating the input of the pastoral food system.

**Confidentiality**

Your confidentiality will be maintained at all times and there will be no use of names or any possible identifiers that may connect you with the reports or publications that will be availed as a result of the study.

**Voluntarism**

Participation in the study is of voluntary nature and if you choose not to participate you will not be penalized in any way. You will also be free to withdraw from the study at any time and refuse to answer any question that you deem is too personal. However, I humbly request your full participation and cooperation in the study.

**Contact Persons**

In case of any questions you may have regarding the study, you may contact Edwin Ambani Ameso through telephone number: 0726052731 or email address: [amesoedwina36@uonbi.ac.ke](mailto:amesoedwina36@uonbi.ac.ke). You may also contact my supervisors: Dr. Salome Bukachi and Dr. Owuor Olungah of the Institute of Anthropology, Gender and African Studies, of the University of Nairobi on telephone number: 020-2082530. Your participation in the study will be highly appreciated.

I \_\_\_\_\_ hereby voluntarily consent to participate in the study. I acknowledge that I have understood the explanation given to me with regard to the nature of the study by \_\_\_\_\_. I clearly understand that my role with regard to my participation which is completely voluntary.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

## APPENDIX 2: IN-DEPTH INTERVIEW GUIDE FOR THE PASTORALISTS

1. Please tell me about yourself as a member of this household? (*Probe for: age, their clan and roles*)
2. Please describe for me livestock keeping in this household and community at large? (*Probe for: type of livestock, colour of the livestock, roles in livestock keeping, views about the livestock keeping, use and benefits from the livestock*)
3. What benefits do you get from livestock keeping? (*Probe for: livestock products and their use, extraction, range of and use of specific products, use of surplus products*)
4. Please describe for me the activities you and others do to ensure that livestock gives you good products? (*Probe for: activities at production, why the roles, actors and their roles in production, values attached to roles*).
5. Other than at the production stage, what other roles you and the others play in livestock and its products here? (*Probe for: actors and their roles in processing, packaging, distribution and consumption if any, and values attached*).
6. Please tell me about other members of the household and their involvement in livestock keeping here and in the community? (*Probe for: Actors and their roles at the household, values attached, level of involvement, ownership and values attached*).
7. Please tell me about the livestock and the products that you get from your household? (*Probe for: actors involved and their roles, use and products extracted*)
8. Please describe how livestock and its products are used? (*Probe for: consumption at household, use of surplus, marketing actors, state and avenues of products*).
9. Apart from you and the household members, who else is involved in the livestock you have kept? (*Probe for: involvement of state actors and their roles, level of involvement*).
10. Please tell me the about the people who are interested in your livestock and its products? (*Probe for: actors in livestock marketing, avenues used, household actors' roles in marketing*)
11. Please tell me about any traditional rules and regulations that allow you to be able to share water and pastures well in your community with neighbours? (*Probe for: rules and regulations on resource use, actors and their roles in formulation and regulation, rules on food system processes, changes in rules, reinforcement of rules*).
12. Please describe any changes in the traditional rules and regulations that are set out by your community that have witnessed and have impacted on your livestock keeping over time? (*Probe for: what rules have changed, effect on resource use, channels to communicate the rule changes*).
13. Please tell me of any changes that have occurred in the way the government was involved in your livestock keeping activities? (*Probe for: State actors involvement and their roles, changes in state rules and communication of changes, adoption of changes*).

**\*THANK YOU FOR YOUR PARTICIPATION\*.**

### APPENDIX 3: UNSTRUCTURED OBSERVATION GUIDES

#### PART I: UNSTRUCTURED OBSERVATION AT THE HOUSEHOLD LEVEL

NO.	ITEM	OBSERVATIONS
1.	<b>Space:-</b> Location of the household in the villages, materials used in building, the types of the buildings in the household whether temporary/permanent, types of roads, common pool resources (water and pastureland), settlement pattern (whether spread out/ living closely together), types of livestock kept, color of observed livestock	
2.	<b>Actors:-</b> the different people in the household who are part of the livestock keeping group	
3.	<b>Activities:-</b> the tasks carried out by different people within the household where livestock is kept.	

#### PART II: UNSTRUCTURED OBSERVATION AT THE MARKET.

NO.	ITEM	OBSERVATIONS
1.	<b>Space:-</b> Location of the market, type of buildings in the market, types of roads, types of livestock, the color of the livestock, Posters and billboards	
2.	<b>Actors:-</b> the different people linked to the livestock market in Laikipia County such as Brokers, milk vendors	
3.	<b>Activities:-</b> the tasks being carried out by different people in the livestock market	



## **APPENDIX 4: KEY INFORMANT INTERVIEW GUIDES**

### **KEY INFORMANT INTERVIEW WITH THE OLOIBON (SPIRITUAL LEADER).**

#### **BIO-DATA.**

**Sex:**

**Position:**

**Years of Service:**

1. As a spiritual leader in this community, can you tell me about livestock keeping that is practiced here? (*Probe for: roles of actors, ownership, values, type and color of livestock*).
2. What are the activities which members of various households are involved in when it comes to taking care of the livestock? (*Probe for: actors and their roles at household, values attached to roles in food processes*).
3. What benefits are there in keeping livestock? (*Probe for: Range and use of livestock*).
4. How are the livestock and livestock food products handled? (*Probe for: food processes, values attached to food processes, marketing avenues*).
5. What are the roles that various family members play in livestock keeping within households in your community? (*Probe for: range of activities, values, extent of involvement, rules attached*).
6. Aside from the various household members, who else is involved in livestock keeping? (*Probe for: actors and their roles of actors in food processes, values*).
7. Do you have rules and regulations that relate to how livestock keeping is conducted? (*Probe for: informal rules and regulations on use and ownership of common pool resources, mobility*).
8. Apart from the rules and regulations established by the key members of your community to be followed in livestock keeping, which government rules that exist that you need to follow? (*Probe for: state actor rules, effect on common pool resources*).

**\* THANK YOU FOR YOUR PARTICIPATION\***

### **KEY INFORMANT INTERVIEW WITH LIVESTOCK BROKERS.**

1. How was your first involvement with livestock keepers in Laikipia County? (*Probe for: age, occupation, residence, level and avenues of interactions, type of livestock, access, state actors' roles, other actors in livestock avenues, nature of interactions such as currency/ exchange led system*).
2. Currently, how are your interactions with the livestock keepers here in Laikipia County? (*Probe for: marketing avenues, interaction levels, type of livestock, roles pastoralists perform, access to avenues, state and non-state actors' involvement*).
3. Who are involved in the livestock interactions at various avenues you go to and what can you tell me about them? (*Probe for: actors and their roles in food processes, level of interaction, values attached, nature of interactions, type of products*).
4. What is your extent of involvement in the livestock interactions? (*Probe for: level of participation, roles in food processes, values attached*).
5. Do you know of how the government and other interested persons are involved in the livestock and its products? (*Probe for: state actors, level of interactions in food processes other actors involved and their roles, significance of their interactions*).

6. Can you tell me of changes in rules and regulations from the governments that have an effect on the livestock interactions between you and the livestock keepers? (*Probe for: previous interactions, changes in rules, avenues of interactions, advantages and disadvantages of state actor involvement*).

**\*THANK YOU FOR YOUR PARTICIPATION\***

**KEY INFORMANT INTERVIEW FOR LIVESTOCK PRODUCTION OFFICER, COUNTY VETERINARY OFFICER, COUNTY MARKET MANAGERS, NON-GOVERNMENTAL ORGANIZATIONS (CBOs, FBOs) AND NATIONAL GOVERNMENT OFFICIAL ON ARID AND SEMI-ARID LANDS.**

**Bio data:**

1. What has been your level of interaction with the pastoralists in Laikipia County? (*Probe for: initial interactions, nature of interactions, roles in interactions, avenues of interactions, range and values of livestock involved*).
2. At the production stage, what activities do you do? (*Probe for: actors, roles and values at production*) **Ask the question only for livestock production officer, county veterinary officer, and the County market managers.**
3. What are your roles in the interactions with the pastoralists in Laikipia County? (*Probe for: access avenues, actors and their roles*)
4. Which actors are found in the various livestock avenues you access? (*Probe for: types of venues, different actors and their roles in the avenues of livestock, point of origin of actors*).**Ask the County Veterinary officer and the Livestock production officer.**
5. How is the market set out in your venue? (*Probe for: market actors and their roles, structure of the venue, values on the roles played, nature of interactions*)
6. What is the environment for the interactions in livestock? (*Probe for: rules and regulations in food practices, rules before and current in food processes, effect of rules on ownership and mobility of common pool resources, actors implementing rules, advantages of the rules, rules encouraging pastoral food exchanges*).
7. What is the role of the national government in pastoral system versus the county government? (*Probe for: actors and their roles in devolution*).

**\*THANK YOU FOR YOUR PARTICIPATION\***

**KEY INFORMANT INTERVIEW FOR SLAUGHTER HOUSE MANAGERS AND LOCAL BUTCHER OPERATOR.**

1. Can you tell me about the nature of your work? (*Probe for: age, occupation, when they began working, access points for the livestock, actors involved and their roles, type of products interacting with*).
2. What is your level of involvement with the pastoralists? (*Probe for: level of involvement, roles in food processes if any, venues of access, how often they interact, value added*).
3. What livestock and livestock products do you handle? (*Probe for: livestock and livestock products handling, level of demand, value added*).
4. What is your role when it comes to handling livestock and livestock products from the livestock keepers? (*Probe for: roles of handling either livestock or livestock products handled from livestock*).

5. To what extent, is your interaction with the livestock and livestock products from the pastoralists? (*Probe for: actors other food processes other than production, limitations of actors, importance of livestock interactions*).

**\*THANK YOU FOR YOUR PARTICIPATION\***

#### **KEY INFORMANT INTERVIEW WITH MILK VENDOR.**

##### **Bio data:**

1. Can you tell me about the first time you participated in selling milk? (*Probe for: age, occupation, marketing venues, product sells, access to venues, venue setting*).

2. What is the nature of your participation in the sale of livestock products (milk)? (*Probe for: marketing of products, benefits from products, household position, ownership and importance of livestock*).

3. Apart from milk production, what are your livestock used for? (*Probe for: Products extracted, level of extraction, consumers of products, handling of products in food processes*)

4. What activities do you do in caring for the livestock so that you can get more milk from the livestock? (*Probe for: Actors' ownership level, roles in production, values*).

5. Who are the persons who get milk from you? (*Probe for: customer base, other milk avenues, value of milk, actor's involvement in food processes*).

6. Apart from you, what are the roles that your various family members play in livestock production? (*Probe for: products extracted, actors involved, values on products, product users*).

7. Apart from you and your family members in the community, who else is involved in livestock production of meat and milk that you know of? (*Probe for: actors other than household involved in livestock production, avenues used in product extraction, food processing activities engaged in*).

8. Which type of actors are found in the various livestock avenues you access to sell your milk? (*Probe for: actors' and roles, the different venues*).

**\*THANK YOU FOR YOUR PARTICIPATION\***

## APPENDIX 5: FOCUS GROUP DISCUSSION GUIDE FOR THE PASTORAL GROUP MEMBERS

### Bio data

Sex:

Number of Participants:

Group of Participants:

Age of Participants:

1. As livestock keepers, can you tell me about your livestock? (*Probe for: type, color, meaning, value, and ownership of livestock*).
2. How are you and the members of your family involved in livestock keeping? (*Probe for: actors and their roles, values involved in livestock keeping*).
3. How do you take care of your livestock? (*Probe for: range of activities, age and gender distribution, reasons for distribution, values attached*).
4. What benefits are there for keeping the livestock you have identified above? (*Probe for: products obtained, use of products and meaning*)
5. What roles do your various family members play in livestock production? (*Probe for: products extracted, actors involved, values attached, users of products and surplus*).
6. Apart from the family members in the community, who else is involved in livestock production of meat and milk? (*Probe for: other actors involved other than household, avenues used, knowledge on processes, transportation avenues used*).
7. How are the livestock and the livestock food products used? (*Probe for: actor consumption, surplus use, avenues used in surplus distribution, values, actors involved in surplus distribution*).
8. What roles are carried out beyond the caring stage (production stage) by your clan members when it comes to handling livestock and its products (meat and milk)? (*Probe for: activities done in food processes of livestock products, roles of actors, rules and regulations in place*).
9. Which actors are found in the various livestock avenues you access? (*Probe for: actors, roles and types of venues*).
10. Do you have rules and regulations that determine how water and pastures are used? (*Probe for: rules and regulations pasture and water and movement, roles played, actors knowledge of rules, reinforcement of rules, and changes in rules*).
11. In what ways are the government and other interested persons involved in livestock keeping in your community? (*Probe for: state actors, non-state actors, previous and current involvement, changes and roles played by state and non-state actors*).

**\* THANK YOU FOR YOUR PARTICIPATION\***