

**FACTORS INFLUENCING CHOICES OF GRAZING LANDS MADE BY  
LIVESTOCK KEEPERS IN ENHLANOKHOMBE IN UKHAHLAMBA  
(DRAKENSBERG), KWAZULU-NATAL**

**By**

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## ABSTRACT

In South Africa, communal land still plays a significant role in the lives of many rural communities. While these communal lands have ostensibly been included within municipal frameworks, decisions about their utilisation still remains a practical reality for many livestock keepers. This research examined current herding and grazing practices, grazing areas being used in summer and winter, and factors taken into consideration by livestock keepers and herders when choosing grazing areas in the communal sub-ward of Okhombe, in the northern Drakensberg, KwaZulu-Natal.

The aim of this research was to investigate the socio-cultural reasons of livestock keepers behind decision making about grazing areas. The primary research question pursued in the study was: How do livestock keepers select areas for livestock grazing in the sub-ward? Three sub-questions were developed to guide the research:

- What grazing and herding strategies are currently being used?
- Which areas are used for grazing, and in which season(s)?
- What are the considerations for choosing areas for livestock grazing?

Data were collected from fifty-one (51) cattle keeping households in the sub-ward. Data were collected in five steps. The first two steps involved household and in-depth interviews using interview guides. The latter three steps involved a transect walks, one case study and focus group discussions to test and verify the data.

The findings showed a wide range of livestock kept in Enhlanokhombe sub-ward. The majority (61%) of cattle keeping households had cattle and goats, which are important for ceremonial purposes. The primary reasons for keeping livestock involved agricultural, food and cultural purposes. The herding strategies found in the sub-ward involved family/relative member, hired herders and no herder, with the majority using family/relative members as herders.

Three areas were used for livestock grazing were Maqoqa, Skidi and Mdlankomo. The key finding showed an increase in supplementary feeding, a decrease in traditional remedy usage and safety from theft as a new factor taken into consideration when selecting grazing land. Other factors involved presence of cropping fields, availability of grass and water, distance from home and family traditions.

From these findings, one can conclude that there are clearly tensions between culture and changes in the society, culture and changes in economy; and livestock keepers' heritage and modern lifestyle. These tensions make livestock keepers' decision making processes harder. The grazing and herding strategies, and the choices of communal grazing areas are influenced by these changes. As a result, livestock keepers are shifting from their heritage and culture to being economic and adapting to modern world. The heritage and the clarity of gender roles are breaking down. Grazing and herding are, therefore, no longer simple and familiar, but complex and unfamiliar to livestock keepers.

These findings have serious implications for extension, advisory and development approaches used when addressing livestock management among traditional livestock keepers. They imply that what is needed is a multi-dimensional and inclusive view of the livestock keepers' practices. Rather than relying on the long-held assumptions about livestock keepers, serious attention must be given to the tensions in communal livestock keeping and the complexity of communal grazing strategies. These must be deliberately and consciously used to inform interventions designed to improve communal grazing management.

## DECLARATION

I hereby declare that this thesis is my own work. Other sources that have been used are acknowledged in the text.

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Johannes M. Chonco

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Date

As Research Supervisor I agree to the submission of this thesis for examination

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Dr. Steve Worth

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Date.

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## CHAPTER ONE

### 1.1 Introduction to the research problem

In South Africa, traditional lands (also referred to as communal lands) still plays a significant role in the lives of many rural communities. These lands have ostensibly been included within municipal frameworks which implies that the decisions about their utilisation will be taken in that level. However such decisions are in practice still made by livestock keepers (Baker & Hoffman, 2006). This study examines the processes used by livestock keepers in deciding when, where and how to graze their livestock.

Communal areas, especially those under traditional land tenure, have a variety of land functions. The functions of land include agriculture, residence and social services. The primary use of land is residential and the larger homesteads are residential areas include cultivated lands and enclosures for livestock. The family to whom land has been allocated has exclusive use rights. Communal land is also used for agriculture. That includes the smallholdings, arable, forestry and pastoral areas. The smallholdings and arable lands are cultivated areas which are separated, but adjoining residential areas. These areas are used for either market gardening or subsistence farming or both. They are used as communal rangeland for livestock grazing (Montgomery, 2000).

For livestock keepers, livestock are the main livelihood strategies in developing countries. Livestock, especially cattle, play a very crucial role in the economy and social welfare of rural small-scale farmers. Cattle are the source of milk, meat, manure, draught power and transport in remote areas. They are used to pull woods, carts and sledges. Cattle also serve as savings and are used in ceremonies (slaughtering in weddings and funerals and payment of lobola) in rural areas (Tau, 2005; Bembridge & Tapson, 1993).

Communal rangelands are areas where farming is mainly for subsistence and they are owned and managed by the community. The farmers have free access to these grazing lands and usually there are no formal rules and regulations regarding how and when to

use grazing land. The farmers have a right to graze an unrestricted number of livestock. Livestock keepers in communal lands enjoy free access to land; however, the chief has the power to allocate it, especially in Southern Africa (Tau, 2005). This is, however, contrary to the study conducted by Samuels (2006) in communal areas of Namaqualand. He found that “access is not open to all and herders regulate their herd size” (Samuels, 2006: 10).

Many livestock keepers use communal rangeland as the main source of livestock feed (Gabremedhin *et al*, 2002). Most rural livestock keepers depend only on these communal rangelands for grazing their livestock and they have been using these areas over a long period of time (Tau, 2005).

These communal rangelands are believed to be deteriorating due to among other reasons overgrazing as a result of overstocking. There are contrasting points of view about communal grazing management. Rangeland professionals have a picture of communal livestock keepers not caring about the environment, unrestrictedly increasing their herd sizes, greedy and not caring about each other. Rangeland professionals also believe that commercialisation of communal grazing areas would lead to better management. On the other hand, communal livestock keepers have a contrasting view about communal grazing management. They believe that there is little and unproductive land due to past policies (Allsopp *et al*, 2007).

The goal of almost all communal livestock owners is traditionally believed to be an unrestricted increase in the number of their livestock. The livestock owners prefer to take the risk that their livestock would survive rather than decreasing the number of livestock they own. Overstocking occurs resulting in overgrazing and land degradation (Bembridge & Tapson, 1993). However, land degradation is not only due to intensive grazing, but the natural hazards have an impact on land degradation as well. For example, there are naturally occurring processes like sinkholes, climate change, to mention a few. Sinkholes just form dongas that decrease the grazing land. Drought can cause the area to be too dry and less vegetation to grow. Soil erosion and land degradation are likely to occur in those

circumstances. These are the problems that need to be understood before any progress will be made in communally owned areas (Fratkin, 1997).

Reducing livestock herds is advised where livestock numbers exceed the carrying capacity of that land or pasture. However, stock reduction programmes initiated in South African communal rangelands in the seventies did not result in improvements in veld conditions nor livestock production (Benjaminsen *et al*, 2005).

The study conducted by Allsopp *et al* (2007) in Namaqualand, South Africa, showed that herders make decisions about where to graze animals based on different factors. Among these factors is avoiding trampling. The herders choose a different route everyday to avoid soil trampling. They direct the animal where there is enough grass for grazing or shrubs for browsing especially small stock. The herders also direct the animals away from the toxic plants.

Based on the assumptions and beliefs detailed above, external agencies (e.g. government and non-governmental organisations) have tried to improve the rangeland situation by introducing grazing schemes and rotational grazing systems. The so called “*Betterment Schemes*” involved establishing grazing camps for rotational grazing and clustering households together to form villages. The initiatives were unsuccessful because they were designed and implemented using a top-down approach. People were not properly consulted and they did not understand the initiatives. Livestock keepers disobeyed the rules or regulations of the initiatives and they kept their traditional practices (Tau, 2005).

In contrast to the “*Betterment Schemes*” approach, Bembridge and Tapson (1993) argue that communal land systems can be enhanced with a thorough understanding of the socio-economic, ecological and cultural factors that influence livestock keepers’ productivity. That should include institutional and political framework in which communal land systems function. The legitimacy of community knowledge and practices has to be reconciled with ecological underlying principle for such practices.

Therefore, there is a need to collect baseline information on how livestock keepers decide to utilise communal resources such as grazing land. It is also important to find the factors taken into consideration and perceptions about the issues associated with communal grazing management. This baseline information will help to gain insight and understanding of livestock keepers herding and grazing practices, and their motivations. The knowledge can work as a framework to guide intervention in community-based natural resources management, particularly livestock grazing management (Fratkin, 1997).

## **1.2 The importance of the study**

The main aim of the study was to gain insight and understanding of herding and grazing strategies and practices, and factors that are taken into consideration by livestock keepers and herders when choosing grazing areas. Understanding of these practices and factors will help to recommend the way forward in trying to improve communal grazing management based on livestock keepers practice. It has been clear that most intervention were unsuccessful because they either undermined or ignored traditional practices.

The aim of this research was to investigate socio-cultural reasons of livestock keepers when making decisions about their livestock. The information collected will help to form a basic framework for interventions related to livestock keeping in the village.

Communal grazing and herding strategies are very complex. These grazing and herding strategies are based on a combination of factors: social, ecological, institutional, cultural and economic. It is important to understand this complexity of factors taken into consideration by livestock keepers in order to understand their practices (Moyo *et al*, 2008). Understanding the complexity of communal livestock keeping would allow rangeland scientists and practitioners to understand that livestock keeping in communal areas is changing. A comprehensive and multi-dimensional picture about livestock keeping in communal areas is needed instead of imposing interventions based on assumptions.

### **1.3 Research Question**

The primary research question pursued in the study was: How do livestock keepers select areas for livestock grazing in the communal sub-ward in the uKhahlamba-Drakensberg, KwaZulu-Natal?

### **1.4 Sub-questions**

Three sub-questions were developed to guide the research:

- What grazing and herding strategies are currently being used?
- Which areas are used for grazing, and in which season(s)?
- What are the considerations for choosing areas for livestock grazing?

### **1.5 Study limits**

The study was conducted in Enhlanokhombe, one of the six sub-wards of Okhombe in the northern Drakensberg, KwaZulu-Natal. The study was limited to cattle keeping or cattle owning households in Enhlanokhombe. Enhlanokhombe was chosen because it was fairly typical of communal grazing communities in KwaZulu-Natal and it was under traditional authority. The reason for focussing on cattle keeping was because it was part of a broader PhD study titled, *Cattle keeping in a changing rural landscape* by Monique Salomon. The cattle keeping households were also asked if they had other grazing livestock like goats, sheep and horses.

### **1.6 Study Assumptions**

It was assumed that livestock keepers and herders in Enhlanokhombe would be interested in the research and would fully participate and co-operate with the researcher. It was assumed that both livestock keepers and herders would provide accurate information that gives true reflection of livestock keeping in Enhlanokhombe. It was assumed that the tools and techniques that the researcher used to collect data were relevant and the researcher would be able to facilitate those tools during discussions. It was also assumed that the individuals and groups that were going to be interviewed would be the true reflection and representation of the Enhlanokhombe community.

## **1.7 Structure of the thesis**

Chapter One introduces the thesis. It covers the importance of the study, research question, study assumptions and limitations.

Chapter Two is the literature review. This chapter investigates research conducted on communal strategies for livestock feeding. It covers communal land tenure, communal land management and livestock keepers' perceptions and considerations leading to their decisions to select areas for livestock feeding.

Chapter Three is the research methodology. This chapter covers the research approach including the methods and techniques that were used for data collections and analysis.

Chapter Four is the research results and discussions. This chapter presents and discusses the finding from the field. Further, it discusses initial comparisons between the findings in the literature review and the findings from the field.

Chapter Five is the concluding chapter. It combines arguments from the literature review and the findings from the field in connection with the research question. It ends up with the recommendations for future research in similar study.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter explores literature on research conducted on communal livestock keepers' practices, perceptions and decisions regarding the selection of areas for livestock grazing. It provides the theoretical framework for developing the research methodology and analysing the results from the field.

The chapter covers the issues around communal grazing land management. The issues covered include defining communal land tenure, allocation and regulations of communal grazing land, and livestock keepers' practices, perceptions and considerations leading to their decisions to select areas for livestock grazing. The livestock keeping practices focus on herding and grazing strategies during the wet and dry seasons, and during drought. Figure 1 shows a diagrammatic representation of all the issues covered in this literature review

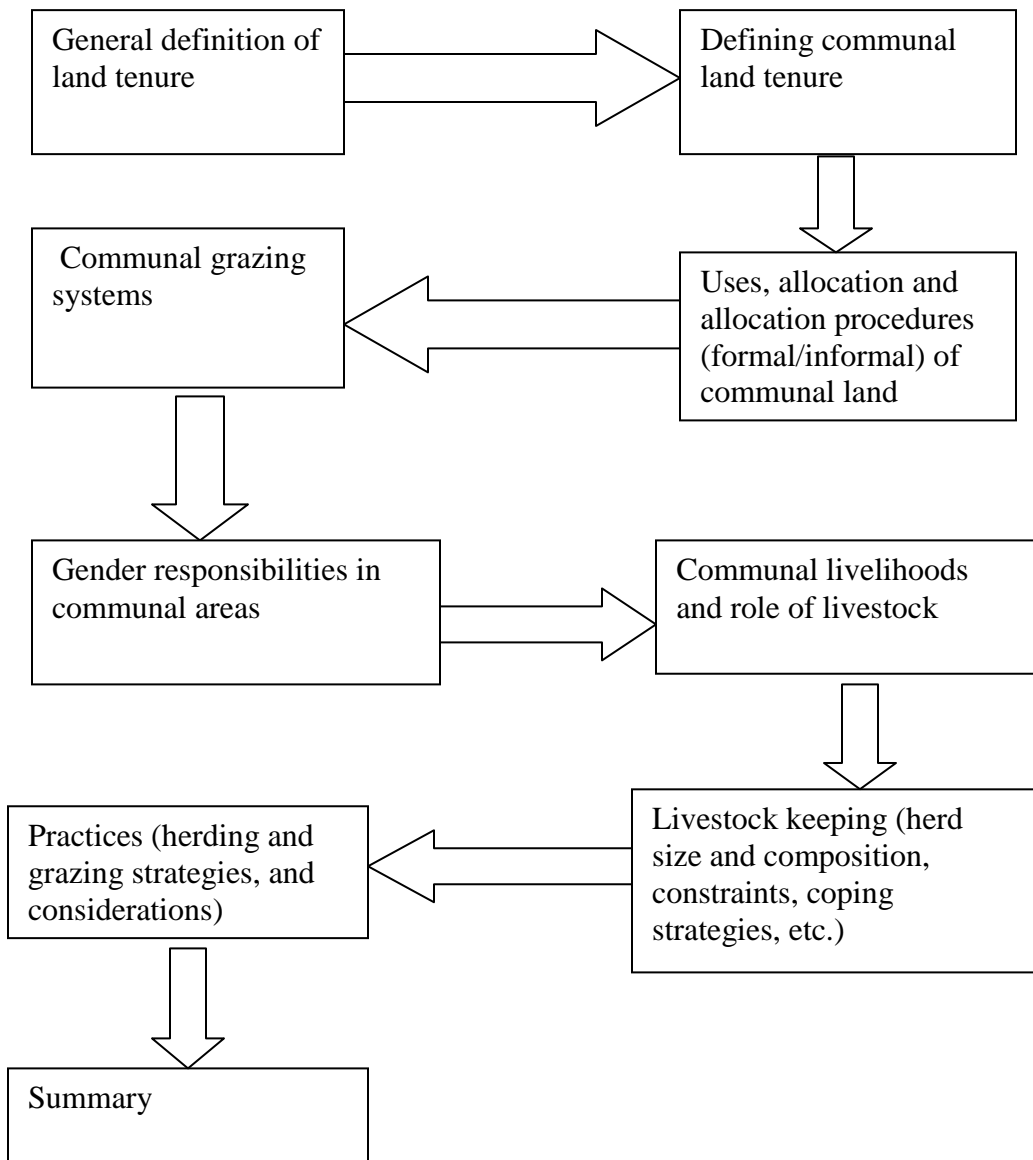
#### **2.2 Land tenure**

Land tenure is a system of rights to use land, trees, water and grass in a certain way and sometimes exclude others. It is the "terms and conditions on which natural resources are held and used" (Lane, 1998: 5). The system will usually identify who has rights and who is excluded from those rights (Lane, 1998). According to IFAD (1995) and Murombedzi (1990), there are four land tenure regimes namely:

- Freehold or private land tenure: referring to individual ownership and rights to exclude others from a particular piece of land and its associated natural resource.
- Leasehold land tenure: referring to renting land from parties who have private land tenure.
- Communal/common or traditional land tenure: referring to individuals and group rights to access and use of land owned by a traditional community usually held in trust by a traditional authority.

- Open access or non-property regime – referring to the absence of a structure of rights, obligations and regulations to use the land.

This literature review discusses communal land tenure because the study focuses on smallholder livestock keepers who utilise communal grazing land.



**Figure 1: Diagrammatic representation of literature review**

### **2.3 Defining communal land tenure**

Communal land is a common property regime “based on the concept of equal access to a resource by all members of a clearly defined group” (Murombedzi, 1990:1). The land is not individually owned or managed (IFAD, 1995). Historically and traditionally, communal land belonged to a tribe as a whole. It was ultimately controlled by traditional leaders (chiefs). It was the chief’s responsibility to allocate or cancel allocation of communal land (Tau, 2005). While land is collectively owned by a tribe, it is collectively managed by the identified group to which the land has been allocated. Membership of the group is determined by residence or heredity (IFAD, 1995). In South Africa, the identified group is usually a community (in the case of communal grazing land) or a family (in case of a homestead) (Montgomery, 2000).

IFAD (1995: 5) argued that “the common misperception of common property regimes is that the resources they govern are open to all”. Communal or common property is not open to all, non-group members’ rights are excluded and they do not have access to the resource (IFAD, 1995). Therefore, in one aspect, communal property is like private property; under both systems those who have the right to use the land have the power to exclude others from access.

Common property regimes depend upon the system of power to enforce rights, rules, and terms and conditions for using the resource. The system may be derived from the traditional government of the tribe (IFAD, 1995). Communal land tenure, like all other tenure systems, is dynamic. It is changing over time, not only in response to internal changes, but also to external forces such as politics (Murombedzi, 1990).

### **2.4 Uses and allocation of communal land**

Land, especially those under communal land tenure, serves a variety of functions. It is used for agriculture, residence and social services. The primary use of land is residential, but larger residential areas also include cultivated lands and enclosures for livestock. The family to whom that land has been allocated has exclusive use rights of that particular land (Montgomery, 2000).

Communal land is also used for agriculture. This includes smallholdings, arable land, forestry and pastoral areas. The smallholdings and arable lands are cultivated areas which are separated from, but adjoining residential areas. These areas are used for either market gardening or subsistence farming or both. The pastoral areas are comprised of grasslands. The grasslands are used as communal rangeland for livestock grazing (Montgomery, 2000).

As noted earlier, communal land was controlled and allocated by traditional leaders (chiefs). The chiefs allocated the blocks of residential, grazing and arable agricultural land to village headmen. Then village headmen allocated that land to married men for family use. Land use types were arranged in such a way that residential area formed a village centre. The village was surrounded by arable lands. The outer circle was used for livestock grazing. The grazing land was divided into districts managed by overseers. The overseers were appointed by village headmen. Overseers controlled access to their blocks of lands (Makepe, 2006).

In South Africa, the previous government viewed the traditional leadership or management of communal areas as being ineffective. The result was the introduction of so-called "Betterment Schemes". Households were clustered together and fenced to form villages. The grazing lands were also fenced (Tau, 2005). A similar situation occurred in Botswana under the Colonial government. The boundaries were fixed, not allowing the tribes to expand or split as they had been able to do before the Colonial rule (Makepe, 2006). The authority of traditional leaders over communal land has thus been diminished (Tau, 2005).

The size of allocated land in communal area depends on many factors; among them demonstration of need. Communal land is shared and persons who have unused portions of land are asked to help others in need of land. The person who has unused land has to give permission before their land can be used by someone else. People from outside the

community have to obtain approval from the whole community because their admission will affect the whole community (Montgomery, 2000).

## **2.5 Communal grazing systems**

There are two contrasting grazing systems, especially in South Africa: commercial and communal. Commercial farms are privately owned and aimed at maximising production (for example, meat or milk). In commercial farms, livestock are kept in camps and in absence of herders. Rotational grazing is mostly practiced in commercial farms (Samuels, 2006).

Communal practices in communal farming systems differ strongly with commercial systems (Samuels, 2006). The reasons for keeping livestock are very diverse in communal systems (Ainslie 2002; Debeaudoin 2001). Most livestock keepers rely on communal rangelands for their livestock grazing (Tau, 2005, Masiteng *et al*, 2003; Benin & Pender, 2002).

Communal areas occupy about 13% of the farming area of South Africa and the preferred livestock are cattle. Livestock ownership is complex and fewer people own large herds (Palmer & Ainslie, 2006). Communal farms are viewed by rangeland scientists as totally uncontrolled, norm-less, open to all and the farmers are greedy and act selfishly to maximise their benefit at the expense of others (Allsopp *et al*, 2007, Samuels, 2006). Livestock keepers in communal lands are accused of increasing the number of their livestock unrestrictedly until livestock number exceeds the carrying capacity leading to overstocking, overgrazing and land degradation (referred to as “tragedy of the commons” by Hardin (1968: 20)). Livestock keepers are also accused of taking the risk that their animal will survive than reducing the number of animals owned (Bembridge & Tapson, 1993).

The “tragedy of the commons” theory is based on the perception that privatisation leads to better management (Harris, 2000). It is based on the equilibrium theory, which assumes that herbivores have a great impact on rangeland vegetation, and that herbivore

population needs to be controlled not to exceed carrying rangeland capacity (Gillson & Hoffman, 2007). It is also based on the assumption that communal grazing lands are ‘free to all’ with no access regulations, livestock keepers do not have managerial skills to look after grazing land, and livestock keepers are greedy (Debeaudoin, 2001).

However, a study conducted by Allsopp *et al* (2007) in Leliefontein, South Africa, showed a difference between communal livestock keepers and rangeland scientists. Livestock keepers argued that there is too little land available because of past apartheid legislations that allocated small pieces of land to “coloured people”. The majority of livestock keepers in Leliefontein did not perceive a need to reduce livestock numbers. The minority of livestock keepers perceived a need to rest overgrazed areas by moving to other parts of the communal grazing land.

Furthermore, farmers in Leliefontein perceive that there was limited number of animals that grazing land could carry. Farmers perceived the main determinant for rangeland carrying capacity as rainfall. They argued that grazing land could carry different numbers of animals depending on climate fluctuations. That is different from the perceptions of many rangeland scientists who assume that vegetation can be maintained using a fixed carrying capacity. This shows that rangeland scientists have an equilibrium view while livestock keepers have a disequilibrium view regarding communal rangelands (Allsopp *et al*, 2007). The disequilibrium assumes that herbivores have little impact on rangeland vegetation and herbivores are controlled by density-independent environmental factors such as drought, fire, rainfall, etc. (Gillson & Hoffman, 2007).

In addition, the “tragedy of the commons” overlooks the important role of institutional arrangements that provide exclusion and regulations for using communal land. Many rangeland scientists assume that communal grazing is free to all while it is not. Access to land is controlled in communal areas and community members are not greedy. There are collective rules and regulations governing communal grazing land to avoid overexploitation. The rules regulate access to users and abusers, and there is a mechanism in place to conserve resources at certain period of the year to guard against

mismanagement. Those rules and regulations are enforced by leaders and they exclude non-community members from using grazing land (Makepe, 2006; Fratkin, 1997; IFAD, 1995).

Debeaudoin (2001) also tested the theory of the ‘tragedy of the commons’ in Leliefontein. She found that livestock keepers regulated the number of livestock to survive during drought. She also found that access is not open to all in Leliefontein, and livestock keepers have knowledge and strategies regarding keeping livestock alive, and they help one another. The study by Allsopp *et al* (2007) in Leliefontein also showed that there are collective unwritten rules that exist in communal areas. Those rules are used as a guide to communal livestock keepers to use communal rangelands. For example, grazing on crop lands is prohibited during the growing season.

In addition, land degradation is not only caused by intensive grazing, but other natural hazards have an impact on land degradation as well. For example, there are naturally occurring processes like sinkholes. The sinkholes form unnecessary dongas that decrease the grazing land. Climate change also has an impact on land degradation. For example, drought can cause the area to be too dry and less vegetation will grow. Soil erosion and land degradation are likely to occur in those circumstances (Fratkin, 1997).

It can be concluded that the theory of the ‘tragedy of the commons’ is not a “one-size-fits-all” in communal rangelands. The theory is not relevant to all communal rangelands. It has been tested in other communal areas like Leliefonfontein and found to be irrelevant (Debeaudoin, 2001).

## **2.6 Gender responsibilities in communal areas**

Gender is a profound issue that influences societies. There are countless unspoken cultural rules that differently govern the behaviour of males and females in every country in the world. In most rural communities, community politics and governance are still structured by overarching principles and practices of male authority. Rarely do women

participate in traditional governance structures of the community, except for women's groups (Rwelamira, 1999).

The cultural rules that define gender roles also regulate access to certain resources. The majority of marginalised people in many societies are women. Women, helped by children spend disproportionate amount of time and energy on two activities essential to all households: obtaining water and fuel. The more time spent on these activities means less time is available for other productive activities. Women have limited access to resources such as land. They seldom own land, except through their male relatives (Keinbooi & Lahiff, 2006; Rwelamira, 1999). Women remain vulnerable to loss of access to resources should their relationships with men change through death, divorce, abandonment, etc. However, in communal areas such as Namaqualand, widows inherit land of their late husbands and they can farm independently of men, but on behalf of their sons (Keinbooi & Lahiff, 2006).

There is division of responsibilities between men and women at household level and in the community. Division of responsibilities between men and women also applies in farming. Women are considered as producers of food and men give attention to cash crop and livestock production (Rwelamira, 1999). According to Keinbooi and Lahiff (2006), women make a contribution to the economy of the households through their involvement in a range of farming activities and home-based activities especially when men are away to search for employment.

Ironically, men plough larger areas and produce more goods. This is ironic because animals do it for them. Men have access to resources and technology like animal traction. Animal traction is dominated by males in most countries of East and Southern Africa. Animal traction involves oxen and women involvement on issues related to livestock is limited, particularly in countries like Tanzania, Zambia and Malawi. Also, in countries such as Lesotho, women, by tradition are not allowed to touch oxen. This gender inequity restricts the capacity of women to contribute to food production (Rwelamira, 1999).



In most Sub-Saharan African cultures, livestock are the responsibility of men because they are considered a sign of wealth (Rwelamira, 1999). Males are also generally responsible for livestock herding in communal areas (Sieff, 1997). Samuels (2006) also found that males were responsible for herding in Leliefontein during drought. Women and girls herded livestock when males are not available (Sieff, 1997). Women and men's rights, positions, responsibilities and decisions in rural households are shifting. Decisions about livestock selling or slaughtering depend on origin of livestock, category of animal and reason of disposal (Hodgson, 2000).

In summary, gender responsibilities and rights to livestock and issues involving livestock are changing with time, although men still have more say in many countries. Women are getting involved in ownership and decision making of livestock keeping in communal areas (Hodgson, 2000).

## **2.7 Rural or communal livelihoods**

The majority of people living in communal areas derive their livelihoods from a range of on-farm and off-farm sources. Crop and livestock production, and use of natural resources are forms of on-farm activities. Wages, remittances from migrants and commuters, income from informal economic activities and state welfare grants are forms of off-farm sources. Rural households also harvest natural resources such as wild fruits and vegetables, wood and medicinal plants to use or sell. The land and other natural resources contribute to rural households' food security, income, water, fuel, medicine and shelter. These land-based livelihoods are constrained by a combination of population growth and shortage of land. This is the general landscape in which smallholder farmers in communal areas pursue their livelihoods (Andrew *et al*, 2003).

Further, communal farmers work in the context of increasing population pressure with limited resources. Communal farmers have little or no societal and political influence in the provision of health, education and other services. They normally live a poor quality life (Masiteng *et al*, 2003).

Crop production is another important livelihood strategy that rural households employ to survive, especially in the South African rural areas. The crop most commonly grown is maize, usually under rain-fed conditions. Maize is sometimes intercropped with other crops such as beans and sorghum. These crops are produced for home consumption; production for sale is rare. Crop production is declining because of population growth and lack of access to other lands in rural areas, which have led to the decline in arable land available to produce crops (Andrew *et al*, 2003).

In communal areas, there are households that keep livestock (stock farmers) and produce crops. There are households that produce crops, but do not have livestock (non-stock farmers). Rural livestock keepers have reasons for keeping livestock which have been changing over time. Some livestock keepers maintain livestock for specific reasons (e.g. form of employment, milk and meat for consumption, investment, etc.). Some livestock keepers have inherited livestock and continue keeping them as a matter of tradition or practice. The reasons for keeping livestock vary from place to place and between households (Andrew *et al*, 2003).

There are both positive and negative interactions between crop production and livestock keeping. Both livestock and crops compete for resources, especially land and labour. On the other hand, if crop production and livestock keeping are well handled, there is a positive interaction. For example, crop production decreases pressure of selling and slaughtering livestock for home consumption. Furthermore, livestock can benefit from crop residues as feed and crops can benefit from dung as fertilizer. Livestock also provide draught power for ploughing the land for crop production (Tolera & Abebe, 2007).

## **2.8 Role of livestock in communal areas**

The previous section demonstrated that livestock keeping is one of many livelihood options in communal areas. Other livelihood options in communal areas involve “wage labour, remittances, pensions and social security” (Benjaminsen *et al*, 2005: 5). Livestock keeping is the main livelihood in most communal areas. This was confirmed by the study

conducted by Tolera and Abebe (2007), which also found that livestock was the main livelihood in pastoral communities in Ethiopia.

Livestock, especially cattle, are the basic form of economy and social welfare of rural livestock keepers (Andrew *et al*, 2003). Livestock are used for generating income (Solomon *et al*, 2006; Duvël & Afful, 1994). The sale of livestock and livestock products can generate quick cash in difficult times and uncertain situations that need cash. The income from the sale of livestock and livestock products can be used to purchase food and otherwise improve livestock keepers' food security. The income can also assist livestock keepers send children to school and purchase medicines for themselves and for their livestock (IFAD, 2007; Katjiua & Ward, 2007; Randolph *et al*, 2007).

In addition, livestock keeping is an investment or savings account at times of economic crisis (Samuels, 2006). Livestock are a "living bank" in communal areas (Wurzinger *et al*, 2008: 542). However, the sale of livestock is the last resort. Livestock keepers try many options to generate cash first before considering selling livestock (Duvël & Afful, 1994). Furthermore, people who do not have livestock want to own livestock. The study by Dovie *et al* (2006) in Thorndale in Limpopo, South Africa, showed that the majority of non-stock owners want to have livestock. They are constrained by lack of buying power.

Livestock in communal areas are kept as a source of food (milk and meat) for home consumption (Wurzinger *et al*, 2008). Most of the time, people in communal areas use milk (Katjiua & Ward, 2007, Randolph *et al*, 2007; Anslie, 2002). Slaughtering for meat is occasional and usually occurs when the animal is sick or unproductive, or for ceremonial occasions (Randolph *et al*, 2007).

Livestock are also important for draught power and for manure for crop production in remote areas. Dung is used for fertilising the soil in cropping fields (Tolera & Abebe, 2007), fire making when dry and used for floor surfacing (Randolph *et al*, 2007). Livestock provide draught power and means of transportation (IFAD, 2007; Tolera &

Abebe, 2007; Bembridge & Tapson, 1993) reducing human work in the fields (IFAD, 2007). Livestock, especially cattle, are used to pull timber, carts and sledges and to drag heavy loads as another important function. They are used to plough and cultivate arable lands and transport yields to the households. (Allsopp *et al*, 2007; IFAD, 2007; Randolph *et al*, 2007; Solomon *et al*, 2006; Duvël & Afful, 1994).

Livestock are also used in traditional ceremonies (slaughtering in weddings and funerals, supplicating ancestral spirits, payment of lobola (bride-wealth), etc.) (Tau, 2005; Duvël & Afful, 1994; Bembridge & Tapson, 1993). Livestock in communal areas are important for status and acceptance within the community. People who own more livestock are regarded as wealthy and highly acknowledged in the community (Samuels, 2006; Solomon *et al*, 2006; Galvin *et al*, 2004; Duvël & Afful, 1994). Furthermore, livestock, especially cattle, are kept for spiritual purposes. Some people use the cattle kraal as a place of burial and consultation with ancestors (Duvël & Afful, 1994). Generally, people wish to own livestock to benefit from their uses, products and services (Ainslie, 2002).

In summary, communal livestock keepers like to keep livestock for food, agriculture, prestige, draught power and traditional ceremonies. They are reluctant to sell livestock. Salomon *et al* (2008) argued that livestock are an essential part of livestock keepers' identity and not simple assets that can be sold anytime. Keeping livestock in communal areas, especially cattle, is highly valued for social, economic and spiritual purposes (Salomon *et al*, 2008). Nevertheless as noted earlier, times of economic crises push livestock keepers to sell their livestock.

## **2.9 Constraints in keeping livestock in communal areas**

Rural people, including livestock keepers are vulnerable to socio-economic and natural shocks. Socio-economic shocks include theft, diseases, price fluctuations and loss of jobs and grants. Natural shocks include drought, floods and fire (Andrew *et al*, 2003). A common constraint that livestock keepers face is shortage of feed and water, especially during dry seasons (Solomon *et al*, 2006). The seasonal variation also leads to a decline in both quality and quantity of animal feeding material. Furthermore, most communal

livestock keepers depend on rivers, wells and boreholes for them and their livestock. These sources are not consistent particularly during dry seasons (Ndebele *et al*, 2007, Schareika, undated).

In addition, according to Bembridge and Tapson (1993), livestock are poorly fed in communal areas due to overstocking that leads to overgrazing. This poor feed level leads to poor livestock production. “Overgrazing in the rainy season does not allow sufficient carry-over for the dry season” (Bembridge & Tapson, 1993: 371).

Drought, in particular, can be a major constraint. For example, Tolera and Abebe (2007) and Solomon *et al* (2006) found that in Borana, Ethiopia, recurrent drought led to feed and water shortages. During such times, there were more woody plants than palatable plants and more land consists of uncovered soil. Drought also leads to other problems such as livestock losses, food insecurity, hunger and poverty (Solomon *et al*, 2006; Tolera & Abebe, 2007).

Tolera and Abebe (2007) also found another constraint that increases the problem of forage shortage is bush encroachment. They added that bush encroachment negatively impacts the effectiveness of grazing areas, because of the occurrence of undesirable plant species that livestock do not consume. Furthermore, bush encroachment makes it difficult for livestock to access forage.

Theft has a huge impact on livestock owners’ decision making processes. The livestock owners do not invest in livestock if they are likely to be stolen. For example, a livestock keeper will not buy supplementary feed if the attractiveness of his livestock will attract thieves. The livestock that are often stolen are cattle and sheep because they have high market value. This constraint is compounded by the fact that authorities do little about livestock theft. This often leads to the livestock owners using resources to guard and protect their herds from theft even to the point of using resources to buy weapons to retaliate (Blench, 2001).

Illnesses and death is another constraint facing communal livestock keepers (Ndebele *et al*, 2007, Yemane, 2003). Some of the illnesses are caused by poisonous plants. Livestock deaths are also a result of rangeland fires (Ndebele *et al*, 2007).

Ticks and other external parasites add to the problems facing communal livestock keepers. Yemane (2003) found that ticks cause teat damage in cows. Some communal areas face the problem of predators. Some livestock keepers, even those whose livestock are free ranging, are forced to hire people to look after their livestock while grazing to protect them from harm (Blench, 2001).

Human population increase and land use changes are also a constraint to livestock keepers. As human population grows and land is used for buildings, roads, etc., there is less land for livestock grazing (Galvin *et al*, 2004).

## **2.10 Coping strategies**

As noted earlier, livestock keepers in communal areas face many challenges. However, they have developed a number of strategies to cope with these challenges. This section explores some different coping strategies used by livestock keepers in communal areas in different countries, to deal with some challenges that they face.

Livestock keepers in communal areas have strategies to alleviate feed and water shortages during dry seasons. The study in Borana, Ethiopia, showed that farmers' strategies include supplementary feeding and mobility (Solomon *et al*, 2006). This correlates with the study done by Kgosikoma (2006) in Kgalagadi, Botswana. The livestock keepers in Kgalagadi feed their livestock supplements such as salt, leaves and branches, grass hay and maize straw (Kgosikoma, 2006). Livestock keepers in communal areas also cut-and-carry the branches and the leaves of trees to feed their livestock to deal with feed shortages (Tolera & Abebe, 2007).

Furthermore, mobility is the strategy to move livestock away from harsh and unmanageable environments (Mworia & Kinyamario, 2008; Schareika, undated) like

getting away from area experiencing drought (Oba & Lugisis, 1987). Mobility is also a strategy used to utilise different parts of grazing land in search for 'greener' pastures (Samuels *et al*, 2006; Ogle, 1990). Livestock keepers in communal areas take their livestock where there is availability of forage, water (Kgosikoma, 2006; Baker & Hoffman, 2006, Kandagor, 2005) and certain grazing materials (Allsopp *et al*, 2007, Galvin *et al*, 2004). The herders in Namaqualand, South Africa move their stock posts to look for better grazing areas. However, other herders in Namaqualand did not move their livestock because they did not have resources to do so. Herders in Namaqualand also used mobility strategy to avoid unpalatable and poisonous plants for their livestock safety (Allsopp *et al*, 2007). However, mobility is constrained by water availability. Livestock keepers in Namaqualand were forced to move to certain areas because other areas did not have water points (Samuels *et al*, 2006).

Keeping large and diverse herds is another strategy that livestock keepers use coping with drought. Keeping many and difference species of livestock increases the opportunities for survival (Samuels, 2006). Different livestock are also susceptible from different disease and therefore keeping different livestock species mitigates the risk of losing all livestock in case of harsh environment or diseases. Livestock keepers also keep diverse species of livestock to diversify the services and products that are obtained from livestock (Fernández-Giménez & Swift, 2003).

As noted earlier, diseases are a problem in communal areas. Livestock keepers have strategies to treat diseases. Most of them have adopted veterinary ways of dealing with livestock diseases. However, there are some people who are highly knowledgeable about the behaviour and physiology of livestock and have developed traditional remedies to treat certain diseases. There are two contrasting views held by pastoralists about traditional remedies. The first view is that traditional remedies are the solution when veterinary remedies are not available. The second view is that traditional remedies have limited value as compared to veterinary remedies. The certain truth is people in communal areas will continue using traditional remedies when access to vet remedies is limited because of costs and lack of infrastructure (Blench, 2001).

## **2.11 Practices, considerations and decisions to select grazing areas**

As mentioned earlier, communal livestock keepers depend mostly on communal grazing land as source of feed. Communal grazing is designed for summer grazing (Tau, 2005). Movement of livestock in summer is restricted to uncultivated lands and free grazing is limited. Free ranging, even to cropping fields, takes place after harvest until the following planting season. In winter, livestock are free ranged during the day and kraaled at night (Benin & Pender, 2002). Livestock herding in most communal areas tends to take place during dry seasons or when other areas are at risk of theft or predators. Livestock are free ranging in most communal areas in winter or dry seasons because the croplands are harvested and livestock have access to crop residues (Palmer & Ainslie, 2006).

However in other communal areas, livestock are herded throughout the year. In others, livestock are not herded throughout the year, they are released from the kraal in the morning and kraaled in the afternoon (Baker & Hoffman, 2006). In addition, in other communal areas, like communal areas of Eastern Cape, South Africa, cropping lands are not cultivated anymore and there are seasonal restrictions to graze on them. In these areas, herding is not usually practised, but livestock are kraaled on a daily basis because of theft (Moyo *et al*, 2008).

The livestock keepers and herders know their livestock very well. Livestock are given names based on bodily appearance, behaviour and/or history. This close relationship between pastoralists makes it easier for pastoralists to know the needs of their livestock and which natural resources to use (Niamir, 1990). The livestock in communal areas depend on natural grass as their forage and river, ponds and wells as sources of water (Kavana *et al*, 2005).

### **2.11.1 Herding strategies**

Livestock keepers in communal areas employ different herding strategies and have different reasons of selecting certain areas for livestock grazing. There are various reasons for having different herding strategies in communal areas. The social, economic



and political factors impact on herding strategies livestock keepers employ. Another reason for various herding strategies in communal areas is the absence of enforced rules for collective strategy (Baker & Hoffman, 2006). This section explores different herding strategies and factors that livestock keepers in different communal and pastoral areas consider when selecting grazing areas.

The study conducted by Solomon *et al* (2006) in Borana (Ethiopia) showed that livestock keepers practiced home-based herding and satellite herding. Home-based herding entails keeping livestock close to the homestead. This practice is usually employed to dairy animals and immature livestock. Satellite herding involves herding livestock far away from the village in search for grazing and browsing. This practice is usually applied to bulls, oxen and dry animals.

According to Coppolillo (2000), the distance livestock travel from the household (herding radius) is influenced by four factors, viz.: water availability, settlement density, households' labour demands and herd size. Livestock keeping households that are far from water points are forced to travel long distance to water their livestock. The settlement density affects herding radius in a sense that households that are surrounded by many households are forced to travel long distances to grazing areas. Households surrounded by few households can get grazing areas close to their households and travelling is reduced. The third factor is labour demands. Households that have people with many responsibilities may not have time to travel long distances to graze livestock. Herd size also affect herding radius. This factor can relate to the size of the grazing area; smaller herds can graze in a small grazing area while larger herds need large areas to settle. Households that have large herd sizes may be forced to travel long distances in order for their livestock to settle well.

Herding strategies are looked at in terms of daily grazing practices and time spent with livestock. Samuels (2006) identified three classes of herders in this regard. The first consists of herders who stay with their herds for the whole day. The second consists of herders who stay with their herd for the first part of the day only (some staying early in

the day and some stay in the first half of the day). The third consists of herders who drive their livestock to the grazing area and leave them there for the whole day.

Allsopp *et al* (2007) classified herders into four groups, viz. “leaders”, “delegatory leaders”, “managers when necessary” and “followers” (Allsopp *et al*, 2007: 8). The “leaders” drive livestock to the grazing area. In other words, the herders select grazing area for the livestock. The “delegatory leader” herds livestock when they are hungry until they are full and relaxed. When livestock are full, the “delegatory leader” leaves them to perform other duties at home. The “manager when necessary” lets livestock select grazing area, but directs them if they select the same area several times. The “follower” lets livestock out and follows them where they select to go.

The study in Namaqualand by Samuels (2006: 87) added three more herding strategies, viz.: “collectors”, “caretakers”, and “selective” herders. The “collectors” are the group of herders who believes that livestock can smell where there is food. The “collectors” practice free range grazing and they collect their livestock and kraal at night. The “caretakers” do not stay with livestock, but check them at certain times to feed them and treat the sick ones. The “selective” herders separate livestock that come to the kraal on their own from those who do not and then look after livestock that do not come on their own.

The study conducted by Ainslie (2002) in Maluti district in the Eastern Cape, South Africa, showed that livestock keepers do not herd their livestock and kraaling them is rare. The livestock are let to graze in the mountains and it is the owners’ responsibility to check if livestock are still within the grazing areas.

According Ainslie (2002: 113), “The question of who does the actual work of herding cattle is a function of the composition and structure of the household in question and thus whose labour the household commands”. Some livestock keepers self herd their livestock and use hired people as herders and pay them (Benjaminsen *et al*, 2005; Ainslie, 2002). Some people practise co-herding, where a person looks after herds of friends or relatives

(Benjaminsen *et al*, 2005). Samuels (2006) found that the herding was done by males only in communal rangeland of Namaqualand, whereas Ainslie (2002) stated that women and girls take part in herding.

A study conducted in Eritrea by Andom and Omer (2002) showed that herders and livestock keepers practice “leader” and “follower” herding strategies. The herders from the lowlands of Eritrea lead their livestock through vocal commands, while herders from highlands follow livestock from the back. The former stayed with their livestock for five consecutive days to train livestock to understand vocal commands. The vocal commands include warning in times of danger. The latter was not using vocal commands and their livestock were driven from the back. They only use vocal commands when they were ploughing their cropping fields.

### **2.11.2 Livestock mobility and selection of grazing areas**

As stated earlier, herd mobility is one of the strategies used to access resources such as forage and water. There are daily and seasonal movement of livestock in communal areas, especially in arid and semi-arid areas. Certain parts of rangelands offer poor grazing quality in certain seasons of the year (Allsopp *et al*, 2007; Swallow, 1994). There are many reasons that make herders move their herds. Herd mobility may follow an expected pattern between wet and dry seasons or opportunistic mobility may follow unexpected patterns caused by variability of rainfall (Vetter, 2005).

Livestock keepers and herders in communal areas use complex criteria to choose grazing areas for their livestock. Livestock keepers and herders are also knowledgeable about good and bad grazing areas, and toxicity of plants (Allsopp *et al*, 2007). Debeaudoin (2001: 70) classified these criteria in Leliefontein into six groups, viz: “animal safety, animal intake, water availability, presence of croplands, presence of other herds and herder comfort”. Animal safety involves safety from disease, toxic plants, predators and unfavourable weather. Therefore, herders use mobility strategy to drive livestock to the areas with less toxic plants, less predators, less chance of diseases (Allsopp *et al*, 2006;

Debeaudoin, 2001), and to lower areas to avoid extreme cold weather in the cold seasons (Debeaudoin, 2001).

Herders in Leliefontein considered good grazing area as the one where livestock can eat enough. They did not assess grazing quality as scientists do. They did not identify types of grass or vegetation cover found in the areas to make it a good grazing area. They assessed grazing area by the behaviour of livestock on it. Herders also considered an area as good grazing area if water is available for their livestock (Debeaudoin, 2001). Water and forage availability determines which area livestock keepers would use for livestock grazing (Samuels *et al*, 2006).

Debeaudoin (2001) found that herders in Leliefontein avoided cropping areas when selecting grazing areas during the cropping seasons. The areas with many cropping fields were avoided because grazing was very limited. Baker and Hoffman (2006) also argued that cropping lands affect herd mobility. Herders moved livestock away from unfenced croplands to avoid damaging crops (Baker & Hoffman, 2006; Basset, 1986). Debeaudoin (2001) also found that herders in Leliefontein avoided the presence of other herds to avoid livestock mix-up and herders believed that livestock would not eat well if there were too many livestock in the same area at the same time. Samuels *et al* (2006) also argued that herd mix-up increased the competition for resources and contagious diseases may be spread between herds. Herders then “move their herds to areas with low livestock density” (Samuels *et al*, 2006: 736).

Herder comfort is another determining factor considered when choosing a grazing area. Areas that are mountainous and not easily accessible are usually avoided. Herders chose flat areas that are not too exhausting to walk around (Debeaudoin, 2001). The herders also select the grazing area according to the animal behaviour. Livestock are likely to be excited in an open area after being kept in the kraal at night. They run around and trample good forage. They are also in danger of eating toxic plants due to their excitement. The herders take them to the areas with poor quality forage and low presence of toxic plants

to calm them down. Once they have calmed down, the herder then takes them to the target area (Allsopp *et al*, 2007).

According to the study done by Allsopp *at al* (2007) in Leliefontein, the herders selected grazing areas on a daily basis. Most herders in Leliefontein selected different routes to avoid trampling. The herders perceived excessive trampling as destroying vegetation and increasing soil disturbance. The herders in Leliefontein chose grazing areas according to the animals' hunger. If the animals show that they are very hungry, the herders would take them to the areas with abundant high quality forage. When their appetite has been moderated, the herders would take them to water points.

## **2.12 Summary**

The literature review highlights the essential role that livestock play in communal areas. There is a range of uses, products and services that livestock provide in communal areas. These include food (milk and meat), manure, rituals (slaughtering in weddings and funerals, payment of bride wealth, etc.), draught power and prestige. Livestock serve as a “bank” of communal people to sell in cases of emergency.

The problem that livestock keepers in communal areas, particularly in arid and semi-arid areas, experience is drought. Other problems in communal areas include veld fire, theft, feed and water shortage in dry seasons. Livestock keepers have strategies that they employ to cope with problems they face. They use mobility and supplementary feeding to deal with feed shortage during drought and dry seasons, but mobility is restricted to water points in arid and semi-arid areas. They also use livestock diversification as a risk mitigation strategy to diseases and unfavourable environments.

The literature review highlights that communal lands are main source of livestock feed in communal areas. There are differing opinions about management of communal land. Many rangeland scientists see communal grazing land as being mismanaged and open to all. Rangeland scientists maintain that communal livestock keepers are greedy, do not care about the environment and want to maximise livestock numbers unrestrictedly until

livestock exceed grazing land carrying capacity. Therefore, rangeland scientists argue that livestock reduction is needed in communal areas. The rangeland scientists undermine rules and regulation that guide access to communal areas.

Most communal rangelands are designed for summer grazing, free ranging in winter, but herders from dry areas herd their livestock throughout the year. They move from place to place with their livestock to look for 'greener pastures'. The distance that livestock travel from the homestead is influenced by a number of factors which include availability of water and grazing area, livestock keeping household settlement density, households' labour demands and herd size.

There are various daily herding strategies that livestock keepers and/or herders employ. These strategies are categorised according to the practices and decisions that herders make when looking after their livestock in grazing lands. These strategies involve leaders, delegatory leaders, managers when necessary, followers, collectors, caretakers and selective herders. Each herder has reasons and motivations why s/he selects a particular herding strategy to manage his livestock. The literature review that was consulted also highlights many factors that herders or livestock keepers in communal areas consider when selecting grazing areas. These include availability of grass and water, safety from predators and toxic plants, animal hunger, animal behaviour and avoidance of excessive trampling.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This chapter describes the methodology that was used to carry out research in the rural village in the Northern Drakensberg, KwaZulu-Natal. Both qualitative and quantitative research processes were carried out with sampled respondents to address the research question.

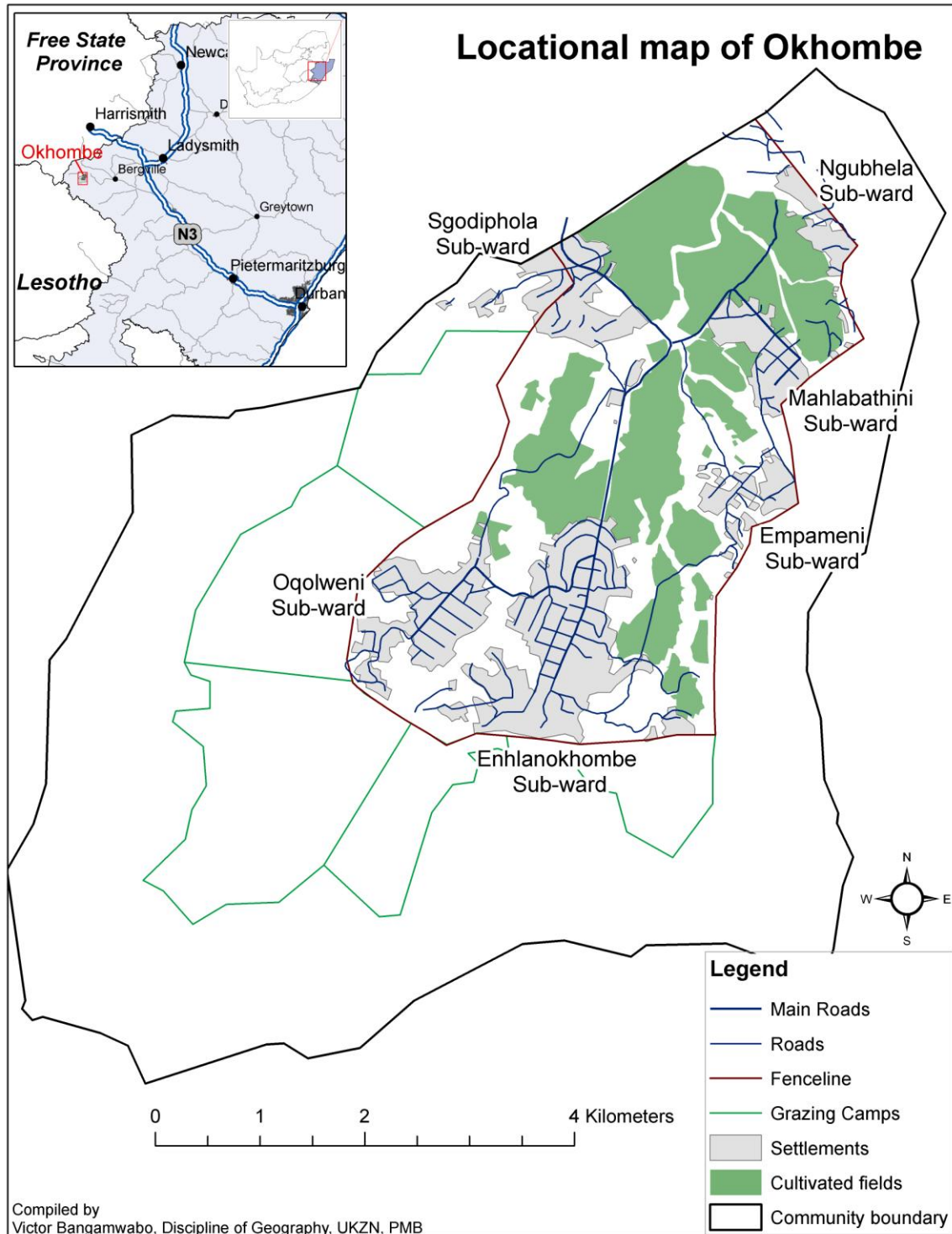
#### **3.1 General background of the study area**

Okhombe village is situated in the south-western part of KwaZulu-Natal, South Africa (Figure 2). It is administered by AmaZizi Traditional Authority. The grazing areas are communally owned and the arable fields are individually owned. Okhombe is subdivided into six areas, namely: Ngubhela, Mpameni, Mahlabathini, Enhlanokhombe, Oqolweni and Sigodiphola. The area is about 6 km long and 2 to 3 km wide (Tau, 2005).

#### **3.2 Population and economy**

There are more than four thousand (4000) people living in Okhombe (FSG, 2005; Tau, 2005). Residents of Okhombe are generally poor and rely on limited income from casual employment, teaching, farming for food and cash, livestock, traditional medicine, handicrafts, pensions, and some income from relatives working in urban areas (FSG, 2005; Tau, 2005; Salomon, undated).

Tau (2005, 6) stated that “the community relies heavily on their natural resources for their daily living”. The majority of the households in Okhombe use wood as a source of heating and cooking, and candles for lighting. Collection of wood is the responsibility of women and they walk long distances carrying those loads of wood. They only carry dry wood because it weighs less than wet wood, and it is a community regulation to harvest only dry wood (FSG, 2005).



**Figure 2: Map showing five sub-wards of Okhombe and the location of Okhombe in South Africa.**

The majority of people in Okhombe live in mud houses made of local building materials. Only one sub-ward (Ngubhela) has electricity. The other five sub-wards are not



electrified because of the inability of residents to pay for the service. Rivers, wells and taps are used by the community as sources of water. Wells and taps are used for household consumption, while rivers are used for laundry and livestock (FSG, 2005).

Grazing practices in Okhombe are influenced by the topographic division of the area into lowlands, hill slopes and the Little Berg Plateau. Livestock are herded up to the mountain in summer for grazing. In winter after harvest, the cattle graze in the cropping fields. As stated earlier, the rangeland (3402 hectare) is communally owned but with individual ownership of livestock. The vegetation is classified as Highland Sourveld, with low nutritive value during winter (Salomon, undated,).

### **3.3 Livestock management intervention in Okhombe**

Okhombe is one of the areas where projects, as part of trying to improve communal grazing, have been implemented. The first intervention was the *Betterment Schemes* in the 1960s. People's homesteads were moved down from the mountains to form a village and cropping fields. The mountain was left for grazing purposes. Fences were erected separating grazing areas (camps) for the five sub-wards. Another fence was erected to separate the grazing area from the cropping fields. That grazing scheme did not succeed because of poor maintenance and fence theft. Okhombe Tribal Authority tried to fine people who were caught stealing fence, but that also did not help (Tau, 2005).

The second intervention was LandCare project. LandCare (agency) launched a livestock project that was aimed at improving community-based natural resource management. The livestock initiative was launched in 1999. The community agreed to build camps to rotational grazing and hire paid herders. Some farmers were confused by the erection of the fence. Some people thought that the fence was intended to prevent livestock from thieves. Other felt that the fence was making it easier for the thieves to come and still livestock. Others thought that the fence was there to divide the community resources, so they would not be able to use other resources. As a result, there was a collapse in herding funds and the farmers did not comply with the grazing systems. Some fences were stolen and some were just cut down (Tau, 2005).

The aim of this research was to identify factors that livestock keepers consider, leading to the selection of areas for livestock grazing. These factors were investigated through exploring these three sub-questions, namely:

1. What grazing and herding strategies are currently being used?
2. Which areas are used for grazing, and in which season(s)?
3. What are the considerations for choosing areas for livestock grazing?

The study was conducted in five steps. The first two steps involve household and in-depth interviews to obtain the views of livestock keepers. The latter three steps involved a transect walk, a case study and focus group discussions with the co-research team. These were used to test and verify the responses of livestock keepers.

This research was part of the PhD research project titled *Keeping cattle in a changing rural landscape*. A co-research team, composed of eight village members, was formed. The co-research team helped the researcher with the household interview and the transect walk and were the principal participants in the focus group discussions. They were specially trained to conduct or otherwise help with household interviews depending on their level of literacy. The co-research team members also facilitated the research by introducing the researcher to the respondents and creating a friendly environment for the researcher. Out of 51 household interviews, 6 were interviewed by co-research team members in the absence of the researcher.

### **3.4 Sample selection**

The first action was to select the village in which to conduct the study. As stated earlier, this research was part of larger research project that was conducted in Okhombe, the researcher also had to conduct the research in Okhombe. Time and funds would not permit conducting research in all six sub-wards. It was agreed by the larger project to

conduct this research in one sub-ward. Enhlanokhombe was chosen because it was known to have many cattle owning households and diversity of herding strategies.

The research sample was all cattle keepers in Enhlanokhombe. The cattle keepers' households were selected using purposive and snowball techniques. These techniques were chosen because the researcher did not have information about which households in the sub-ward owned cattle. The researcher was purposefully looking for households with cattle (Bright, 1991; Landreneau & Creek, undated; StatPac, undated; Wilmot, undated) to draw the map showing distribution of cattle keeping households in the whole sub-ward of Enhlanokhombe. The co-research team members and participants assisted the researcher to identify all cattle owning households. Random sampling was used to select households for in-depth interviews to avoid bias (Melville & Goddard, 1996).

### **3.5 Data collection**

As stated earlier, data was collected to record and document the communal grazing practices in Enhlanokhombe. The techniques mentioned earlier were selected to investigate how livestock keepers select areas for livestock grazing.

#### **3.5.1 Household interviews**

Fifty-one (51) households were identified as keeping cattle. Interviews involved visiting livestock keepers in their homes and interviewing them about their livestock keeping management using semi-structured interviews. Demographic information was also gathered to provide context for the primary data. Respondents were asked lead questions about how and where they grazed their cattle, who was herding their cattle and generally how cattle were managed. In each case the interviewer engaged with the respondent to learn the basic reasons and factors that led to their livestock management choices. In brief, the household interviews were used to explore different cattle management strategies.

Those data were used to create profiles of the cattle keepers based on management strategies and other characteristics. The profiles were used to select households for the in-

depth interviews. While conducting the survey, GPS points of all households with cattle were taken to draw a cattle ownership distribution map.

### 3.5.2 In-depth interviews

Households included in the in-depth interviews were selected using the livestock keeper profiles. Given that the research was about selection of grazing (feeding) areas, the primary factor for selection was feeding strategies for which there were three categories: grazing only, grazing and salt licks, and grazing plus salt licks and traditional supplements. By traditional supplements is meant the addition of traditional herbs and medicines to salt licks. The aim was to make sure that every kind of feeding strategy was included.

The second factor for selection was herd sizes. The reason was to find whether or not herd size had an impact on how livestock keepers select grazing areas. The aim was to represent each herd size range with at least one from each feeding strategy category as shown in the Table 1. The numbers in brackets in Table 1 represent the number of cattle owning households that were selected for in-depth interviews. All cattle graze grass in Enhlanokhombe. The majority (25) of livestock keepers feed their livestock salt licks in addition to grazing, followed by 20 livestock keepers who feed their cattle salt licks and traditional supplements. There are only six (6) households that use grazing only as livestock feed. The dominant herd size is between 1 and 9, there are few households who own 20 and more cattle.

**Table 1: Distribution of Households by Feeding Strategies and Herd Size**

Herd size range	Herd size range					Unknown herd size	Total
	1 – 9	10 – 19	20 – 29	30 – 39	40 - 49		
Grazing, salt licks and traditional supplements	14(5)	3(1)	1(1)	1(1)	1(1)	0	<b>20(9)</b>
Grazing and salt licks	19(6)	4(1)	1(1)	0	0	1(1)	<b>25(9)</b>
Grazing only	6(2)	0	0	0	0	0	<b>6(2)</b>
<b>Total</b>	<b>39(13)</b>	<b>7(2)</b>	<b>2(2)</b>	1(1)	1(1)	1(1)	<b>51(20)</b>

It was intended to conduct fifteen in-depth interviews. Fifteen was an achievable number because of the limitations of time and funds. Fifteen is approximately one third of the 51 cattle keeping households. Therefore, one third of each category of feeding strategy was randomly selected. All households were given a number and the numbers were put in a container for random selection (Bright, 1991). The categories that had only one household in them were automatically selected because full representation of the diversity of feeding and herd sizes was considered valuable to the study. Ultimately this process resulted in selecting nineteen (19) households. One additional household was added to make a total of twenty households for in-depth interviews.

Both household and in-depth interview guides contained semi-structured and open-ended questions to allow participants to express their views without restriction. These types of questions are good for gathering qualitative data that are used in explanatory research (Bernard, 1994; Guion, undated).

### **3.5.3 Verification**

To test and verify data (Guion, undated), participatory observation techniques (a case study and transect walks) were conducted with livestock herders (Bernard, 1994; Kinyunyu & Swantz, undated). The herders were asked herders to show where cattle eat and in what time of the year and why. Informal discussions took place during that walking. This technique was undertaken to observe areas used for grazing and practices done by herders.

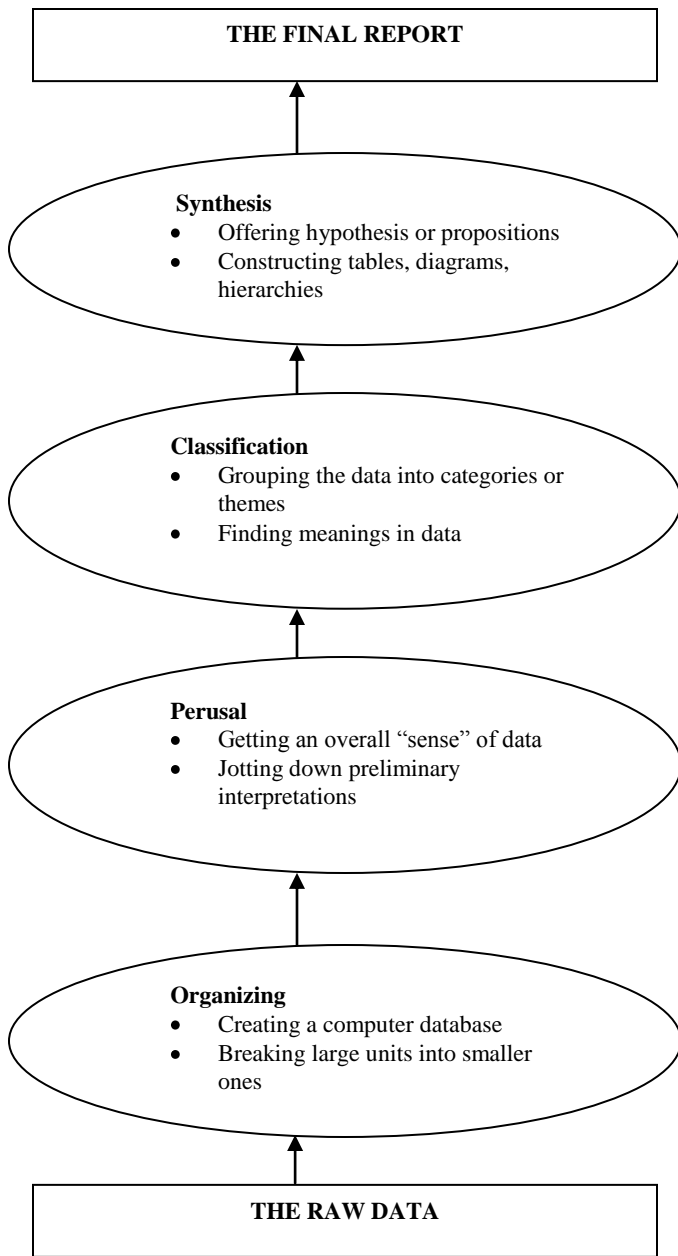
The second verification technique was the case study. A week was spent with one family to observe daily activities in relation to the selection of grazing areas. The herders were followed to wherever the herder took livestock. Again, informal discussions took place during this visit. The third verification technique was focus group discussion. The focus group discussions with co-research team members were conducted to cross-check the validity data. These three verification techniques were used to compare what people said and what they actually do.

Household interviews and focus group discussion guides were prepared in English and translated into Zulu. The household, in-depth interviews and focus group discussions were conducted in Zulu and data were translated into English for easy analysis. Zulu was used because it is the local language that is used in the study area.

### **3.6 Data analysis**

This study involved both quantitative and qualitative research. Quantitative data was systematically entered into a spreadsheet to calculate percentages and a number of variables. Qualitative data was analysed using data analysis spiral as shown in Figure 3.

**Figure 3: Data analysis spiral** (based on Cresswell, 1998 cited by Leedy & Ormrod, 2005)



Using the data analysis spiral when reviewing literature, themes were developed to organise and analyse data. The themes were:

- Types of livestock
- Reasons for keeping livestock
- Herd sizes
- Problems with livestock
- Coping strategies (feeding and management of disease)
- Herding styles and practices

- Livestock movement
- Considerations when selecting grazing areas

The application of these themes is shown in Chapter Four.

### **3.7 Dissemination of results**

Findings about how communal livestock keepers select areas for livestock grazing in Enhlanokhombe were documented in the form of a dissertation and will eventually result in scientific publications. The study also contributed to the PhD research by Monique Salomon, titled *Keeping cattle in a changing rural landscape*, undertaken at the Centre of Environment, Agriculture and Development (CEAD) in the University of KwaZulu-Natal.

Furthermore, the researcher presented some of the findings of the study at the annual conference of the Grassland Society of South Africa (GSSA). The researcher presented the research findings to among the audience, representatives from governmental organisations such as Department of Land Affairs and Department of Agriculture.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

This chapter presents the research findings from the rural sub-ward of Enhlanokhombe in the Northern Drakensberg. The chapter provides detailed information about respondents, types of livestock kept in the sub-ward, problems with livestock, coping strategies, range of cattle herd sizes, different herding and grazing strategies, areas that were used for livestock grazing and factors that were taken into consideration by livestock keepers when choosing grazing areas.

#### 4.1 Gender of participants

It was found that there were about 150 households in the sub-ward of Enhlanokhombe. The research identified fifty-one (51) households that owned cattle. All 51 livestock owning households were visited for household interviews. Twenty (20) of those households were revisited for in-depth interviews.

The target participants were household heads or the elder persons in the households. The majority of the respondents were males. Out of the 51 households, in 34 (67%) of them males were interviewed and in 17 (33%) females were interviewed (Table 2). One case study, three field trips (transect walks) and focus group discussions (co-research team) were conducted to check the validity of data.

**Table 2: Gender of participants**

<b><u>Participants</u></b>	<b><u>Number of participants</u></b>	<b><u>Percentage (%)</u></b>
Males	34	67
Females	17	33
<b>Total</b>	<b>51</b>	<b>100</b>

#### 4.2 Types of livestock

There was a wide range of livestock kept in Enhlanokhombe, but the focus of research was on grazing animals (cattle, goats, sheep, horses and donkeys). Livestock keepers also had other livestock like chicken, turkeys and pigs, but as mentioned the research focused on grazing livestock, especially cattle, with the aim of understanding grazing and herding

practices, and factors that were taken into consideration by livestock keepers when choosing grazing areas.

It was found that 45% of cattle owning households in Enhlanokhombe had cattle and goats only (Table 3). Thirty-five percent had cattle only. Another 16% had cattle, goats and sheep. There were only two households (4%) owning cattle and sheep only. When grouping 16% and 45%, it was found that the majority (61%) of cattle keeping households had cattle and goats.

**Table 3: Types of livestock kept in Enhlanokhombe**

<u>Type of livestock kept</u>	<u>Number of households</u>	<u>Nearest percentage (%)</u>
Cattle and goats only	23	45
Cattle only	18	35
Cattle, goats and sheep	8	16
Cattle and sheep only	2	4
<b>Total</b>	<b>51</b>	<b>100</b>

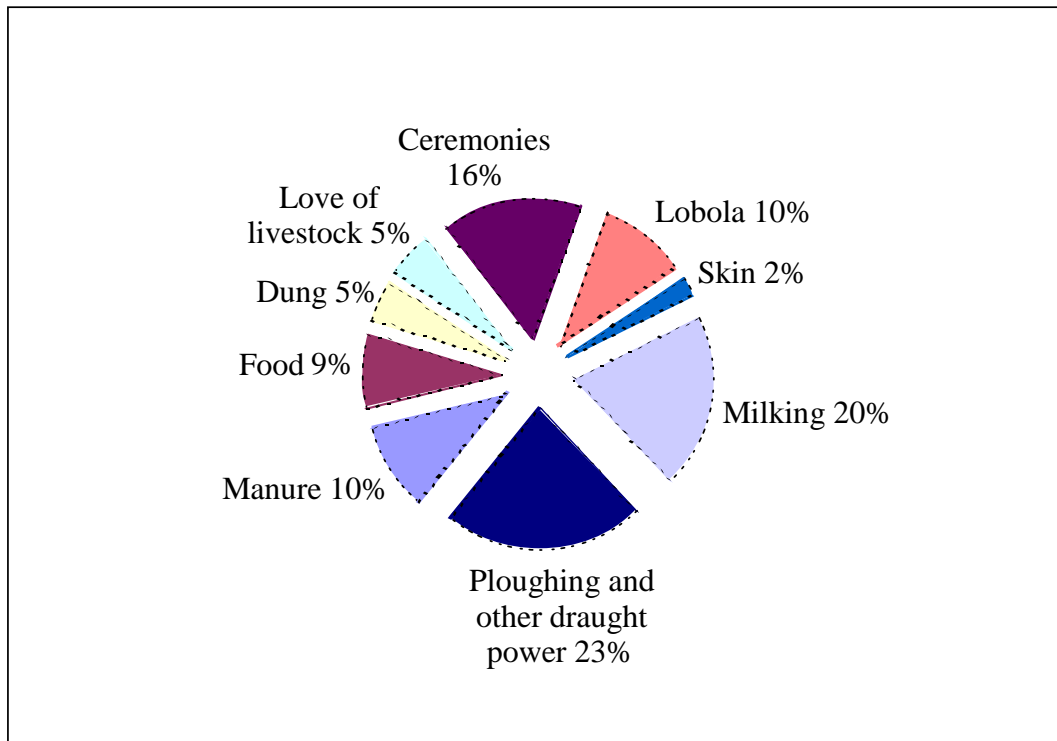
Upon further enquiring, it was found that sheep were kept for only home consumption. Sheep were not used as part of ritual in any traditional ceremonies. If sheep were used in the traditional ceremonies, they were used only to add food in the ceremony.

It was found that when slaughtering a cow, one must slaughter a goat first. One participant said, “Goats are as important as cattle. You cannot slaughter a cow without slaughtering a goat first”. This suggests that goats are as important as cattle in that sub-ward, if not in more wards. A goat can be slaughtered alone.

The results of the research were consistent with the findings by Kunene and Fossey (2006) in traditional areas in the Northern KwaZulu-Natal. Their study also revealed that goats and cattle were kept for food and traditional and/or cultural reasons. Kunene and Fossey (2006) also noted that sheep were not used in the traditional ceremonies.

### 4.3 Reasons for keeping livestock

Participants were asked to give reasons that motivated them to keep livestock. Livestock keepers mention a combination of reasons for keeping livestock. The reasons for livestock keeping were: ploughing and other draught power, milking, ceremonies, food, lobola, manure, dung, love of livestock, and skin (Figure 4).



**Figure 4: Reasons for keeping livestock**

Ploughing and other draught power were ranked as highest (23%) reasons for keeping livestock in the rural sub-ward of Enhlanokhombe. Draught power was found to include transport. Livestock, especially cattle were used to cultivate cropping fields and transport fertilisers and seeds to the cropping field. After harvest, cattle were used to transport yields to households. Cattle were used to transport maize to the milling station to make maize meal. Cattle were also used to transport any heavy materials like sandy soil and other building materials houses, and timber for making fire.

Twenty percent of livestock keepers mentioned milk production as another reason for keeping livestock especially cattle. Sixteen percent of cattle keeping households in

Enhlanokhombe kept livestock for ceremonial purposes. Only 9% kept livestock for slaughtering for meat. Ten percent mentioned that one of the reasons for keeping livestock was for paying lobola. Another 10% kept livestock for manure and 5% mentioned dung for floor surfacing and fire making. Another 5% of the households mentioned that they kept livestock because they like them. A very low (2%) mentioned skin for making shields and traditional attires as a reason for keeping livestock.

Further analysis were made to reasons mentioned by livestock keepers in Enhlanokhombe, the following groupings were made:

- Agricultural (manure 10%, ploughing 23%), total = 33%;
- Food (slaughtering 9%, milking 20%), total = 29%; and
- Cultural (ceremonies 16%, lobola 10%, skin 2%), total = 28%.

The results showed that livestock were not primarily kept for commercial purposes, although people do sell them. Livestock keepers mentioned that they sell livestock only in cases of emergencies and as last resort. Further analysis showed that livestock were mainly kept for three basic reasons: agricultural, food and traditional/cultural purposes.

The results were consistent with the argument by Duvël and Afful (1994), who argued that although livestock are not primarily kept for commercial purposes, livestock keepers were forced by modern lifestyle to sell their livestock as the last resort. The results showed that although communal livestock keepers were known to be reluctant to sell livestock, this is gradually changing because a modern lifestyle that requires money.

The results also demonstrated the central role that livestock, particularly cattle, play in people's lives. Livestock offer a range of services and products to people's lives. The respondents were asked how they would feel if they did not have cattle. The respondents said that without cattle they would feel weak, naked and without dignity. The livestock keepers emphasised that "a household without cattle is dead" and that "when you have cattle you have everything". The results correlated with the argument by others (Samuels, 2006; Solomon *et al*, 2006; Galvin *et al*, 2004; Duvël & Afful, 1994) that livestock are

kept for status in communal areas. People without livestock want to own livestock (Dovie *et al*, 2006).

#### 4.4 Herd size

The respondents were asked the number of their livestock, especially cattle. There was one respondent who did not know the number of cattle he owned. The numbers of cattle were grouped into herd sizes (Table 4).

**Table 4: Range of herd sizes**

<b><u>Range of herd size</u></b>	<b><u>No. of households</u></b>	<b><u>Nearest Percentage (%)</u></b>
40 – 49	1	2
30 – 39	1	2
20 – 29	2	4
10 – 19	7	14
1 – 9	39	76
Do not know	1	2
<b>Total</b>	<b>51</b>	<b>100</b>

Cattle numbers range from 1 to 46. The dominant cattle herd size is between 1 and 9 head of cattle (76%) per household, followed by a range from 10 to 19 (14%). Another 4% of cattle owning households had 20 – 29 heads of cattle. The combined percentage of households owning 20 or more head of cattle in Enhlanokhombe sub-ward was 8%. These results were inconsistent with the findings of the research in traditional areas in the Northern KwaZulu-Natal, where the dominant herd size was between 11 and 20 heads of cattle (Kunene & Fossey, 2006).

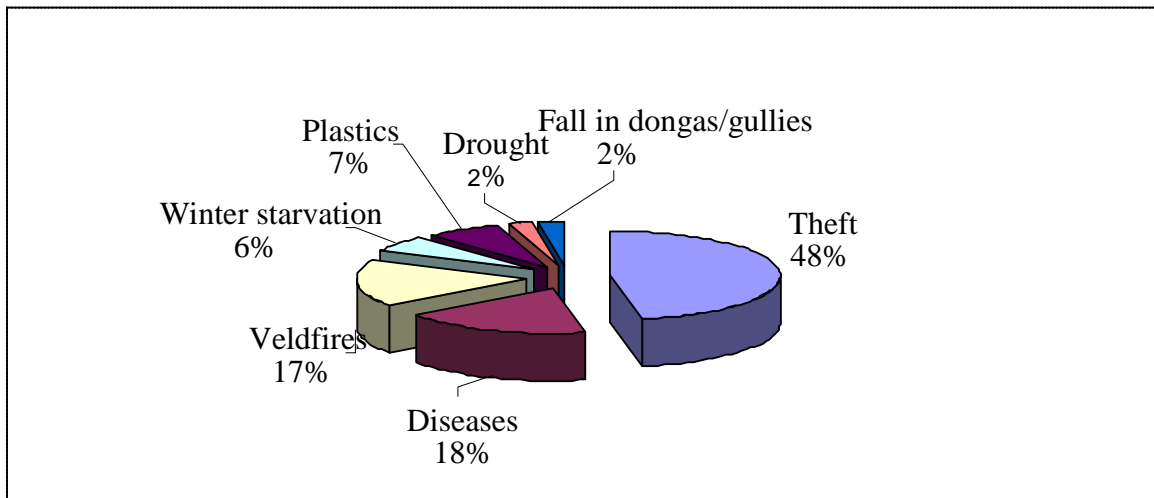
The total number of cattle in Enhlanokhombe was approximately 430. This was lower than the information provided by the sub-ward headman who expected that cattle were about 700 in the sub-ward.

Informal discussions with sub-ward members revealed that some people keep their cattle in their friend or relatives' households for different reasons. Some people have outstanding lobola, so they hide their cattle from their in-laws. This implies that it was

possible that there may have been other cattle owning households in the sub-ward that were not included in the study.

#### 4.5 Problems with livestock

Problems with livestock mentioned by livestock keepers in Enhlanokhombe include theft, diseases, veld fires, winter starvation, livestock eating plastics, drought and falling in dongas/gullies (Figure 5).



**Figure 5: Problems with livestock**

Forty-eight percent of cattle owning households mentioned theft as biggest problem in livestock keeping. Diseases are the second highest problem in the list, mentioned by 18% of livestock keepers. Theft is highest on the list of problems of stock owners, followed by diseases. When looking at the changes in herd size in the previous year or two, theft is mentioned by close to 50% of the livestock keepers, while disease and slaughter emerge as equally significant reasons for reduction of the herd. This suggests the issue of security. Even people who have not experienced theft are afraid that their livestock will be stolen.

Another 17% mentioned veld fires as the problem in livestock keeping. The livestock keepers mentioned that people burn at anytime in the grazing land. Many livestock keepers in the sub-ward have a strong suspicion that people who burn grazing lands are

non-livestock keepers because of jealousy. Other problems mentioned by livestock keepers are winter starvations (6%), drought (2%), livestock eating plastics (7%), and falling in gullies/dongas (2%).

The results showed that Enhlanokhombe, like many communal areas, had many constraints in livestock keeping. In most communal areas, livestock theft is ranked the highest problem and police are seen to be doing little to ease the situation. The results were consistent with the argument by Blench (2001) that authorities do not do much about livestock theft. The results were also consistent with the findings of a study by Moyo *et al* (2008) that also found that livestock were “kraaled daily because of fear of theft” (Moyo *et al*, 2008: 52), but inconsistent with practices in Maluti district in the Eastern Cape where livestock kraaling was found to be rare (Ainslie, 2002).

#### **4.6 Coping strategies**

The previous section gave details about problems that livestock keepers had in the sub-ward. This section describes the coping strategies that livestock keepers employ to address these problems. The coping strategies were in two categories: feeding strategies and management of diseases.

##### **4.6.1 Feeding strategies**

Enhlanokhombe is a communal area where livestock keepers share grazing area for their livestock feeding. All livestock grazed their livestock, although some of them fed supplements to their livestock (Table 5).

The majority (98%) of livestock keepers in Enhlanokhombe take their livestock to the grazing area in summer. Only one household (2%) had cattle roped around the homesteads in summer. The livestock go to the grazing area when the livestock keepers start cultivating their cropping fields. After harvest, livestock keepers bring their livestock to the cropping fields to graze on crop residues.

**Table 5: Distribution of households by feeding strategies and herd size**

Feeding strategy	Herd size						Total	%
	1 - 9	10 -19	20 - 29	30 -39	40 - 49	Unknown herd size		
Grazing and salt	19	4	1	0	0	1	25	49
Grazing, salt and traditional supplements	4	3	1	1	1	0	20	39
Grazing only	6	0	0	0	0	0	6	12
<b>Total</b>	<b>39</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>51</b>	<b>100</b>

The analysis showed that 49% of cattle owning households feed their cattle salt in addition to grazing. Thirty-nine percent give salt and traditional supplement to their cattle in addition to grazing. Only 12% percent of cattle keeping households rely only on grazing as livestock feeding strategy. The analysis also showed that livestock keepers that rely on grazing only are among those that have few livestock (1 - 9).

In cases of feed shortages, livestock keepers mentioned that they keep maize stalks and grass. The maize stalks are cut and put in safe place where animals or fire cannot easily reach. Figure 6 shows the example of how the maize stalks are kept to prepare for the time of feed shortages. Other livestock keepers said that they buy bales of hay from commercial farmers to deal with feed shortages.

Like in many communal areas, livestock keepers in Enhlanokhombé have a number of coping strategies to deal with constraints and challenges in livestock keeping. Supplementary feeding is practiced to keep livestock healthy and alleviate feed shortage, particularly in winter. Livestock keepers also kept maize stalks and grass to prepare for feed shortages. These strategies were similar to the strategies found in Borana, Ethiopia (Solomon *et al*, 2006) and in Kgalagadi, Botswana (Kgosikoma, 2006), but livestock mobility was used as the additional strategy in Borana. Livestock mobility is the strategy of searching for greener pastures (Samuels *et al*, 2006; Ogle, 1990).





**Figure 6: An example of maize stalks kept by a livestock keeper for cases of feed shortages**

#### **4.6.2 Management of diseases**

As mentioned earlier, one of the problems that livestock keepers in Enhlanokhombe face was diseases; livestock keepers employed different ways to treat diseases. Table 6 gives different disease management strategies used by livestock keepers.

**Table 6: Management of diseases**

<b><u>Management of diseases</u></b>	<b><u>No. of households</u></b>	<b><u>Percentage (%)</u></b>
Vet only	32	62
Vet and traditional remedies	18	36
Nothing	1	2
Traditional remedies only	0	0
<b>Total</b>	<b>51</b>	<b>100</b>

Livestock keepers in Enhlanokhombe use both traditional and veterinary remedies to treat livestock diseases. The majority (62%) of livestock keepers reported that they use only veterinary remedies. Other livestock keepers (36%) reported that they use both veterinary and traditional remedies. Only one livestock keeper (2%) reported that he does not use anything to treat livestock diseases. There was no livestock keeper that was using traditional remedies only.

When 36% to 62% was added, it was noticed that the majority (98%) of livestock keepers were using veterinary remedies. This shows that although communal areas are known to be traditional, they are gradually shifting to being economic because of the modern lifestyle.

Livestock keepers had strong contradicting opinions whether or not there were still people who know reliable traditional remedies. People mention traditional herbs like inkalani or inhlaba (aloe), umlulama (*Morella serrata*), ugobho (*Gunnera perpensa*) and ikhathazo (Ngwenya *et al*, 2003). The respondents said that umlulama is used when the household head has passed away to remove bad lucks. It was burnt in the kraal and livestock are moved around it. Inkalane or inhlaba was used to cure an animal with a running stomach. Ugobho was given to the cow that has given birth, to remove a placenta and bad fluids. Other livestock keepers said, “We don't trust people who have traditional remedies, we trust the veterinarian”.

Upon further enquiring, it was found that livestock keepers did not necessarily buy remedies from the vet. They bought remedies from Farm Save, a supermarket in the local town (Bergville). By the word “vet”, some people meant both a vet and Farm Save.

#### **4.7 Herding styles and practices**

It was found that livestock were herded in summer and free-ranging in winter. There was no herder who spent the whole day with livestock in summer. Cattle were driven to the grazing areas to be left there and checked once or twice a week. The livestock were mostly checked by school children during weekends. Small livestock like goats and sheep

were either roped around the homesteads or driven to the grazing areas in the morning and kraaled at night.

Cattle herding styles and practices that were employed by livestock keepers in Enhlanokhombe in summer were found to have a few major themes with several permutations (Table 7). Terms used in Table 7 are herein defined.

**Table 7: Herding styles**

<b>HERDING STYLES</b>			<b>No. of households</b>	<b>Nearest (%)</b>	<b>Range of herd size</b>
Family or relative herders	Owner	Individually	8	16	1 - 25
		Herding programme	3	6	4 - 32
	Owner and other family members	Individually	23	45	2 - 18
		Herding programme	1	2	2
<b>Subtotal</b>			<b>35</b>	<b>69</b>	
Hired herders	Individually		7	14	3 - 46
	Herding programme		8	16	6 - 20
<b>Subtotal</b>			<b>15</b>	<b>30</b>	
No herder (Tied cattle)			1	2	1
<b>TOTAL</b>			<b>51</b>	<b>100</b>	

The “family/relative” members referred to persons living with or related to the household head. The term owner referred to the cattle owner in the household who looked after cattle for him or herself. The “owner” and other family member referred to the owner who shared the task of herding with other family members. This means that whoever was available at the time was looking after cattle. The term “individually” referred to cattle keeping households that were looking after their herds as individual units. “Hired herders” were people who were neither family nor relatives of cattle owning households and were getting paid for herding. “No herder” refers to the household that slithered cattle around the homesteads instead of using a herder.

The last term, “herding programme”, refers to herders who mix their herds of cattle together. The programme was established because there is a high rate of livestock theft,

but it was only for cattle. The livestock keepers said the aim of the programme was to reduce cattle theft. The group of herders herded livestock collectively. The herders sleep with their livestock in the grazing land in summer. The herders have a kraal to keep livestock at night and a shelter where they sleep. Any livestock keeper from the sub-ward was allowed to bring their cattle to the herding programme. There are two options of putting cattle in the herding programme. The first option is to put cattle in the programme and stay with them as a herder. The second option was to put cattle in the programme and pay for herders per month. Herders in the herding programme are paid equally for their services.

Some households use herders and others do not. The majority (98%) of cattle keeping households were found to use herders. Only one household (2%) was not using the herder. The livestock keeper in that household was using a style of just tying cattle around the homesteads in summer. The livestock keeper said he did not have money to pay a herder, no son to look after cattle and he was too old to herd cattle himself.

The cattle keeping households that were using herders were divided into family/relative and hired herders. The majority (69%) of the cattle keeping households were using a family member/relative herding style. Among the households that were using family/relative member as herders, there were households in which the cattle owners were also herders and households that shared herding responsibility. Another 30% of the cattle keeping households used hired herders.

Sixteen percent of cattle owning households had cattle owners who were herding their cattle individually. Another 6% were cattle owners who were herding their cattle in the herding programmes. These cattle owners were paid by other cattle owners who brought their cattle to the herding programme. These livestock owners have the advantage of not having to pay herders. They also do not have to wait for herders' reports if there is a problem with their livestock.

Furthermore, 45% of the cattle keeping households were sharing herding as families and relatives. Anyone who was available in the household was responsible for livestock herding. These household did not have specified people responsible for herding. This herding strategy was practiced by most livestock keepers in the sub-ward. The advantage of this herding strategy was that livestock keepers did not have to pay herders. The weakness of this strategy is that herders spend less time with their livestock. It would take time for them to find out if a cow is sick, dead or has been stolen.

One cattle owning household (2%) had a relative who was a livestock owner in the herding programme. That household was not paying the herding programme. There were eight livestock keepers who were paying the herding programme for their livestock to be looked after. Fourteen percent (14%) of the cattle keeping cattle households were using individually hired herders.

Another 16% placed their cattle in the herding programme and were paying herders. The advantage of the herding programme is that cattle are checked daily. The herders are encouraged by their monthly payments to do their job properly. The herders can see very quickly if the cow is sick and treat it fast. The herders also sleep in the mountain with cattle, which reduces the risk of theft. Even if a cow gets stolen, they will find out soon enough to get help soon. The weakness of the herding programme is the issue of money. Livestock keepers have to pay monthly for their livestock herding. People who cannot afford to pay for herders were discouraged to join the programme.

It appeared that some livestock keepers liked herding programme and some did not. It was either the herding practice itself or the issue of money. Three cattle keeping households reported to have withdrawn from the herding programme. One of them withdrew because they ran short of money to pay the herders. Two withdrew because of unhappiness about herding style itself. He said, "Cattle are not well-looked after in the herding programmes. The herders keep them in the same area for a long time and they get thin". Other livestock keepers who have never been in the herding programme did not like it because they could not pay. The livestock keepers who were in the herding

programme, and those who liked it but did not have money to pay, argued that livestock were safer in the herding programme.

The withdrawal of livestock keepers from the herding programme may suggest that resources of a household might impact the livestock management strategies. Lack of resources restricted livestock keepers to use family/relative members as herders. This may also suggest that when introducing a herding system in communal areas, resources available to livestock keepers must be taken into consideration. Otherwise, livestock keepers that have less resources would appear noncompliant of the herding system.

The livestock keepers who were using hired herders were either working in urban areas, too old to herd their cattle or did not have their trusted relatives to do the herding job. The results did not show any correlation between herd size and hired herder. It was expected that households with many heads of cattle would have hired herders. A household that had as few as three (3) heads of cattle had a hired herder (refer to Table 7).

There was no diversity in herding styles between households that used hired herder and those that used family/relative herders. Both hired and family/relative herders were herded cattle to the grazing area where they were left and subsequently checked once or twice a week. The households that used family herders relied most on school children to check cattle during weekends.

There was also no diversity in the herding styles and practices that were employed by livestock keepers in winter. No household used hired herders in winter. All households used family members/relatives to look after livestock. All households released their livestock in the morning and allowed to range freely. The cropping fields were also used by livestock to graze on in winter. The livestock were kraaled everyday in winter. Collection of livestock in the sunset was done mostly by children after school, usually around sunset.

The results also revealed that other livestock owners liked to herd their own livestock. When they were asked who looked after livestock and why, they rather gave reasons why they are not the ones who do herding. The frequent reasons were that owners were working or searching for jobs in urban areas or sick. In these cases, the livestock owners were forced to delegate to other family members or hire herders.

The livestock keepers said that, traditionally, herding is the work of young boys (less than 21 years of age), but the herders were old (more than 30 years of age). When they were asked why there was a change, they responded that young boys had to go to school. The young boys were only available after school or during weekends. The results suggest that schools have created a shift or change in communal households duty structures. The boys who were normally responsible for livestock herding have to go to school and leave herding to other family members.

The results also showed an increase in women involvement in livestock keeping activities. The livestock keepers said that herding and other livestock keeping activities were normally done by males. These findings were conflicting with the findings by Samuels (2006) in Leliefontein, where herding was done by males only. However, the findings are consistent with the argument by Ainslie (2002) that women are taking part in herding. The results in Enhlanokhombe also showed that the schools and searching for employment have forced households to share herding duties or hire herders. This has also brought women into livestock keeping activities.

#### **4.8 Livestock movement**

The grazing areas are in the steep slopes. This grazing area excludes cropping fields and residential areas. The grazing areas are up in the mountain and households and cropping fields are down the mountain, therefore, the livestock keepers called it “mountain”. The word “mountain” will be used interchangeably with “grazing areas” in this research.

Livestock movement in Enhlanokhombe follow a cyclical pattern. Livestock, particularly cattle, grazed in the mountain in summer. They move up to the grazing area around

September, October or November depending on rainfall. Livestock keepers said that when the mountain starts to be greener, livestock, particularly cattle, start to move to the grazing areas on their own. The livestock were officially driven to the grazing areas when people start cultivating their cropping fields. The livestock keepers said that the sub-ward headman announces when livestock have to go to the mountain. Lactating cows and oxen are kept closer to the homesteads and kraaled at night. The lactating cows moved up and down daily. The oxen moved to the mountain to stay after all cultivation is done in the cropping fields.

Movement of cattle to and from the mountain varies; the frequencies included daily, weekly, fortnightly and monthly. The most common reason for moving cattle was to feed them salt. In addition, cattle were brought from the mountain when it was time to take them to the dipping tank. Only a few livestock keepers drove cattle up and down daily. The livestock keepers did so because they were afraid that their cattle would be stolen if left overnight. The livestock keepers with lactating cows moved the cows daily in order to milk their cows daily. However, they did not take these cows as far up the mountain as they did with their non-lactating cattle.

The livestock were allowed to graze at any part of the mountain within Okhombe. The grazing area is not separated according to the sub-wards. Livestock keepers from one sub-ward can drive their livestock to another sub-ward. Livestock keepers have freedom to choose any part of the grazing land.

The oxen came down from the mountain from May when people are harvesting crops. Oxen were used to transport yields of crops (usually maize) to the homesteads. Then all cattle came down from the mountain in June after harvest to feed on crop residues in the cropping fields.

#### **4.9 Grazing areas**

As stated earlier, Enhlanokhombe is one of the six sub-wards of Okhombe, livestock keepers are not restricted to use grazing area next to or in the sub-ward. The livestock



keepers said that they can choose and use any grazing area in any ward among six sub-wards. It was up to the livestock keepers or herders to choose an area for their livestock to graze.

It was found that livestock keepers in Enhlanokhombe use three grazing areas namely: Maqoqa, Skidi and Mdlankomo (Figure 7).

#### **4.9.1 Maqoqa**

Maqoqa grazing area is where livestock keepers who are in the herding programme drive to in summer, even though other people who are not in the herding programme also do the same. Twenty-seven percent (27%) of livestock keeping households in Enhlanokhombe take their cattle to Maqoqa. The whole of that area is used because the herders sleep there. They collected their cattle for counting in the afternoon before going to their shelter. There was only one shelter for all herders in the programme. Maqoqa grazing area was considered safe by people who are in the herding programmes.

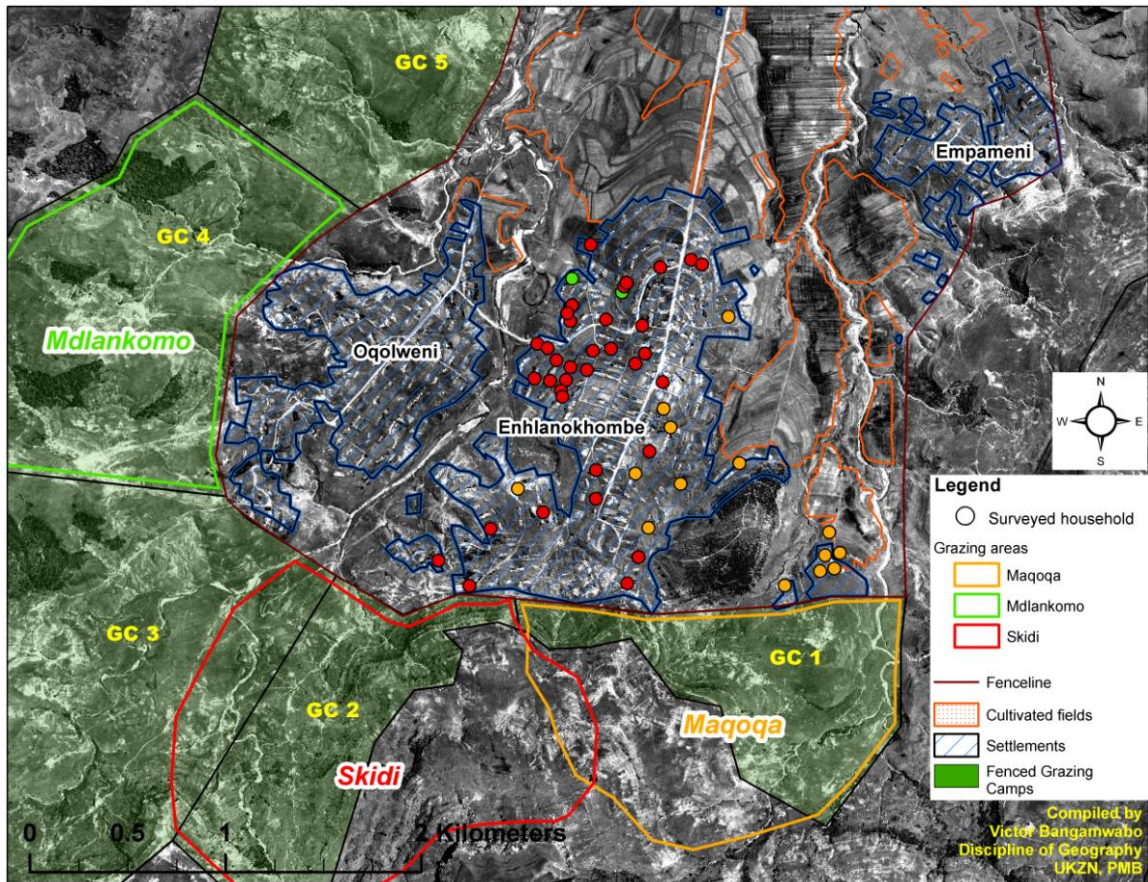
#### **4.9.2 Skidi**

Skidi grazing areas is where people who individually herd cattle drive their cattle to in summer. This grazing area was used by the majority (69%) of livestock keeping households in the sub-ward. The cattle in that grazing area are not allowed to go very far from the homesteads because of fear of theft.

#### **4.9.3 Mdlankomo**

Mdlankomo is in another sub-ward (Oqolweni), but there are livestock keepers from Enhlanokhombe who use it for their livestock grazing. This area was used by only two (4%) cattle keeping households from Enhlanokhombe.

The cattle keeping household represented by red dots take their cattle to the grazing areas circled in red, blue ones to blue and yellow ones to yellow circle. The map also shows the grazing camps that were meant for rotational grazing, which was not complied to.



**Figure 7: Map showing the location of grazing areas, distribution of cattle keeping households**

#### 4.10 Livestock keepers' considerations

The study identified five factors taken into consideration by livestock keepers when choosing grazing areas. Table 8 present these factors together with the frequency of responses from the participants.

##### 4.10.1 Safety

Safety was ranked the highest among the livestock keepers' factors taken into consideration when choosing grazing areas. This result was consistent with theft ranked the highest problem in the sub-ward. Livestock keepers said that they drive their cattle to the areas where they can see their livestock from home. Three livestock keepers said that they choose areas with better view from home. One of those three livestock keepers was using a pair of binoculars to keep cattle in his sight.

**Table 8: Factors influencing choices of grazing areas and frequency of responses**

<b><u>Factors influencing choosing grazing areas</u></b>	<b><u>Frequency</u></b>	<b><u>Nearest Percentage</u></b> <b><u>(%)</u></b>
Safety	49	32
Presence of cropping fields	44	29
Availability of grass and water	37	24
Distance from home	18	12
Inheritance/family tradition	4	3
<b>Total</b>	<b>152</b>	<b>100</b>

Safety also influenced the distance livestock keepers could drive their cattle away from their households. The livestock keepers reported that they were afraid to drive their cattle very far from the households because they would get stolen. The livestock keepers indicated that when they go to check their cattle in the grazing area and find them far away, they bring them closer.

To cope with the fear of theft of cattle, livestock keepers adopted a number of strategies to protect their livestock:

- Livestock keepers created ‘livestock herding programme’ where herders sleep with cattle in the grazing area.
- Herders chose the areas that they think were safer and easier to look after cattle.
- Cattle were checked more often than before.
- Some livestock keepers drove their cattle to the grazing area in the morning and brought them back in the evening.
- Livestock keepers using the monthly herding programme, who use school children to check cattle during weekends, were forced to check their cattle more often. This was due to their perception that Livestock Theft Unit is doing little about livestock theft. This finding is consistent with Blench (2001).

It was further found that safety was a new factor; theft as well was not that problematic long ago. Livestock keepers did not have to worry about livestock theft. The livestock keepers said that livestock used to be checked once a month or when they had to go the dipping tank.

The issue of safety was consistent with the results of the study by Debeaudoin (2001) in Leliefontein. The results in Leliefontein revealed that safety was the important factor that herders and livestock keepers take into consideration when choosing grazing areas. However, the herders in Leliefontein were stressing about toxic plants, predators, diseases and cold or bad landscape. They did not mention anything about theft. The livestock keepers in Enhlanokhombe did not mention anything about toxic plants, predators, diseases and cold or bad landscape. Although they mentioned diseases as a problem, but they did not say that diseases are factor taken into consideration when choosing a grazing areas.

#### **4. 10.2 The presence of cropping fields**

Grazing was found to be restricted away from the cropping fields in summer. When people start ploughing their fields, the livestock were driven away from the cropping fields. Respondents also reported that it is a rule that livestock must be driven to the mountain when people start to cultivate their cropping fields. The respondents said that Induna (sub-ward headman) announces when it is time to drive cattle to the grazing areas.

Upon further enquiry, it was found that the law was not enforced. There was no penalty for not taking cattle to the grazing area. The respondents said that there was only a penalty if the cattle damage crops in the cropping fields. Furthermore, one livestock keeper did not take his cattle and he was not penalised.

The people whose households were closer to the cropping fields were forced to walk long distances to the grazing areas. This may suggest that livestock could miss good grass or other grass if the grass is near cropping fields. Furthermore, if the livestock keepers consider the area near cropping fields as a safe place, they would be unable to use it.

The results showed that there were informal rules in the sub-wards. Although some livestock keepers did not comply with the rule, they know that it exists. These findings were consistent with the finding in Leliefontein where Allsopp *et al* (2007) found that

there were informal rules. Allsopp *et al* (2007) and Debeaudoin (2001) also found that the cropping fields were prohibited areas during the cropping season in Lelienfontein. But this was inconsistent with the findings in the communal areas in the Eastern Cape where cropping fields were no longer planted and there was no seasonal grazing restrictions (Moyo *et al*, 2008).

#### **4. 10.3 Availability of grass and water**

Livestock keepers in Enhlanokhombe take into considerations availability of grass and water when choosing a grazing area. However, they said that their area has a lot of water most of the time. They said that there was one year which was very dry and water for both livestock was a problem, but they do not remember the exact year. Therefore, they generally have plenty of water and it is not always an issue. Availability of grass is and always has been a factor considered when choosing grazing areas.

Livestock grazed in the grazing areas in summer because cropping fields are cultivated. Apart from the fact that cropping fields are not available for grazing in summer, the livestock keepers said that there is a lot of grass in the grazing areas in summer. The livestock grazed in the cropping fields in winter after harvest. The livestock grazed on crop residues, mostly maize stalks, in winter.

The livestock keepers had to keep the issues of safety in mind when driving their livestock to areas with good grazing grass. The areas with good grazing grass may be far and considered not safe. Herders always brought cattle closer if cattle try to go far. The herders were scared that cattle are prone to theft if they are very far away. Observations also confirmed that areas that were far from the homesteads had a lot of grass compared to the closer ones. This shows that areas with a lot grazing grass were compromised because of the fear of theft. This might also suggest that areas that are considered safe would be overgrazed because livestock would be kept there too frequently.

It was further found that livestock keepers looked at availability of grass in terms of the quantity. They did not look at quality, types or names of grass as many rangeland

scientists would do. When the livestock keepers were asked why their cattle eat in the “mountain” in summer, one of the reasons was that there is more grass in summer.

Furthermore, the spatial map that was produced using GPS points of cattle owning households showed that cattle owning households were spread throughout the sub-ward. The cattle owning households seemed to be concentrated along river streams. That may confirm that water availability is an important consideration for livestock keeping.

#### **4. 10.4 Distance from home**

Out of 51 cattle keeping households, no livestock keeper reported any means of transport to the grazing areas. All livestock keepers said that they walk to the grazing areas. The ones that had horses were too close to the grazing areas. There was no need to ride a horse. Other livestock keepers did not have horses.

Livestock keepers liked to choose grazing areas near their homesteads. They emphasised that they like to drive their cattle to particular parts of the mountain because of being closer to them. The livestock keepers liked to choose areas that are close because it was easier to walk. They would not have to walk long distances. Livestock keepers that had their households very far from the mountain were forced to walk long distances. This factor corresponded with the findings in Leliefontein. Debeaudoin (2001) found that herders also look after themselves, by choosing closer, flatter and less strenuous areas to walk. This was referred to as “herder comfort”.

The second reason for choosing grazing areas closer to the households was the issue of safety. The livestock keepers said that there were afraid that their cattle would be stolen if they go very far. Others were even choosing grazing areas from other sub-ward because it was closer and safer for their livestock.

Coppolillo (2000) argued that the herding radius is influenced by, among the factors, water availability. The livestock keepers in Enhlanokhombe did not mention water availability as a factor taken into consideration when choosing grazing areas. Observation

showed they have plenty of water. There were water streams in the community. Even when livestock keepers mentioned drought as problem, it happened in only one year.

#### **4. 10.5 Inheritance/family tradition**

Some livestock keepers use certain parts of the grazing areas because their parents and grandparents were using them. The livestock keepers said that their fathers were using those parts of the grazing area when they were growing up. Therefore, they were continuing to use those areas.

Upon further enquiry, it was found that people who were taking family tradition as a factor also inherited their cattle. These people did not consider cattle as theirs, although they were household heads. They considered cattle as their fathers'. Therefore, keeping a family tradition was part of honouring their forefathers (ancestors). The participants were asked what they would do if the areas that their forefathers used were no longer safe. They said that they would continue using them, but not too far from home.

#### **4.11 Summary of results**

Chapter 4 has given the results of the research including gender of participants and types of livestock kept in the sub-ward of Enhlanokhombe. The results revealed that the majority (67%) of participants were men. The types of livestock that were kept in the sub-ward were cattle, goats and sheep. There are other livestock like chicken and ducks. The study also revealed that the majority (61%) of livestock keepers had cattle and goats, and that goats are as important as cattle if not more. The study also showed that livestock were mainly kept for agricultural, food, traditional and cultural purposes. Although livestock were not primary kept for commercial purposes, livestock keepers were forced by modern lifestyle to sell their livestock as a last resort.

The problems identified by the research were theft, diseases, veld fires, plastics, winter starvations, drought and livestock falling in gullies. Theft was ranked the most serious problem in the sub-wards and it was found to be an important factor taken into

consideration by livestock keepers when choosing grazing areas. The research identified three feeding strategies:

- grazing and salt
- grazing, salt and traditional supplements
- grazing only

The coping strategies for feed shortages were keeping maize stalks and grass, and bales of hay from neighbouring commercial farmers. The diseases and illnesses were treated by using both traditional and veterinary remedies. None of the livestock keepers used traditional remedies only. Traditional remedies were bought in the sub-ward while veterinary remedies were bought in the nearest town (Bergville).

The research revealed that herding styles and practices in the sub-ward had a few major themes with several permutations. The majority of livestock keeping households had herders and only one livestock keepers did not herd his livestock because of age (too old) and lack of resources. There were also herders that were herding in a group and other herded individually. Livestock, particularly cattle, were driven to the grazing areas where they were left and frequently checked. The herders in the herding programme slept in the grazing area with their herds. The findings also revealed that herders wanted to keep their cattle in their sight most of the time. As soon as cattle disappear, the herders go to check them and bring them back. There was no diversity in livestock herding in winter. All livestock were free ranging during the day and kraaled at night.

The research identified five most important factors taken into consideration by livestock keepers:

- safety
- presence of cropping fields
- availability of grass and water
- distance from home
- family tradition



In conclusion, the results showed that even though livestock keepers' practices look simple on the surface, there are many factors that livestock keepers take into consideration when making decisions about their livestock management. Most of these factors are related. Livestock keepers' decision making processes are not simple.

## **CHAPTER FIVE**

### **CONCLUSIONS AND RECOMMENDATIONS**

The previous chapters presented and discussed the introduction to the research topic, methodology, and livestock keepers herding and grazing strategies, and factors that were taken into consideration when choosing grazing. This chapter (Chapter Five) is divided into three parts: summary of the research results using the three sub-questions identified in Chapter One, conclusions and recommendations.

#### **5.1 Summary of the research**

The purpose of this research was to investigate how livestock keepers choose areas for livestock grazing in the communal sub-ward in the uKhahlamba-Drakensberg, KwaZulu-Natal. The following research sub-questions arose:

- What grazing and herding strategies are currently being used?
- Which areas are used for grazing, and in which season(s)?
- What are the considerations for choosing areas for livestock grazing?

Both qualitative and quantitative research methods were used to gather information. The study was conducted in five steps. The first two steps involve household and in-depth interviews to obtain the views of livestock keepers. The latter three steps involved a transect walk, a case study and focus group discussions. The latter three steps were used to test and verify the responses of livestock keepers.

##### **5.1.1 Summary of grazing and herding strategies**

One research question dealt with investigation of grazing and herding strategies in communal areas. The grazing and herding strategies and practices employed by livestock keepers were found to have a few major themes with several permutations. The themes and permutations included herder or no herder, family or hired herder, owner herder or owner and other family members, and group or individual herding. No correlation was observed between herd size and herding or grazing practices.

The grazing practices were diverse in summer. Most livestock keepers and herders did not spend the whole day with their cattle. Cattle were driven to the grazing areas to be left there and checked frequently. There was diversity in herding practices in winter. Cattle and small livestock (for example sheep and goats) were free ranging during the day and kraaled at night.

### **5.1.2 Summary of grazing areas**

Livestock keepers used three grazing areas in summer, viz.:

1. Maqoqa
2. Skidi
3. Mdlankomo

The livestock were free ranging in winter, grazing in the cropping fields. All livestock in the sub-ward were kraaled at night in winter.

### **5.1.3 Summary of factors considered when choosing grazing areas**

The research identified five factors that were taken into consideration by livestock keepers when choosing grazing areas. The following list consolidates the factors taken into consideration when choosing areas for livestock grazing:

- Safety
- Presence of cropping fields
- Availability of grass and water
- Distance from home and herder comfort
- Family traditions

#### **Safety**

Theft was identified as the highest problem, not only in the study area, but also in most other communal areas. Even people who never experienced theft had a fear that their livestock could be stolen. Thus it was not surprising to find safety from theft as a factor considered when choosing grazing areas. Safety was a new factor that arose because of widespread of theft. The livestock keepers also take into consideration animal safety in relation to poisonous plants, predators and unfavourable environment.

### **Presence of cropping fields**

The grazing strategies must consider the presence of cropping fields in summer. The livestock must be driven away from cropping fields. There is generally no penalty for non-compliance; there is a fine when livestock actually destroy crops.

### **Availability of grass and water**

Grazing strategies consider availability of grass and water. These factors, especially availability of grass, are often compromised by the fear of theft, distance from home and the presence of cropping fields. Water is generally plenty, which makes it less of a concern to consider.

### **Distance from home and herder comfort**

The livestock herders take into consideration their comfort. The herders choose grazing areas that are closer to home, flat and less tiring. The herder comfort is sometimes compromised by the presence of cropping fields and availability of grass and water.

### **Inheritance/Family tradition**

It was also found that certain practices are traditional and cultural to livestock keepers. Family traditions and cultural acceptability of practices are also taken into consideration when choosing grazing areas.

## **5.2 Conclusions**

It is clear that there is a tension between tradition and current economy. The livestock keepers have a strong desire to keep livestock for cultural and agricultural purposes. The livestock are very close to livestock keepers' hearts. They feel weak, naked and without dignity when they loose livestock. The livestock keepers do not like to sell their livestock, but currently there is a need for cash. As a result, there is an increase in livestock selling for emergencies. The livestock keepers said that they preferred not to sell their livestock, but indicated that they were forced to sell for emergencies. Further enquiry clarified "emergencies" as cash shortages precipitated as death in the family,

food shortages due to no income, school fees and related expenses, ploughing and related costs, etc. many of these things are either new expenses to the households or the costs have beyond their previous capacity to generate cash. In short, it would appear that with the world changes, the livestock keepers need more cash than they did in the past.

It has been discovered that there is an increase in veterinary remedies usage and decrease in traditional remedies. This is conflicting with the reason of keeping livestock in communal areas, which is for traditional, agricultural and dignity purposes. This also shows that livestock keepers in communal areas are faced with hard choices between their traditions and the effects of a rapidly changing world. The livestock keepers need effective methods to solve their problems, unfortunately these methods are traditional. What do they choose? They choose to leave their traditions for the sake of surviving in the changing world.

There is also an increase in commercial supplement feeding and a decrease in grazing only. Again, supplement feeding is not traditional in communal areas. This is constant with the increase in livestock selling. The demand for cash is high, and therefore livestock keepers have to keep up with that demand. They need to make sure that their livestock are kept healthy and in good looking condition for marketing purposes. Livestock must be attractive to the buyers; therefore, the livestock keepers have to find fast and effective ways to keep their livestock healthy.

In the past, the choice of grazing land was based on availability of water and vegetation, away from the cropping fields, predators and poisonous plants. The choice of grazing area was also based on family traditions, which is also consistent with the fact that livestock keepers like to keep their traditions. Previously, choosing a grazing area was simple or and straightforward. Nowadays there is a huge concern about livestock theft, probably because of poverty and lawlessness. The choice of grazing area is now based on safety from theft. The safety factor has affected the distance which livestock can go away from livestock keepers' homesteads. The fear of theft has forced livestock keepers to keep their livestock closer to their homesteads. The livestock keepers are compelled to

check their livestock regularly. Therefore, livestock keepers are faced with choice between heritage and adapting to the current situation.

The communal areas are believed to be overgrazed because of overstocking due to lack of knowledge about grazing management. This study has shown that grazing areas are not overgrazed because of overstocking. These areas are overgrazed because they are considered safe by livestock keepers. The study has shown that livestock keepers have the tendency to use grazing areas closer to their homesteads, which leaves distant areas unused because of the fear of theft.

In addition, in the past gender roles in communal areas were clear and straightforward. The roles of males were separate from those of women. For example, herding was traditionally done by males, especially young boys. Now the boys have to go to school. The livestock keepers have to choose between sending boys to school or stick to culture which requires that boy must herd livestock. The modern lifestyle demand that people must be educated and the livestock keepers want to retain their heritage. Education has the effect of shifting the responsibility of herding to older people and women; so young boys perform this function only during weekends. The presence of schools also forces livestock keepers to do herding themselves or hire herders if they cannot do it themselves. Again, it is a choice between the heritage and the future of the children.

The modern economy has also forced livestock keepers, especially household heads to look for jobs to meet household demands. This has forced livestock keepers to hire herders or delegate herding to women. Therefore, the clarity of gender roles and traditions of communal livestock keepers are breaking down.

The choice of herding strategy is a hard decision to make. The herding strategy is determined by many factors in communal areas. Are there people available in the household to herd livestock? Livestock keepers need to decide whether to use a herder or not. They need to decide whether to hire a herder or use a family/relative member. They need to take into consideration the available resources for the chosen herding strategy.

When the household head is in town working or searching for jobs and the boy is at school, women are forced to do livestock keeping activities like milking, herding and so on. As a result, there is an increase in women involvement in livestock keeping activities. Once more, the clarity of gender roles in communal households is breaking down. The modern lifestyle has forced people to share responsibilities among household members.

In conclusion, there are several tensions that influence livestock keepers' decision-making about grazing strategies and choices of grazing areas. There are tension between culture and changes in economy, culture and changes in society and tension between heritage and future. These changes influence the mindset of livestock keepers. The grazing systems in communal areas are no longer straightforward and familiar to livestock keepers. The effects of a changing world have changed the grazing systems in communal areas; the systems are more complex and often involve activities or practices unfamiliar to livestock keepers. There are now new factors that were not there before. As a result, livestock keepers' traditions, practices and clarity of gender roles in communal areas are breaking down. Livestock keepers are shifting from being traditional to being economic. Livestock keepers' concerns about their children's future are overweighing their heritage and culture. Although it is beyond the scope of this study, it is likely that such tensions impact on other decisions such as agricultural and personal decisions made by livestock keepers.

### **5.3 Recommendations**

It is recommended that interventions aimed at improving communal grazing management should be built on local practices. There is a need to understand the tensions taking place in communal areas when selecting grazing strategies. Livestock keepers should be consulted to find what determines livestock keepers' choice of grazing strategy. The intervention will then be building on current practices instead of imposing strategies that might not be suitable.

It is also recommended that extension services and other advisory services be made conscious of the tensions faced by livestock keepers in making decisions regarding their

livestock practices. This could be augmented by special training for extension officers and advisors in how to assist livestock keepers to address these tensions.

Steps should be taken by the relevant authorities to address the problems of livestock theft. Fear of theft leads to the overgrazing of some areas and the underutilisation of other areas. Significantly reducing the occurrence of theft would expand the livestock keepers choices of areas for grazing their livestock.

#### **5.4 Recommendations for improvement of research**

The methodology included a co-research team. When reviewing and analysing, it emerged that the co-research team member were not probing when interviewing the participants. They were taking short responses and not going deep to the roots of those responses. As a result, there is a potential that important information was missed in the process. More training could have equipped co-research team members with more knowledge and skills to gather information.

The study could have measured the distance that livestock keepers walk to their grazing areas using the Global Positioning System (GPS). That would give an idea of how far their grazing areas are. That could also assist to know how much land is being used for livestock grazing and potential land that is not being used.

#### **5.5 Recommendations for future research**

As a result of this study, the following suggestions are made for further research related to the process followed by communal livestock when choosing grazing areas and grazing strategies.

This study did not include non-cattle and ex-cattle owning households. A study focussing on this sector of the community would identify why they do not have cattle anymore. This may shed more light on the tensions between tradition and the modern world.



It is recommended to survey the youth of livestock keepers. What are their attitudes towards these tensions? What are their intentions about livestock? Do the youth care about livestock? The inclusion of youth to this type of study will assist in knowing or predicting the future of communal livestock keeping.

The research only focused on current grazing and herding strategies, and grazing areas currently being used. The research did not focus on other livelihood strategies. For future research related to herding and grazing strategies, it is recommended to investigate the correlation between household livelihood strategies and the choice of grazing and herding strategies.

Finally, this study showed a relaxing of the gender-based division of work. It is recommended to study this aspect further. What is, should or could be the future role of women in livestock keeping? How is the role of women in livestock keeping changing in traditional societies?

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**APPENDICES**

**1. HOUSEHOLD INTERVIEW OUTLINE**

**Surname:**

**Gender:**

**First name:**

**Location:**

1. What types of livestock do you keep and how many each?

.....  
.....

How many herds of cattle do you have?

.....  
.....

3. How has your herd size changed in the past five years? Can you specify the numbers of each year and explain why it changed.

<b>Year</b>	<b>Nr of cattle</b>	<b>Reasons for change</b>
2007		
2006		
2005		
2004		
2003		

4. Why do you keep cattle?

.....  
.....

5. What do you like about keeping cattle?

.....  
.....

6. Who looks after you cattle? Why?

.....  
.....

7. Where do they graze, in which type of the year and why?

.....  
.....  
8. What do you do when cattle are sick?

.....  
.....  
9. What do you do to keep you cattle healthy?

.....  
.....  
10. What problems do you experience in keeping cattle?

.....  
.....  
11. Who helps you when you have a problem? Who do you go to for advice?

.....  
.....  
12. Why do some cattle are fat and healthy, others are thin and sick?

.....  
.....  
13. How would you feel if you did not any cattle? Why?

.....  
.....  
14. Do you have any question for us?

Thank you for your cooperation

## 2. IN-DEPTH INTERVIEW OUTLINE

**Surname:**

**Gender:**

**First name:**

**Location:**

1. What type of livestock do you own in this household, how many each?

Type of livestock	Number
Cattle	
Goats	
Sheep	
Horses	
Donkeys	

2. What is the role livestock in this household?

.....  
.....

3. Who looks after your livestock? Why?

.....  
.....

4. How does s/he look after your livestock?

.....  
.....

5. How was s/he chosen to look after livestock?

.....  
.....

6. How are your livestock looked after in summer?

.....  
.....

a. Where do your livestock eat in summer?

.....  
.....

b. How does s/he get to the grazing area?

.....  
.....  
c. Does the areas where your livestock has a name? If yes, what is its name?

.....  
.....  
d. Why do your livestock eat there in summer?

.....  
.....  
e. What do they eat?

.....  
.....  
f. Please describe the daily livestock feeding process in summer.

.....  
.....  
7. How are livestock looked after in winter?

.....  
.....  
a. Where do your livestock eat there in winter?

.....  
.....  
b. How does he get there (transport)?

.....  
.....  
c. What is the name of the areas where your livestock eat in winter?

.....  
.....  
d. Why do your livestock eat there in winter?

.....  
.....  
e. What do they eat in winter?

.....  
.....  
f. Please describe your daily livestock feeding process in winter.

.....  
.....  
g. How does looking after livestock in winter differ from looking after them in summer?

.....  
.....  
8. Do you buy any livestock feed? If yes, why and if no, why not?

.....  
.....  
a. What feed supplements do you buy?

.....  
.....  
b. Why do you buy that feed supplement?

.....  
.....  
c. Where do you buy feed supplements?

.....  
.....  
d. When do buy feed supplements?

.....  
.....  
e. When do you use feed supplements?

.....  
.....  
f. How do you pay for feed supplements?

9. In which season of the year are your livestock well fed? Why?

.....  
.....

10. When was the worst winter in this village?

.....  
.....

a. What did you do to your livestock?

.....  
.....

11. When was the worst drought?

.....  
.....

a. What did you do to your livestock?

.....  
.....

12. Do you sell your livestock?

.....  
.....

a. When do you sell you livestock?

.....  
.....

b. Where do you sell your livestock?

.....  
.....

c. How do you market you livestock?

.....  
.....

13. What do you do to prepare for the uncertain situations like droughts, fire, etc.?

.....  
.....