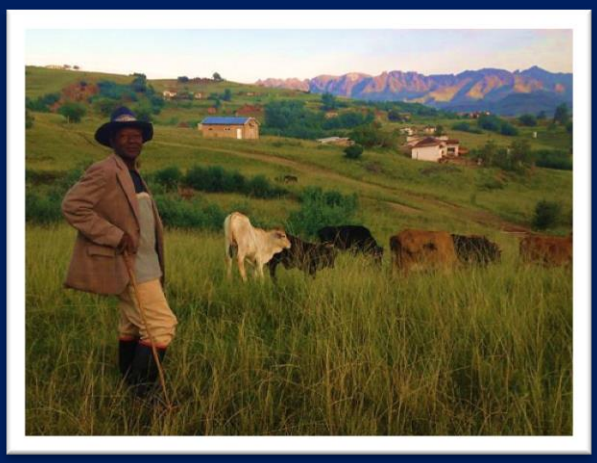
ILUNRM SLUSE FIELD COURSE 2013
REPORT

LIVESTOCK GRAZING ON COMMUNAL RANGELANDS IN MPHARANE: Environmental Pressure, Livelihood Practices & the Communal Property Resources Regime



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Copenhagen, April 5, 2013

By signing this document, we certify that all members of the Livestock group have reviewed and are satisfied with the content of this report. We also hereby declare that the research is our own and that all sources of information have been acknowledged.

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Abstract

The aim of his paper is to investigate how land use management of communal grazing areas and household livestock practices affected the condition of communal grazing areas in Mpharane, Eastern Cape, South Africa. This is done by addressing how formal and informal agencies as well as livestock-owning households manage, access and use the communal grazing areas in Mpharane, whether the land use is perceived as a problem to the authorities and livestock-owning households and whether this reality matches the actual observed environmental condition of the grazing areas.

An array of livestock-owning households and key informants were questioned to find out how households get access to, use and manage the communal grazing areas and whether they perceive any environmental degradation in the grazing areas as a problem. Direct observation, informal talks and vegetation sampling were used to look at the environmental condition of four grazing areas pointed out during discussions.

The conclusions made is that limited management negatively influences the environmental condition of the grazing area . Through a livelihood strategy analysis it was found that livestock used as a physical capital and as a financial capital cause damage to the grazing area. Furthermore the social valuation of live livestock causes pressure to the grazing areas. The environmental condition of the grazing area is perceived in different ways, but people agreed that overgrazing in the valley is a problem in the dry winter season and that erosion caused by livestock is present and a threat to the grazing lands.

Words: 250

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Accronyms

CASP	Comprehensive Agricultural Support Program
CLRA	Communal Land Rights Act
CPA	Communal Property Associations Act
CPR	Common Property Resource
DFID	Department for International Development
GPS	Global Positioning System
IDP	Integrated Development Plan (IDP
NGO	Non-governmental organization
NRM	Natural Resource Management
PRA	Participatory Rural Appraisal

1. Introduction

Background – Ally, Emil, Rebekka

South Africa has a long history of inequality with an overbearing racial dimension, especially in terms of land tenure. The 1913 and 1936 Native's Land Acts restricted the area where "black" Africans could establish new farming operations, barred them from buying land from whites. The 1930s-1960s saw forced relocations also known as the "Betterment Program" which changed the structure and management of common lands in Transkei (Adams et al, 1999). During the post-apartheid era, the South African government has tried to reverse the previous common land policies in the former homelands by the introduction of laws such as the Communal Property Associations Act (CPA) and the Communal Land Rights Act (CLRA) (Everingham &Jannecke, 2006). Nevertheless, the land still belongs to the state and customary powers are in charge of the communal lands allocation in many rural places in Eastern Cape. Furthermore, there is now emerging conflict between customary authorities and democratic authorities (ibid).

Provinces with former homelands are still neglected by the government. In 2011, Eastern Cape led the nation as one of the poorest provinces according to Human Sciences Research Council study, especially in remote areas such as the village of Mpharane (Herald, 2012). The province is home to about 6.8 million individuals with 310,400 small-scale farmers in former homelands (Abstract of Agricultural Statistics, 2012) and has the second most grazing land (more than 13 million ha) in South Africa, out of which 67.1% is used for subsistence farming (ibid). Common lands have primarily been oriented towards agriculture and include the management of rangeland for livestock production. The main use of the land is for growing, grazing and gathering (Hebinck & van Averbeke, 2007). Past land policies such as the Betterment program further deteriorated these common lands (Hoffman & Ashwell, 2001), even though the South African government tried to combine post-apartheid projects in former homelands on both environment and development.

The communal grazing areas and their management are therefore important to look into both for the sake of future environmental sustainability of the common lands, future communal grazing land use and management but also because of the importance and value of livestock within former homelands' social, cultural and economic livelihoods.

Aim and Purpose – Ally, Emil, Rebekka

This paper's problem formulation is as follows:
How has the land use management of communal grazing areas and household livestock practices affected the condition of communal grazing areas in Mpharane?

Three themes and sub-questions have been developed to accompany the problem formulation:

Theme 1 - Institutions: How does the formal and informal authorities' management influence the condition of the communal grazing areas?

Theme 2 – Households: How do households' livestock practices influence the grazing area?

Theme 3 – Environment: To what extent is the environmental condition of the grazing areas perceived as a problem by livestock-owning households and how does this compare to the actual observed conditions of the grazing areas?

The aim of this paper is to investigate how formal and informal agencies as well as livestock-owning households manage, access and use the communal grazing areas in Mpharane,

whether the land use is perceived as a problem to the authorities and livestock-owning households and whether this reality matches the actual observed environmental condition of the grazing areas.

Theoretical Framework

Common Property Resources – institutional management, access, control and use - Ally

According to Bromely & Cernea (1989), there are four types of property regimes: state, private, common and "open access". Common property designates a land where individuals have claims on collective goods as members of a recognizable group – non-members are excluded from use and decision-making. Open-access describes a land free for all, where resource rights are neither exclusive nor transferable. According to Ainslee (1999), communal grazing lands in Eastern Cape resemble more open access than common property (Ainslee, 1999) and their management is far from optimal due to the lack of clear land rights (Adams et al, 1999). Natural resource governance describes the power, process and practice and how these have shaped the patterns of access, control and use of the communal lands (Mandondo, A., 2000).

A commonly accepted scenario for common property resources (CPRs) is Hardin's (1968) "tragedy of the commons" story which describes how CPRs have the potential of being overexploited partly due to lack of control of access. However, his paradigm did not distinguish between common property and open access (Bennett et al, 2010). Moreover, effective governance systems do exist to allow CPRs that can be utilized sustainably (Bennett et al, 2007). Ostrom (1990)'s eight design principles provide a guide to be able to characterize CPR governance and defines the institutional environment necessary to facilitate sustainable CPR management.

Table 1: Ostrom's eight design principles for CPR institutions (from Nilsson (2001))

1. CLEARLY DEFINED BOUNDARIES

   Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.

2. CONGRUENCE BETWEEN APPROPRIATION AND PROVISION RULES AND LOCAL CONDITIONS

   Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.

3. COLLECTIVE-CHOICE ARRANGEMENTS

   Most individuals affected by the operational rules can participate in modifying the operational rules.

4. MONITORING

   Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.

5. GRADUATED SANCTIONS

   Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or by both.

6. CONFLICT-RESOLUTION MECHANISMS

   Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.

7. MINIMAL RECOGNITION OF RIGHTS TO ORGANIZE

   The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.

For CPRs that are parts of larger systems:

8. NESTED ENTERPRISES

   Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Ainslee (1999) mentions that the three key constraints for managing common property natural resources in South Africa are weak incentives for collection action resource management, high levels of institutional contestation and the fuzziness of existing natural resource management (NRM) regimes, while Lawry (1990) mentions that CPRs are more likely to be well-managed if the resource is scarce and critical. Therefore, the paper will look at the CPR availability, access, control, ownership and legislation, institutional contestation and fuzziness of the CPR regime, the incentives and attitudes as well as the information sharing in the village of Mpharane.

The paper will also use Ostrom's (1990) methodological framework for analyzing case studies on CPR management as presented by the eight different design principles that characterize CPR institutions in table 1. Ostrom (1990) found that there is a pattern of correlation between the principles and strong CPR management and institutions. The second part of the discussion on how management has affected the grazing areas will be structured around these principles.

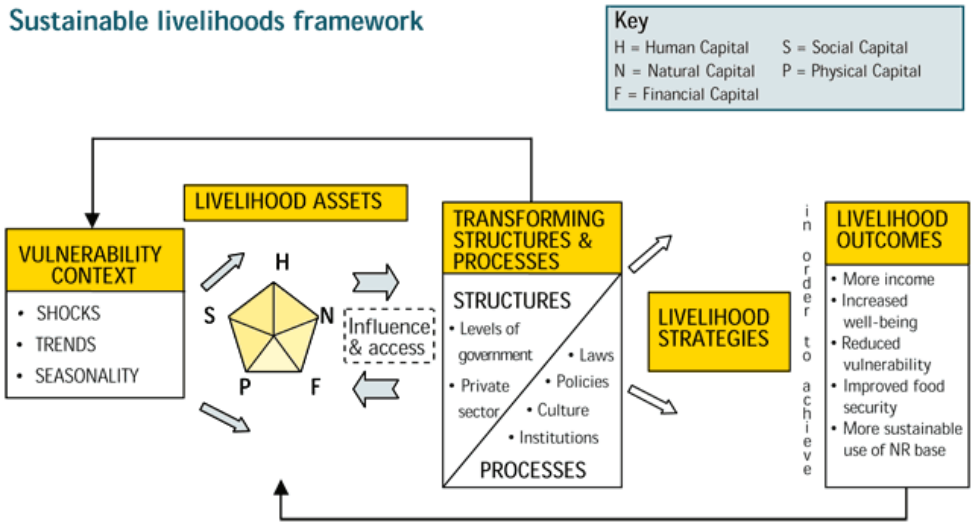
Livelihood analysis - Emil

Livestock is used for many purposes in rural settings in Eastern Cape and in poor rural areas of South Africa in general. Ainslee (2002) and Ntshona (2002) respectively have made livestock-based studies in the Maluti district neighbouring Mpharane. They find that households use livestock for milk, meat, draught power, and stores of wealth, sale, prestige, status, and ritual slaughter. Many studies focusing on livestock identify and measure the economic outcome of theses uses in a local context (Dovie et al, 2004), while other studies focus more broadly on the livelihood sustainability outcomes of these uses.

Definition of household:
The household is "considered as the social group which resides in the same place, shares the same meals, and makes joint or coordinated decisions over resource allocation and income pooling" (Ellis, 2000:18). With the problem of migration to urban centers such as Durban, a household member is a person who has spent more than six months at home as a household member (Cavendish, 2002).

In the second discussion section which focuses on households and the effect that their livestock practices have on the communal grazing areas, the paper will use Ellis' (2000) Framework for analysis of rural livelihood and the Department for International Development's (DFID)'s (1999) interpretation of this framework (see figure 1 for the framework). The livestock uses will be structured according to the five livelihood assets. natural, physical, human, financial and social capitals. These are influenced by governance (in figure 1, under the *transforming structures and processes* boxes) and shocks, trends and seasonality (in figure 1, in the *vulnerability context* box), and result in certain *livelihood strategies* which will later be identified as well as the *livelihood outcome*s, which are the communal grazing areas (or the natural resource base).

Figure 1: DFID's Sustainable livelihood framework



The use of the livelihood framework will only be used to identify how households' use of livestock influences the communal grazing area.

Equilibrium and non-equilibrium model – Rebekka

Schwennesen (2005) provides the following definitions for 'grazing' and 'overgrazing':

> *" "Grazing" is the removal of tissue from a living plant."*
>
> *"" Overgrazing" is the removal of tissue from a living plant, to the extent that the tissue removed exceeds the ability of the plant to replace it, within a growing season."*

Large livestock herbivores influence the vegetation community patterns and ecosystems' performance through trampling, grazing, browsing, defecation and urination (as referred in Rowntree et al. (2004) (Augustine and McNaughton, 1998; Austrheim and Eriksson, 2001; Bakker, 1998; Hobbs, 1996; Jefferies et al., 1994; Rowntree et al., 2004)). A key assumption in the literature is that the rangelands in communal areas in Eastern Cape are vastly overstocked because of the lack of regulation of use which causes overgrazing (Ainslee, 2002). It is also evident in other studies that veld degradation is worse in the communal areas than the commercial areas partly because of the lack of governmental attention to these areas (Hoffman and Simon, 2000). Water erosion is also seen to be a major negative environmental impact of overgrazing because of loss of vegetation cover (Laker, 2000). Vegetation cover is seen as a complex interaction between climate, soil and topography and herbivory (Rowntree et al., 2004). A balance has to exist between plant production and animal consumption. This balance can be managed by controlling the amount of animals grazing in a certain area (stocking rate) or by managing the plant production by controlled burning of the grazing area (Manson et al., 2007). There are however very different views on how to obtain this balance (Shackleton, 1993). Two main models describes those views: the non-equilibrium model and the equilibrium model, which are also described in table 2 below (Rowntree et al., 2004).

The livestock owners in Mpharane are dependent on communal rangelands for their livestock to graze. A part of the aim of this research project, which is laid out in the third part of the discussion section, is to find out if the conditions of these rangelands are perceived as a problem to these livestock owners, and to compare this with vegetation observations made in

relevant areas. The findings will reveal if they see a connection between their own livestock practices and the possible degradation of the grazing land.

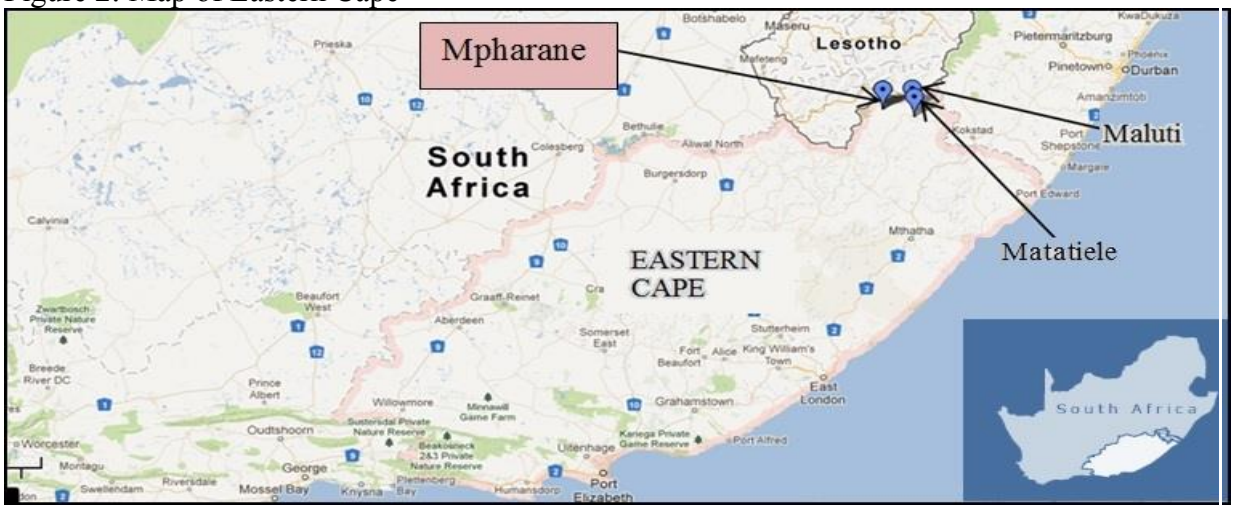
Table 2: The 'Equilibrium model' and 'the non-equilibrium model' as described in Rowntree et al. (2004)

The equilibrium model	The non-equilibrium model
"Based on the assumption that vegetation will tend towards a climax state that is in equilibrium with long-term rainfall, soil and topographic factors that govern soil moisture distribution"	"the underlying assumptions of this model are that rainfall and moisture availability are the main drivers of vegetation cover"
"The optimum stocking density (or Carrying capacity) is one that allows a near climax state."	"stock numbers in turn depend on the condition of the vegetation"
"Overstocking, beyond the carrying capacity, causes a shift in the vegetation towards a sub-climax phase dominated by pioneering species"	"A fixed 'carrying capacity' will lead to 'overgrazing' at regular intervals"
"The recommended management strategy combines Stocking at the carrying capacity (determined by long-term rainfall characteristics), rotational grazing and rest, and judicious, controlled burning"	"a dynamic adjustment of stock numbers is essential under the highly variable plant productivity of drylands. During wet years stock numbers can increase to high levels, but collapse with the onset of drought and failure of the vegetation. As vegetation recovers after the drought, stock numbers slowly build up again. "

Study Area - Ally

Data collection took place in one Eastern Cape village, Mpharane, located on the border to Lesotho and near the town of Matatiele which falls under the Alfred Nzo district municipality (see figure 2 for a map of the area). With a total of approximately 1,500 households, Mpharane is located within a valley surrounded by mountains and has a total of 13 sub-villages. There are two main clans in the area – Sesotho and Xhosa. The village does not have electricity, therefore heavily reliant on firewood. Like in other homeland territories, Mpharane has two distinct authorities that govern the people – the informal authorities (consisting of the Chief, the headmen and the sub-headmen) and the formal authorities made up of the elected ward councillor and ward committee members (see appendix D for more details on the structure of the two distinct authorities).

Figure 2: Map of Eastern Cape



Source: Google Maps 2013

The next sections will first focus on the methods used during a two-week field trip in Mpharane, then on the results gleaned from each method relevant to the problem formulation. After having documented the results, the paper will focus on discussing the three themes of institutions, households, and environment and related sub-questions, as elaborated under "aim and purpose" above, before finally providing concluding remarks and some reflections on the field work.

2. Methodology – ALL

This section will briefly describe the methods that were used in the field in Mpharane in the period between February 28 and March 9 2013. The following methods were undertaken:

Method	Number
Semi-structured interview	11
Questionnaire	30
Transect walk	1
Wealth ranking exercise	1
Venn-diagram	1
Mapping exercise	2
Focus group discussion	1
Vegetation samples	5
Participatory observation in the mountains	1
Direct observation	-

The section is structured to fit the field timeline (see appendix B). For each method there will be a short description and some lessons learned.

Transect walk 28-02-2013
The transect walk with the translator provided a first impression of the study area. Observing directly and having informal talks created some understanding of the context of the village.

Wealth ranking 01-03-2013
In order to rank survey participants, a wealth ranking was conducted in collaboration with the four other groups. Five local translators participated plus the manager of the chalet we stayed at. We instructed them to discuss and reach consensus on which characteristics describe wealthy, average and poor households.

Semi-structured interviews
This interview technique was based on the question guide attached in appendix E. The semi-structured interview provided an opportunity for open discussion and room for elaboration and more in depth questions concerning perceptions and incentives. We interviewed community representatives, local non-governmental organization (NGO) representatives, traditional leadership representatives and government representatives in trying to cover as many views as possible. The technique was useful for snowballing and data triangulation. Coordinating, sticking to the interview guide structure and defining the roles were essential with this technique.

Venn-diagram 02-03-2013

The Venn diagram and mapping session are also referred as the first focus group discussion in the timeline. They were done at the same place with the same people. The Venn diagram session was meant to help us understand how different informal groups, organizations or government officials were organized and their impact on livestock owners in of Thababosiu. However, the concept revealed too challenging, and the exercise never really took off. Instead it turned out to be a more informal conversation on ways on decision-making for grazing and in general.

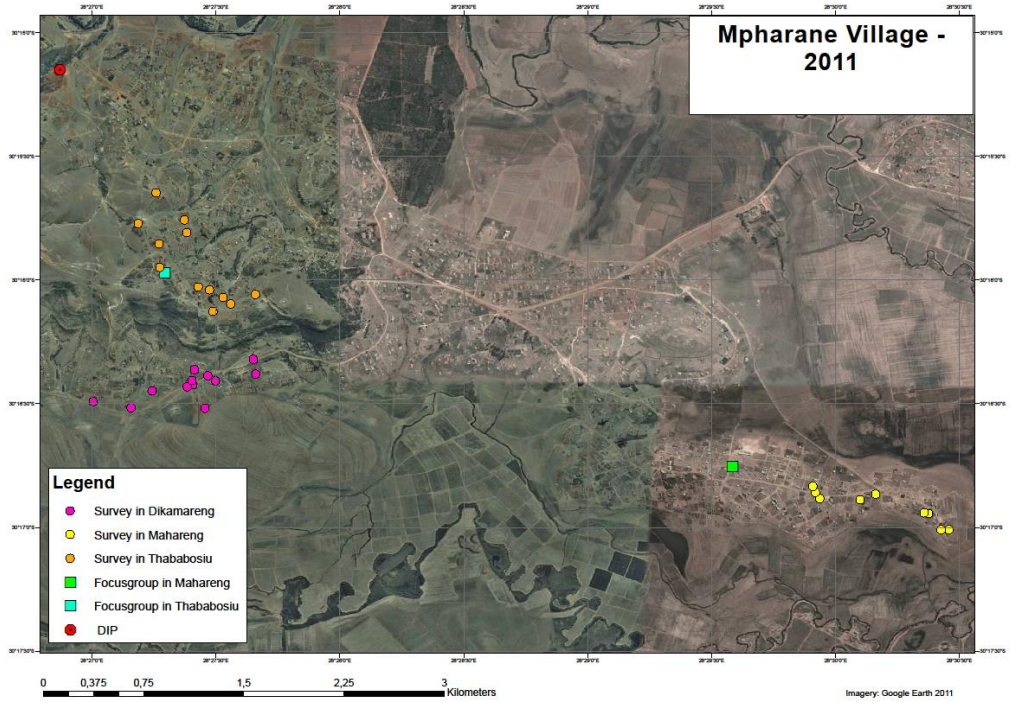
Mapping 02-03-2013

We did mapping exercises on two separate occasions to get an overview of the summer and winter grazing areas in Thababosiu and Mahareng. We had a preprinted laminated map of the area on which participants could draw, even though it took a bit of time for them to orientate themselves on the map. Drawing on the maps made people think about things in a new way and made them explain things to us that are somewhat obvious to them but new to us.

Survey

In order to compile some quantitative information about Mpharane, the team developed a questionnaire prior to its field trip and surveyed a total of 30 random households on March 3, 4 and 7, 2013. The team used a cluster sampling strategy whereby sub-villages with most livestock numbers were identified: Mahareng, Dikamareng and Thababosiu. The systematic random sampling technique was used to select households which involved travelling to the very beginning of each sub-village and sampling every second household facing the road. If a house was empty, the team moved onto the next door house. The respondents preferably included the head of the household; however, if they were absent, any adult members who were in a position to answer the questions were interviewed. The geographical location of the surveys can be seen in figure 3, the final questionnaire and some results are available in Appendix C. While the survey provided the team with some interesting quantitative data, the sample is not statistically significant. The survey was also highly time-consuming. Moreover, livestock is cared by males, thus whenever a woman answered the questionnaire, she sometimes was uncertain. Last, since a small proportion of the area was canvassed, the team only found one key interviewee through this technique.

Figure 3: Mapping of survey questionnaires carried out, focus groups and dip visit



Focus group discussion - Mahareng 07-03-2013

Our final group discussion involved knowledgeable livestock-owning people willing to share information therefore enabling us to triangulate the data acquired during our time in the village. People were found via snowballing through the translator. However, most participants were related so it was not a broad representation of the population (even though this was not our aim).

Vegetation samples

In order to check the grazing areas' conditions, vegetation analyses in the areas were carried out at grazing areas indicated by people during the mapping exercises. The Braun-Blanquet method (which evaluates basal cover, availability, unavailability and percentage grazed) for this vegetation analysis was introduced to us by Professor Trevor Hill. We later discovered that his scale didn't fit the formal Braun-Blanquet scale but it gave us an opportunity to compare different grazing intensities, and find out if overgrazing was present. Limitations of the method will be discussed in the discussion section.

Participatory observation in the mountains 08-03-2013

We spend one day visiting a cattle post in the mountains with a local livestock owner to get a sense of some of the things faced by people that take their animals to graze in the mountains. Although it is a slower way of obtaining information, it was very valuable in terms of our ability to contextualize.

Direct observation

Throughout the field work period we made direct observations that helped us get an impression of the area and the conditions there. The observation method is a subjective method and also helps triangulate data.

3. Results – ALL

In this section, results from our fieldwork will be presented. Patterns of outcomes from various sessions will be pointed out (for more details on all the sessions, see appendix F).

1. Observations

Firewood collection	Weekly firewood collection damages the grazing area. Teams of 4-5 cattle used to collect firewood have to go through the grazing area with the firewood dragged after, depleting the rangelands and causing erosion. Eroded tracks for collecting firewood were visible at all the grazing areas close to places with wattle (Picture 1). The livestock was going through seasonal resting grazing areas eating the grass.

Picture 1: team of cattle collecting firewood

2. Semi-structured interviews

Summaries and names of the interviewed can be found in appendix G.

Livestock in Mpharane	
Numbers of livestock	The ward counsellor estimates that in Mpharane there are 10000 cattle, 16000 sheep and 8000 goats. Young people find it risky to invest in livestock because of theft and because of they don't care about livestock as a social status.
Livestock doing most damage	Cattle, Sheep, goats and to some extend horses are mentioned by our as the livestock doing most damage to the grazing areas.
Livestock according to wealth	Wealthier households are characterised by many livestock, especially cattle, but also sheep and horses.

Livestock in Mpharane	
Cattle use	Many livestock, especially cattle gives high social status in the community. Cattle are important because of firewood collection, ploughing, milk, and most selling value. Slaughter
Sheep use	Sheep are important because people can sell the wool. - Slaughter - Sale - Sheep are more important for Sesothans
Goats	Wealthy households don't have goats. - Slaughter - Sale - Goats are more important for Xhosa
Horses and Donkeys	Used for transport and sale

Seasonal changes	
Summer (November to April)	In the warmth of summer tics spread diseases in the animal. The government provides dipping once or twice at month for cows and oxen. Goat and sheep's are dipped privately. This causes the livestock owning households taking their cattle back and fourth from the mountains through the valley for dipping and some let them stay in the valley. Told us that dip is not working because the water is dirty and thus making the chemicals weaker. Instead the dipping makes the tics resistant.
Winter (May to October)	Sometimes snow covers the grazing area making it hard for the livestock to graze. Livestock is weak because of the cold and windy weather. After harvest (May) in the winter households let their livestock eat in the outfields. Near the village livestock is easier to monitor and feed with extra fodder. Overgrazing worsens the dryness in the winter.
Fires	Every year in the beginning of the winter the dry grazing areas are burned, making the grazing situation even worse. It takes 2 months for the graze to grow up again, being eatable for the livestock. Tsepo told, that it is only a good thing to do it every 3^{rd} or 4^{th} year.

Seasonal changes	
	Burning of the grazing area is a problem, causing erosion, taking away the land for grazing. Overgrazing as an indirect cause to the fire problem, because it makes the grass very dry. The reasons for fire is twofold: By accident and bullies or because villagers do it on purpose because they think it makes the graze more fertile.

Grazing	
Pressure from livestock	Too many animals on too small an area cause overgrazing, which is a circumstance on which they have no influence. There are many livestock in the close to the village all year around and with this follows overgrazing as a problem all year around. It causes erosion, especially along the river, where livestock is drinking. - Some think grazing area has decreased because of livestock. Others don't. They say theft cause less livestock on the grazing area, making the grass richer. Erosion, fires and wattle is the cause of decreasing grazing area. One said that the extension of the village is a problem.

Firewood collection	
Practices	Weekly firewood collection damages the grazing area. The livestock has to go through the grazing area with the fire dragged after, depleting the graze and causing erosion
Dependence	The headman said that, "*the firewood is a necessity so they have to live with the erosion. Even though it is their own doing they can't do anything about it until the government provide them with better traction option* " (the Headman). The ward secretary said that the lack of electricity means over-reliance on firewood and in this way is causing erosion.
Wattle	Musilo suggest that use of alternative energy sources, would make it sustainable to introduce a wattle removal program. This would help decrease the dependence on wattle for firewood, and the damages that follow with it.

Sale of livestock	
Easing pressure on grazing areas	If households could sell more of their cattle it would ease the pressure on the grazing area. Some said that especially selling oxen that eat a lot more than cows would ease the pressure on the grazing area. One said that oxen are not are problem.

Sale of livestock	
	One said that cows to some extend could cover the uses of oxen.
Dependence on fodder	Selling would also decrease the need for fodder for the livestock in the winter, because of fewer mouths to feed, and increase the income to buy fodder for the livestock. According to all key informants many choose not to buy fodder because they cannot afford it.
Challenges of selling	There seems to be no place to sell livestock in Mpharane. There is a market in Matatiele and Cedarville, but they don't use it because of the lack of animal transportation. When selling in Mpharane, the prices are fixed. When selling in the market the prices are negotiated in considerable lower. Making the villagers unwilling to sell at the markets. In Mpharane it often takes a whole year to sell. In the market it goes faster.

Theft	
Thieves from Lesotho	People from Lesotho come to Mpharane and steal livestock. This is not exclusive to the mountains. They also come at night and steel from the kraals in the middle of Mpharane Theft is especially happening in the winter because it is darker and easier for the thieves to hide. There is less water in the rivers because of the dry season, making it easier to cross them, with the stolen livestock. One said that people just leave their livestock in the mountain without surveillance, which is why they get their livestock stolen.
Stealing in Lesotho	South Africans steal as much in Lesotho. Some said that the Lesotho livestock is not vaccinated, and thus spread diseases among the livestock in Mpharane.

Governance	
Traditional leadership	Sub headmen decide where to graze, but he can't ban people from using the grazing area. Mountain area is free area for grazing. Both South Africans and Lesothans use it. Elders from the community help him. If livestock graze where they are not allowed, owners can be a fined. Cows can be taken. Invasion of fields can be a problem. Fences could help it. One said fencing was not needed because people know where they are aloud to graze.

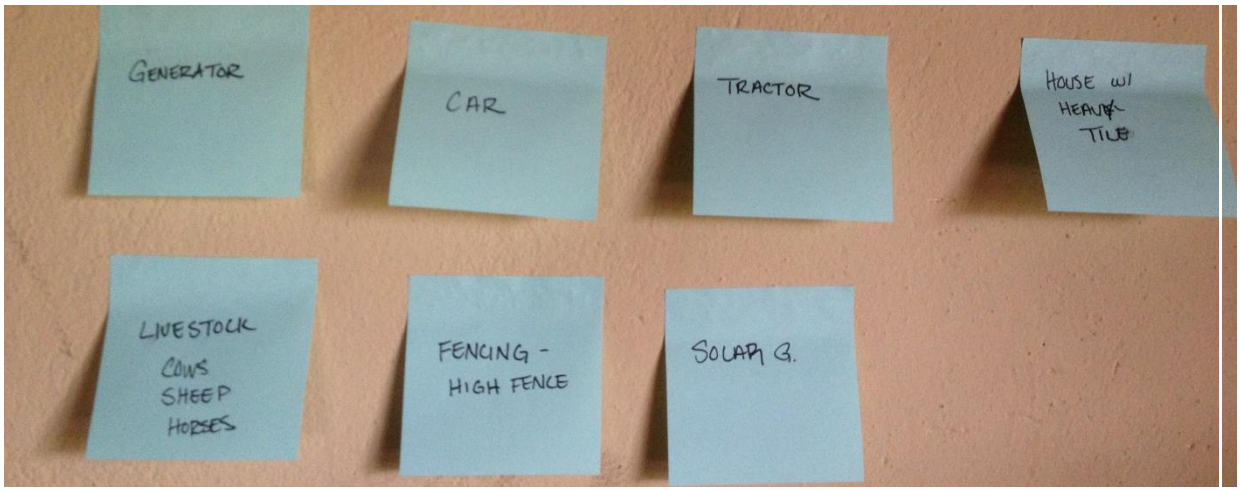
Governance	
	Community decides who will be sub-headman. Many said that 10 years ago villagers respected the sub headmen more. One said that there is no problem with respect of the sub headmen. The overall headman informs the sub head men, if there is something they need to know.
Government	The ward counsellor is the political equivalent to the traditional headman. They govern the same area. Before 1994 there was no counsellor. On government level there is land programs about combating fires, wattle cutting, checking dungas and land rehabilitation. The municipality deals with the environment, while the traditional leadership deals with the livestock and grazing areas. There is a governmental extension officer. He is responsible for both livestock and agriculture. He is placed in Matatiele and many key informants didn't know of him. The government animal technicians say that they provide animal transporters, but that people don't use them. They also said that they arrange "farmers day" 4 times a year. A key informant said that the "farmers day" is not enough and they should be permanently present in Mpharane. A key informant pointed out three legislative introductions since 1994. 1. Community Property Association (CPA's) 2. The temporary Landownership Document 3. Landowners Trust
Community	Theft and fire associations
Information sharing	Key informants said that the culture among the local population is that, they don't share information. The ward secretary also stressed that especially people's laziness is a cause of overgrazing, because "*they are using the same paths over and over again*".

3. Wealth ranking

The pictures in the section show the characteristics for wealthy, average and poor households, which was done as part of the wealth ranking exercise.

Wealthier households in Mpharane
Wealthier households own many cows, sheep, horses, but not so many goats and pigs. Other characteristics of wealthier households can be seen on image 3.

Image 3: Stickers of what characterises the wealthier households in Mpharane.

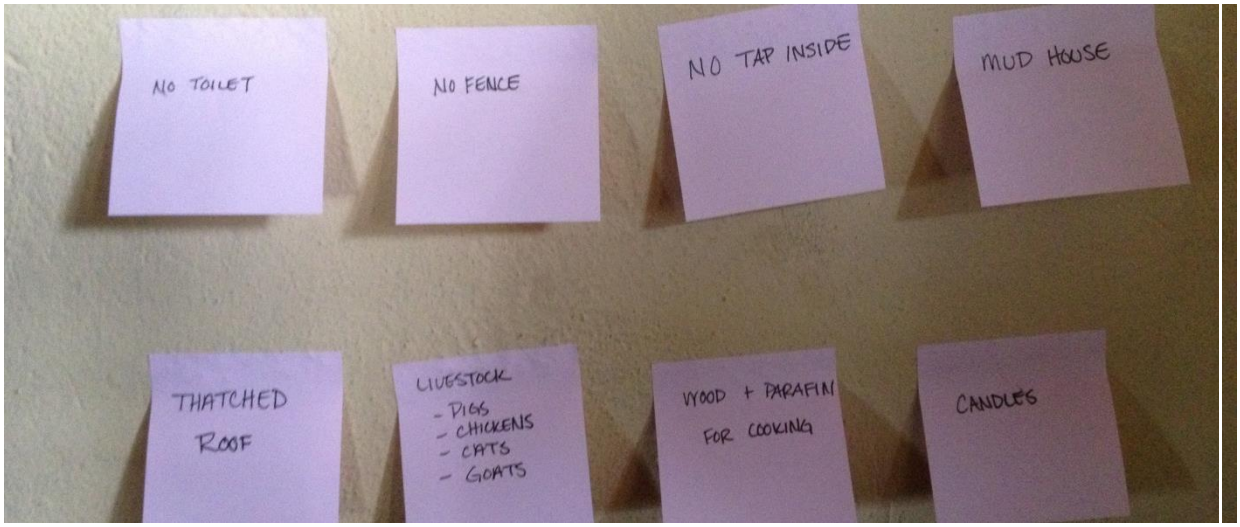


Average households in Mpharane
Average households are characterised by goats, donkeys, chicken, but also sheep, horses and smaller stocks of cows. Other characteristics of average households can be seen on image 4.

Image 4: Stickers of what characterises the average households in Mpharane.

Poor households in Mpharane
The poor households have pigs, chicken, goats and cats(?). Poor households are more dependent on their livestock, because they have to sell animals in order to pay for e.g. school fees. Other characteristics of average households can be seen on image 5.

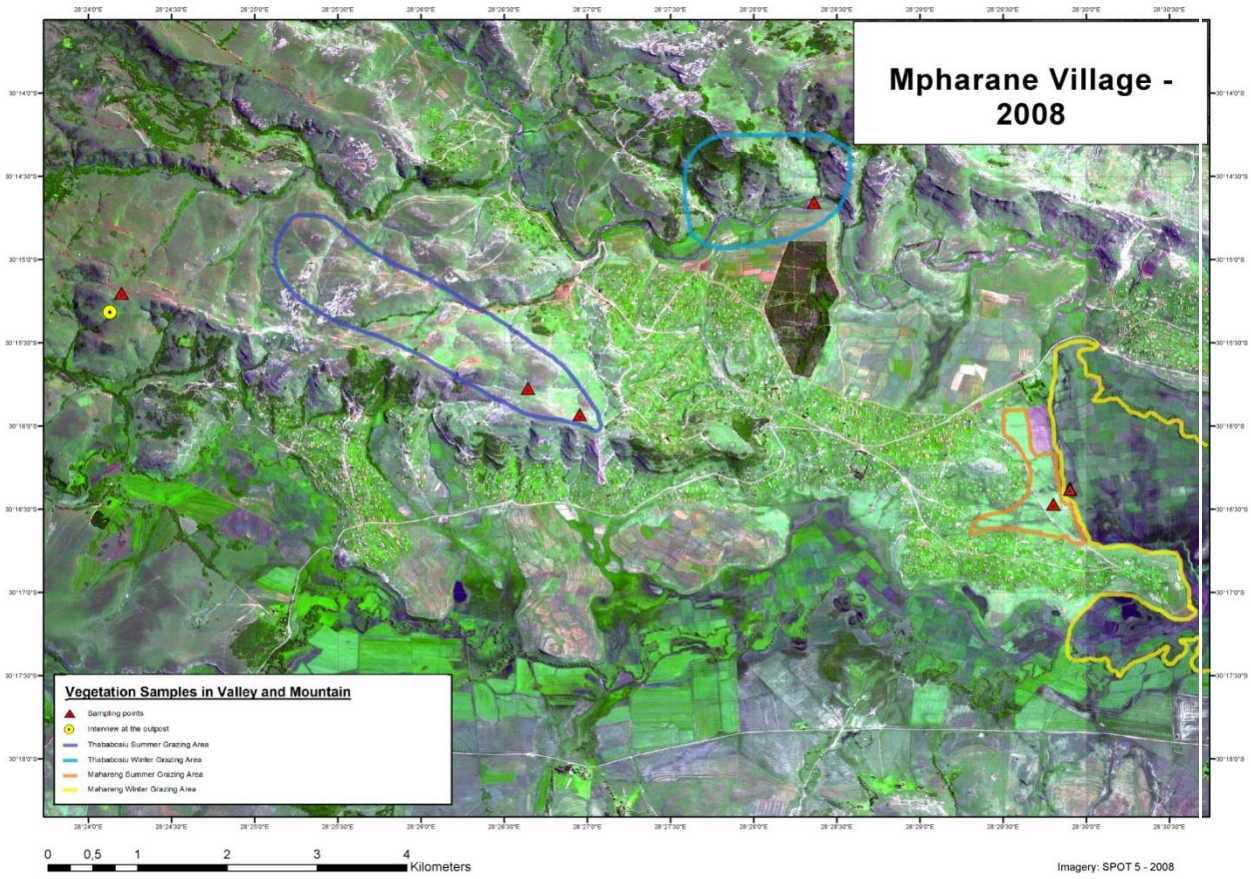
Image 5: Stickers of what characterises the poor households in Mpharane.



4. Mapping

We did mapping in two different cases: at the first PRA-session and at the final focus group discussion. The first exercise was held at the sub-headman's house in Tababusiu and they pointed out where they grazed in winter and in summer in the valley, mentioning a six month rotation plan. To compare sites we also got the farmers from Mahareng to do the same thing. Map 1 presents our findings from the two sessions.

Map 1: The areas for summer and winter grazing in the valley.



5. Venn-diagram

Results compiled from the discussion that came out of the Venn diagram exercise.

Governance:	The chief is the main institution around Monthly meetings where men from the sub-village attend. o All the different sub-villages have these meetings o These meetings will also be about general livestock practices and problems with theft or health They introduce us to a weekly meeting attended by the Mpharane local sub-headmen and the headman This meeting will deal with things that are not solved on the monthly sub-village meetings for example theft issues.
Grazing:	Every man is in charge to see if there is overgrazing, and then they can bring it up on these meetings.
Household:	Every man has the responsibility for the well being of his own livestock Sometimes a vet comes to help if they call for it. There is no vet in the village so they depend on the vet in Matatiele They haven't seen any extension officers helping them with livestock related issues. There seems to be no place to sell livestock in Mphrane. They sell it to each other informally by word of mouth. Especially related to big ceremonial feasts like funerals, circumcisions and weddings. There is a market in Matatiele but they don't use it.

6. Survey Questionnaire

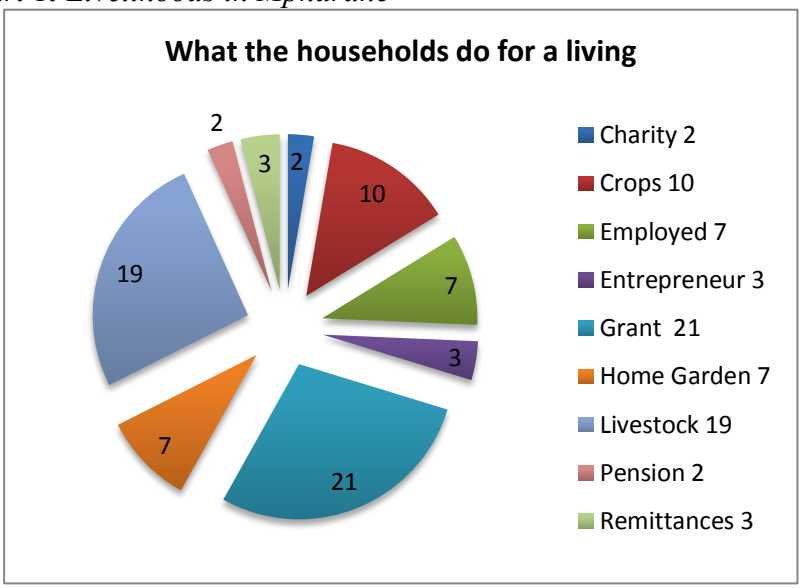
Household size, age, livelihood strategy and wealth

The average household size in Mpharane ranged from 1 to 13 persons with an average of 5.2 persons. The average age of the household head was 56.3 years. About 90% of the household heads were 35 years of age or older. As seen in table 3, when asked what the household head does for a living, most households cited a diversified livelihood strategy – an average of 2.5 sources of income/food with 70% citing that they are receiving grants and 19 households (63%) with livestock.

Table 3: Livelihoods in Mpharane

Livelihood Type	Total No. of Households	% of households sampled	Livestock Owner	Non-livestock Owner
Charity	2	7%	5%	9%
Crops	10	33%	42%	18%
Employed	7	23%	16%	36%
Self-employed	3	10%	11%	9%
Grant	21	70%	79%	55%
Home Garden	7	23%	26%	18%
Livestock	19	63%	100%	0%
Pension	2	7%	5%	9%
Remittances	3	10%	11%	9%

Pie chart 1. Livelihoods in Mpharane



As can be seen in the pie chart 1, 19 of the 30 people asked in our survey questionnaire have livestock. Table 3 shows that it equals to approximately 63% of the total sample. Out of the 11 non-owners interviewed, 7 (table 4) used to have livestock, out of which 1 had them stolen, 4 had them die, 1 had them die/stolen and 1 sold them in order to afford school fees. Since all people with livestock use the grazing area, approximately 2/3 of the households in the three sub villages are dependent on the grazing area.

Table 4. Livestock owning households in Mpharane

Households in the survey	Overall
Number of households	30
With livestock	19
Livestock grazing	19
Used to own livestock	7
No livestock at all	4
Households that have or used to have livestock	**26**

In table 5, we see that the wealthy households possess eight times more livestock than average and the poor households.

Table 5. Livestock according to wealth status

	Poor	Average	Wealthy	Overall
Number of households	8	13	9	30
With livestock	6	6	7	19
Number of all livestock	63	56	594	713
Average number of livestock pr. livestock owner	10,50	9,33	84,86	37,52

Livestock practices

Despite high numbers of livestock, livestock sales and slaughters are rather small, according to table 6, ranging from 3% to 13% and 0% to 6% for slaughter, mainly for cultural purposes. Most people own cows and oxen, then goats. The number of sheep is skewed because of one owner with 250 sheep. Out of the 19 livestock owning households, seven hired help to herd the livestock and the rest used men or boys from inside the household.

Table 6: Livestock Ownership in Mpharane

Type of Livestock	No. of HH owning livestock	Total Number of Livestock	Number of livestock (mean)	Min	max	s.d.	Livestock sales in previous year	Livestock slaughtered in previous year
Cows	18	198	11	1	50	15	10	4
Oxen	15	76	5	1	20	6	10	2
Sheep	2	251	126	1	250	176	8	1
Goats	6	128	21	1	90	34	8	8

Table 7 shows that out of the 19 livestock owners, 12 people have an outfield, only six farm them (due to lack of funds and oxen/tractors) and are able to use the residues for the animals during winter time. Approximately 58 % found getting fodder enough for their livestock a problem. Only five households said that they get enough fodder for their animals while six households mentioned winter as a problem for getting enough fodder.

Table 7: Livestock fodder

Fodder	Number of households	Percentage of livestock owners
Do you have an outfield used for feeding you livestock?	12	63,16%
Do you find getting enough fodder for your livestock is a problem?	11	57,9%

Use and condition of commonage

Table 8 shows which grazing areas are used for summer and which areas are used for winter, with a small majority using the mountains (53%) during the summer and 21% of them using their outfields (used or unused) near the village during the winter. Two interviewed owners sent their livestock to a private farm after some of their livestock was stolen.

Table 8: Location, Distance and Use of Grazing Areas

Grazing Area	Number of households for winter grazing	% of areas used for winter grazing	Number of households for summer grazing	% of areas used for summer grazing
Mountain	6	32%	10	53%
Valley	6	32%	6	32%
Village	1	5%	1	5%

Grazing Area	Number of households for winter grazing	% of areas used for winter grazing	Number of households for summer grazing	% of areas used for summer grazing
Private Farm	2	11%	2	11%
Outfield	4	21%	0	0%

Management of grazing areas
Eleven households (57%) said that there were rules for the grazing area, namely that animals are not allowed near farmed outfields and are not allowed in the "mabwela" during the summer (the area reserved for winter grazing). Out of these 11, five said that people do not follow rules while six said that they do. Meanwhile, 100% said that they assist their sub-headman in making decisions for the grazing area by attending meetings and making suggestions.

Perception on condition of grazing land
In terms of the common grazing land, seven (36%) have noticed a change in the quality of the communal grazing land; one said it was positive, while six said it was negative. Meanwhile, 12 (63%) thought the impact of burning is bad while five mentioned it had a good impact on the grass.

7. Focus group discussion

The goal of the focus group discussion was to verify the knowledge we had gained during our time in Mpharane so different topics were discussed. Table 9 shows the people present at the meeting and the number of livestock they own. The livestock are mentioned in the order they were ranked.

Table 9. Overview of participants and their livestock

	Cattle	Sheep	Goats	Horses	Donkeys
Heshe Mangole	12	5	0	2	0
Jabn Tenza	2 (39 recently stolen)	85	12	3	0
Bishop Tenza	74	89	36	7	3
Mohapi Qheshe	2	0	0	1	1
Ben Tenza	12	0	11	3	0

A condensed version of the important knowledge gained during the discussion is presented below. The information is ordered according to topics relevant to the problem formulation.

Grazing:	- A "mabwela" is an area set aside, reserved for winter grazing. - June until August there is enough food in the Mabwela but after August the animals start to starve. - The grazing area is getting smaller because people build more houses. - The reserve is not enough for the starving period from August until December So they go to the mountains where especially the North facing slopes are good for grazing. The cattle roam for the good grass. - People make their livestock graze increasingly in community land which

	creates more pressure on the grass resource. This means that livestock starve and die because of high stocking rates. - The springbok is taking over and taking grazing opportunities for domestic livestock.
Governance:	- Overgrazing is controlled by the sub-headman but monitored by all the village men. - It is the fault of the livestock owner if his livestock graze in an area set aside for the winter and he risk getting a fine. There are signs indicating where you can't graze. - The grazing rules are okay because they prevent grazing of certain areas which makes the grass in that area better and makes sure that there is enough grass in the winter. - The winter reserves are protected by the local sub-village and there is only enough food for them there. Sometimes young boys from other sub-villages don't follow the rules and go graze on these reserves which creates conflicts and lack of fodder in the winter time. - By 1994 everyone respected the rules, now there is not as much respect for the headman anymore. Democracy only made things worse in terms of local governance. - Only a bonified citizen can build a shelter in the mountains. Otherwise they would have to ask the chief's permission.
Burning:	- Fires are started by young children and old people. They are perceived as a bad thing.
Animals:	- Numbers of animals are decreasing because they die of diseases , they are stolen and sold or killed. Also the lack of food influence the number of animals. - They suggest to buy your own chemicals for dipping. o One of them give their cow injections and buy his own dip but his brother take his cattle to the dip twice a month even though he thinks the dip is not that good.
Influence of the livestock issues on household:	- They have to go to the city to get hay bales and here they have to pay 350 rand for them and most people can't afford that. - They leave their crop residues and stocks after harvest to feed supply extra food for their livestock in the winter and they also share some of their maize with the animals. - They feel abandoned by the government in many cases. Government provide them with vaccination that are expired and bad medicine. "If you want a good quality, you will have to pay for it yourself".
Historic weather events:	- Last month there was a hail storm, in January 13 goats died during a hails storm. - Last year they had problems with a lot of snow. - In November and January last year there was serious flooding which made the disease pressure higher. - In 1983 there was drought in the area - In 2000 there was an outbreak of red
Erosion:	- Erosion is caused by fires, overgrazing, firewood collection and the flow of water. - Erosion is a problem because it takes away land for grazing and there is a higher risk for the animals to fall into the pits made by erosion.

	○ They think if they have had electricity they would probably be able to bring down their need for firewood down 50% same thing had happened in a village close by called Mount Fletcher. - They know that they are responsible for the erosion but hey think that for them to change the situation, they need help from the government.
Information sharing:	- They share information with each other and if they have sick livestock they will go and tell it to their neighbor to try and find a shared solution to the problem. - They sometimes see the agricultural officer but he give them cheap expired stuff.
Selling and markets for livestock:	- It often takes a whole year to sell an oxen ○ They advertise by the word of mouth. ○ Especially when they know that someone are having funeral or wedding. ○ If they sell in the city it goes faster. ○ Cedarville for example is too expensive to transport and the price that they are getting for an oxen there is too low to accept. They might only get 5,000 rand. So they feel cheated going to sell in the city. ○ In the beginning of the 90'ies white people use to come and hold auctions, but since they didn't have any completion the prices ended up too low for the locals to accept.
Theft:	- One of the interviewees had 96 sheep stolen last year. He found them killed. - At least 800 cattle were stolen last year - This year soldiers were taken in to protect the mountains. - They also have a theft committee which they are all members of. The committee was founded after 1992. If animals are reported stolen, they call each other, and go to guard the passes into Lesotho. If the Lestoho police holds back the livestock it can sometimes be difficult for the SA livestock owners to get it back because even though the brand is clear, they have to know all kinds of specific details about their livestock, for example what kind of spots they have on their bodies. If the livestock owners just make one single mistake they risk losing their livestock.

8. Vegetation sampling

Our vegetation sampling was done with the Braun Blanquet scale according to instructions from Professor Trevor Hill (see picture 2 as well as appendix G for the compiled results of the sampling). However, it turns out his scale was different from the actual Braun-Blanquet scale, so the scale we used in the field was a Trevor Hill scale (see table 10) inspired by the Braun-Blanquet. Even though it didn't fit the theory, it still gave us an opportunity to compare different sites and get an impression on how to assess these grazing areas.

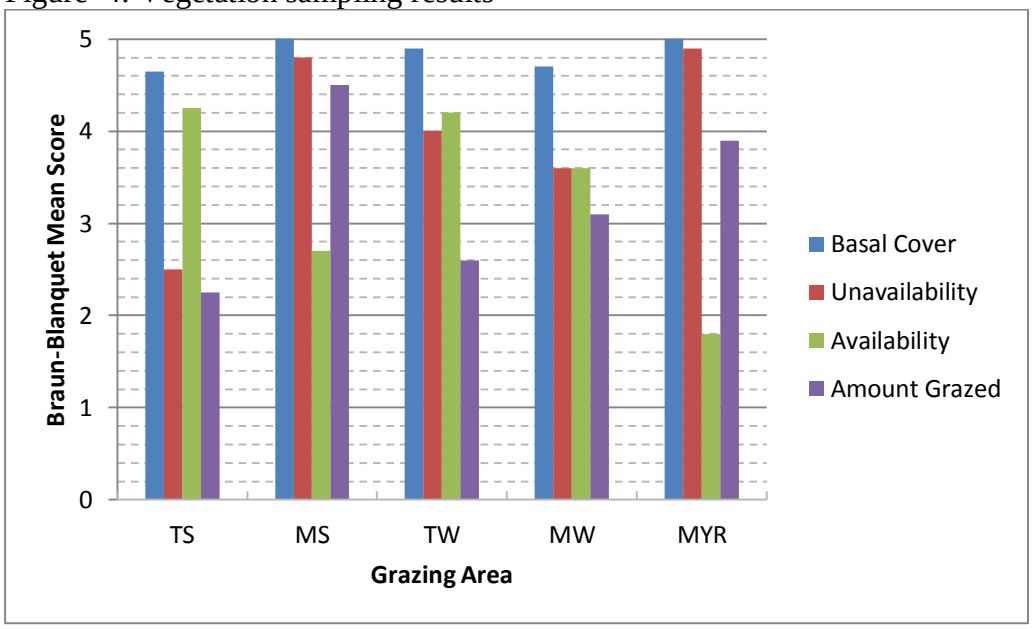
Picture 2: Rebekka and Trevor using the Braun-Blanquet scale

Tabel 10 "Trevor Hill" scale

Number	Percentage
1	1-5%
2	6-15%
3	16-25%
4	26-50%
5	51-100%

The scale is a quick and dirty way to estimate basal cover, availability, unavailability and amount grazed. It is easy to divide the quadrant of 1mx1m into fourths and then quickly assign the different categories numbers from 1-5. It is not the exact percentage that is important, but it is the relations between the different sites. The results from the sampling is shown in figure 4 and further analyzed in the discussion section. The sites chosen for sampling were grazing areas marked by two of the sub-villages we did mapping exercises in, Maraheng and Thababusiu, while the mountain site was one of the key informant's cattle post. On the map in figure 1 the red triangles shows where the sampling was done.

Figure 4: Vegetation sampling results



TS=Thababosiu Summer Grazing Area, MS= Mahareng Summer Grazing Area, TW= Thababosiu Winter Grazing Area, MW=Mahareng Winter Grazing Area, MYR=Mountain Year Round Grazing Area.

9. Participatory observation in the mountains

Through informal conversation, Makabe and translator Innocent revealed the following: *"We don't differentiate between valley and mountain in Sesotho and Xhosa. It is the same word. Overgrazing directly translated means grass finished (Sesotho: Jwang Bofedile. Xhosa: Inca Iphelile)."* Makabe also told us he wasn't afraid of theft because *"as long as you look after your livestock (i.e. have a herder) theft is not a problem".*

Overgrazing was evident close to the herder's hut, where he keeps the animals at night. We saw a big patch of land covered with species of the Aristida genera for example *Aristida adscensionis* L (see picture). These grasses are, according to the herders and

Professor Trevor Hill, signs of overgrazing. They are unpalatable due to their stiff awns and sharp seeds when they mature and provide very little ground cover during the dry season. *Aristida adscensionis* L. have been shown to take over a grassland area when the stocking rate increases (FAO).

In the following section, the three themes of institutions, households and environment and their related sub-questions related to the institutional management of grazing areas, the household livestock practices and the perception and actual condition of the grazing areas will be discussed.

4. Discussion

Theme 1 - Institutions: How does the formal and informal authorities' management influence the condition of the communal grazing areas? - Ally

The following section will focus on the following themes: availability, access, control, ownership and legislation, institutional contestation and fuzziness of the regime, weak incentives and attitudes. Finally, an analysis using Ostrom's (1990) eight design principles will be made and institutional performance will be figured out based on this.

Availability

"We are lucky because our land is so vast" said the ward councillor. The abundance of land seems to have made the Mpharane rural communities less likely to want to manage their natural resources than if they were scarcer (for instance, as part of a municipal commonage) – according to Lawry (1990), collective action is most likely to succeed for common property systems if the resource is scarce and critical to the households' survival.

Access

The Mpharane common grazing areas are nominally held and managed as common property like other villages in Eastern Cape (Ainslee, 1999). In theory, these grazing areas are common property but in practice, these lands are slipping into open access because they are not exclusive especially due to lack of fencing between sub-villages and the few rules for resource use. This can also be seen in the way that the grazing lands are managed – they are owned in common and hence the property of no one – which means that no one is really responsible for their care and sustainability (Bromley & Cernea, 1989). Households surveyed confirmed that people just take their livestock where they want, apart from the mabwelas and the outfields, since the access and use of the areas is not controlled. This lack of clearly defined boundaries makes illegal access all the more plausible as can be illustrated by the high incidence of theft in the area.

Control

Sub-headmen are in charge of livestock issues and the management of the grazing areas in the valley while the ward is in charge of environmental services in the area (e.g. erosion prevention and fencing applications). The "mountains" are managed by no-one (since various villages are nearby and have access to them). Land allocation in general is the responsibility of the local sub-headmen – headmen and chiefs only become involved when there are problems that cannot be solved at that level.

Grazing Areas Ownership & Legislation

Mpharane's common grazing land is "*owned by the government but the chief is the custodian of the land*" according to the ward councillor. This indigenous land tenure means that people that have access to common grazing lands in Mpharane do not have secure property rights to these lands. Since the end of the apartheid, there have been numerous acts as part of the land reform such as the CPA of 1996; however communities in Mpharane have not used it. Instead, the more relevant 2004 Communal Land Rights Act (CLRA) aimed at addressing the issue of the communal land tenure system, however it was deemed unconstitutional in 2010. There currently is a legislation vacuum in terms of the communal lands as well as in terms of the traditional authorities (LAMOSA, 2012). In the end though, people interviewed had their *de facto* tenure security and were not anxious about the long term future of the grazing lands, especially since the allocation system seems to work fairly well with minimum conflict and issues apart from the limited management and environmental protection, theft and burning issues in the case of Mpharane (Adams et al, 1999).

Institutional contestation and fuzziness of regime

The roles of the informal and formal authorities seem to overlap since natural resources services and grazing areas are one and the same in Mpharane and thereby create levels of institutional contestation and "fuzziness" (Ainslee, 1999). Ostrom (1990) has pointed out that the ambiguity of the institutional layering undermines natural resource management efforts at the local effort. Interestingly enough, when interviewers are asked whether they are happy with the way grazing areas are managed, they tend to answer yes, which matches Ainslee's (1999) remark that rural people prefer not to see a stringent application of rules of exclusion and resource use, preferring a flexible use of the commonage. A handful of interviewees mentioned that they preferred the apartheid years – due to the fact that democratization has eroded the power of the traditional authorities and that people (especially the youth) do not tend to listen to the sub-headmen as much as they used to. Even though this claim was contradicted by some, it matches the argument that the traditional leaders' legitimacy has diminished, especially without the proper state support to monitor and enforce payments and rules (Bennett et al, 2013).

Incentives & Attitudes

Ainslee (1999) mentions that people think it is irrational to do collective management projects such as collective NRM for free when the state can pay for it. He adds that if people receive grants or pensions, the household is not concerned about the state of the natural resources, which is also due to the increasingly de-agrarianized economy since NRM is not as vital to local livelihoods as it once was (Bennett et al, 2010). This matches what was argued by an informant that people have an attitude since the end of apartheid and think that "the government gives me money, so I don't care." Another informant that had attended a training session on livestock management told us that when he tried to educate other herders or livestock owners they told him the following "if you want to be a teacher, why don't you go to school."

Information Sharing

There is a lack of information sharing in the area, which matches Bradstock's (2005) argument that there is not enough agricultural training in the former homelands. NGOs have filled that void but in a limited way, for instance NGO Farm Secure has organized livestock management training in the past. The government overall though does not provide knowledge or technology according to a key informant which exacerbates the limited capacity of local

authorities to maintain common lands. The two government technicians interviewed spend the majority of their time in an office instead of in the field assisting villagers. The headman claimed that since Mpharane is at the end of Eastern Cape, the government sees the areas as part of Lesotho and is therefore neglected.

In addition, the sub-headmen, government technicians and the ward councillor are not communicating between themselves. For instance, when asked about the issue of overgrazing, the sub-headman of Thababosiu did not think overgrazing could be managed, while the government technicians thought that fences and the control of overstocking would ease the pressure on land, and finally the ward councillor did not see an overgrazing problem or a need for fences. These three different points of view show the lack of common understanding and the lack of experience sharing.

Common Property Theory Framework

Using Ostrom's (1990) common property theory framework as a template to describe the institution governing the use of communal grazing land, the following section discusses how Mpharane fits within the framework.

1) Clearly Defined Boundaries

The boundaries for the communal grazing areas in Mpharane are not well defined since there is no fencing and day to day access is not regulated. Even though the boundaries are not clearly marked up, people are aware of where the mabwelas are located since most of the mabwelas were found relatively ungrazed (apart from passing livestock for wattle gathering). The same can be said for the outfields.

2) Congruence between appropriation and provision rules and local conditions

The two rules for grazing lands are: people cannot graze in the mabwelas and that people should not go near the outfields when they are planted. The seasonal grazing, rotation scheme and use of outfields during the winter has more to do with climatic factors and dealing with the dry winters. Overall, however there is no grazing management plan or natural resource management plan in place and it did not seem like the rules changed according along with the local conditions.

3) Collective choice arrangements

Livestock owners made it clear that they felt they were part of the decision-making process; however the sub-headman was mentioned as the person in charge.

4) Monitoring

There does not seem to be any monitoring in place in the village. Most people are responsible for enforcing the rules themselves and for the other villagers. Since most people own livestock and have outfields, it is their own benefit to help each other out. As mentioned elsewhere, there is also some monitoring for theft.

5) Graduated Sanctions

Animals that graze in people's fields are fined and the animals impounded. It is unclear whether there was a sanction for people grazing in the mabwelas. Even if a certain individual is fined in the traditional court, it does not necessarily mean that the transgressor pays up (this was an issue mentioned during the traditional headman court that was attended) – this may be due to the fact that traditional powers are losing their authority (as mentioned above).

6) Conflict Resolution Mechanisms

Livestock-related conflicts go through a traditional headman authority court and while there seem to be quite a few issues related to theft in the area, in general, conflicts related to the use of grazing areas seem rather limited.

7) Minimal recognition of rights to organize and 8) Nested Enterprises

There is a lack of natural resource management committees such as commonage management committees or even livestock owners committees (which are present in more urban settings (Davenport, 2011)). The only community group that exists is the theft committee. There is also a firewise program under the ward which provides information on fire issues but does not have a firefighter component.

By using the above eight answers, table 11 has been compiled by answering yes, no or weak to the different design principles in order to show the institutional performance in Mpharane. The table shows that the institutional performance of Mpharane is fragile in terms of managing the pastures properly. The grazing areas only have a rotational plan that is somewhat followed and the amount of land availability means that lands are less likely to be intensely overused. However, there is a lack of NRM, monitoring and clear boundaries.

Table 11: Design Principles and Institutional Performance for Mpharane

Site	Type of CPR	Clear boundaries & memberships	Congruent rules	Collective choice arenas	Monitoring	Graduated sanction	Conflict resolution mechanism	Recognized rights to organize	Nested units	Institutional perfomance
Mpharane	Pasture	No	Weak	Yes	No	Yes	Yes	Weak	No	Fragile

Table adapted from Ostrom (1990) and Nilsson (2001)

To sum up, formal and informal authorities' management is weak in terms of the proper management of the common pasture areas, therefore influencing the condition of the communal grazing areas negatively. Overall, tenure reform is needed to create a working legal and institutional basis for decision making in the common property regimes and for the proper management of the pasture areas (Adams & Cousins, 1999).

Theme 2 – Households: How do households' livestock practices influence the grazing area?- Emil

Impacts on grazing area by use of livestock

This section will analyse how households' use of livestock affects the grazing areas by using Ellis' framework for livelihood analysis. The identified uses by type of livestock are sorted in table 12 by type of capital (apart from human capital since it is outside the scope of this study livestock does not provide education, skill or knowledge).

Table 12: Use of grazing livestock in Mpharane, divided according to livelihood assets

Livestock	Natural Capital	Physical Capital	Financial Capital	Human Capital	Social Capital
Cows	Milk, slaughter for meat	Ploughing, firewood collecting	Saving Sale (growing for selling)		Slaughter for cultural purposes
Oxen	Slaughter for	Ploughing,	Saving		Slaughter for

Livestock	Natural Capital	Physical Capital	Financial Capital	Human Capital	Social Capital
	meat	firewood collecting, traction	Sale (growing for sale)		cultural purposes, not used for anything
Sheep	Wool, slaughter for meat		Sale, Sale of wool		Slaughter for cultural purposes
Goat	Slaughter for meat		Sale		Slaughter for cultural purposes
Horses		Transport	Sale		
Donkey		Transport	Sale		

The different livestock uses according to the livelihood five capitals will be discussed next along with their various effects on the grazing areas.

Livestock used as natural capital:
Households rarely eat cattle, sheep and goats since livestock is not frequently used for meat (Cousin in Ainslee, 2002). In a survey conducted in Maluti, the slaughter of cattle was not common and 80% of the respondents answered that they mainly did so when the animal is old[1] (Ainslee, 2002). As can be seen in table 13 the same is the case in Mpharane as only 11 out of 653 eatable livestock was slaughtered last year, which is equivalent to 0.58 per livestock owner. Sacrifice and cultural purposes are other reasons for slaughtering livestock, with the meat being eaten afterwards. These killings are also included in the numbers of animals slaughtered for meat. Since the rate of eaten livestock is so small, it does not seem to play a big part on the pressure put on the grazing areas.

Table 13: Number of livestock used for eating.

Animals for meat: Cattle, sheep and goat together	**Overall**
Number	653
Slaughtered last year	11
Average of slaughtered per livestock owner last year	0,58

Milk is mentioned as a very important use of cows, even though big stocks of cows are not needed to produce milk (Ainslee, 2002, Nthsona, 2002, and Shackleton et. al., 2010). A key informant exemplified that one cow per household is more than sufficient for milk production. Thus, milk production does not seem to put pressure on the grazing area either. To sum up, livelihood strategies using livestock as a natural capital do not seem to put remarkable pressure on the communal grazing areas.

Livestock used as physical capital:
Cattle are used for collecting firewood and ploughing fields. Cattle, horses and donkeys are used for transportation of people, harvest and groceries (predominantly maize). The survey shows that the livestock potentially used for traction and transport is 17.57 per livestock owner (table 14). Cattle constitute five times more than horses and donkeys. Unfortunately, we cannot distinguish how many of these are actually used as physical capital. Furthermore,

[1] In Bantustan this practice is called *Ukugugisa*, literally meaning *causing to ageing*. (Ainslee 85)

households loan or rent livestock to or from each other, so the numbers of livestock for traction and transport are not really per household.

Table 14: Livestock used for traction and transport

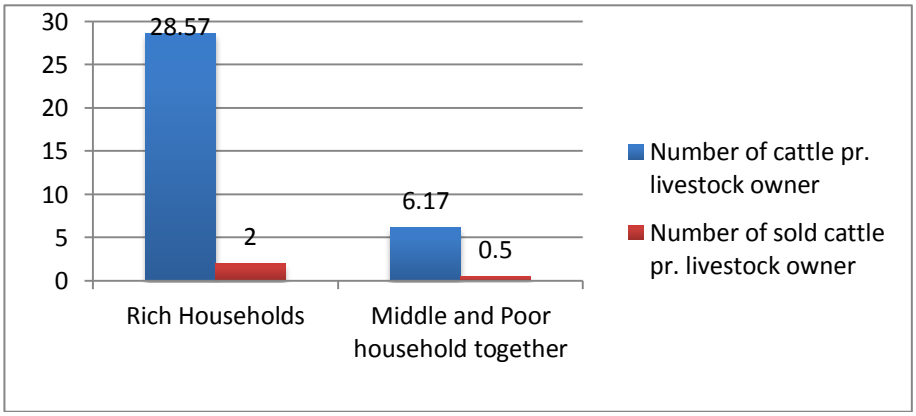
Animals for traction and transport: Cattle, horses and donkeys	Number
Number	334
Cattle	274
Horses and donkeys	50
Average number pr. livestock owner	17.57

As seen in the results section, collecting firewood causes a pressure on the grazing area in different ways. Firewood is a natural capital which households depend on. They also depend on the livestock as a physical capital to collect it. Livelihood strategies using livestock as a physical capital is indirectly causing pressure on the communal grazing areas because of dependence firewood. Key informants suggest that the introduction of electricity would decrease this dependence, and the subsequent damage to the grazing area.

Livestock as a Financial Capital and Substitute:

Ainslee (2002:2) suggest that livestock "*serves as 'stores of wealth' par excellence for thousands of rural families"* because of the "*relative absence of other repositories, such as banks*". This matches the situation in Mpharane. Livestock as a financial capital causes damage to the grazing areas indirectly through the high livestock stocking rates. The wealth ranking participants, Ntshona (2002), Ainslee (2002) and Shackleton (2001) point out that the wealthier people are the more livestock they have, especially cattle. According to figure 5, very few of cattle are sold by households, instead remaining on the grazing areas.

Figure 5: Number of sold cattle compared to all total number.



Campbell et al. (1998:587) suggest that "*returns could be improved through adoption of a conservative tracking scenario, where stock densities are reduced and managed opportunistically relative to changes in climatic and economic factors, with both economic and ecological benefits*." The government health technicians interviewed wondered why households do not sell part of their livestock in order to be able to afford fodder in the winter. Reid and Vogel (2006), along with key informants, explain that villagers are not able to transport them to the market. Moreover, households prefer selling internally through word of mouth since they can get a lot more from selling in Mpharane because villagers do not negotiate the prices. According to Dovie (1999:269), a reason for the low prices in the towns can be that "*cattle from traditional markets are not offered the same price in the livestock commodity market, although standards might favourably compare with those of the*

commercially designated farms." Lastly, an explanation for not selling can to some extent be that the livestock is not only used as a store of wealth but also as "*as a buffer against bad times*" (Ellis, 2001: 34). We can conclude that having the possibility of selling to an external market with fair prices would to some extent ease the pressure on the grazing area, as well as facilitate income revenue for livestock winter fodder. Livelihood strategies related to livestock as a financial capital and substitute in Mpharane plays a role in causing damage to the grazing areas, partly because households do not have or use access to an external market.

***Livestock as social capital*:**
Ainslee (2002:5) argues that people in the former Bantustan area historically are reluctant to sell livestock due to subsistence and cultural reasons since "*ownership of cattle, in particular – but also of goats and sheep – bestows prestige and status on the owner*". Mandela (1994:15) writes in *A Long Way to Freedom*, that cattle have an almost divine status for Xhosa people. Key informants confirmed that large stocks of cattle increase their owners' status in Mpharane. This might be a part of the explanation of why households are not keen to sell at "market prices" to external markets. The social value of the livestock is encouraging households to have large stocking rates, which in turn cause damage to the grazing areas. To sum up, livelihood strategies related to livestock as a social capital can put pressure to the grazing area. But this picture might be changing since according to key informants, young people are less interested in traditional livelihoods and therefore uninterested in invest in livestock. Moreover, more people choose not to have livestock-based livelihood-strategies because of theft (Ainslee, 2002), which might in turn decrease the pressure on the grazing areas if large stocking numbers are phased out due to lack of interest in those livelihoods. Another common use of livestock as a social capital is the ritual slaughter (Ainslee, 2002). Key informants stated that this is the case in Mpharane, especially for weddings, funerals and circumcisions. Since the total number of slaughtered livestock is low though (as touched upon above in the physical capital section), it is not putting a lot pressure in the grazing areas.

The use of livestock is influenced by trends such as seasonal changes and shocks such as theft. Ainslee (2002) explains that stock theft especially is a problem in areas like Mpharane that are close to the Lesotho border. The effects of theft are twofold. People worried about leaving their livestock in the mountains let them graze closer to the village in the valley, therefore putting additional pressure on the grazing area in the valley. However, Ainslee (2002) also states that people are encouraged to sell their livestock because of the threat of stock theft, meaning that fewer livestock on the grazing area.

We can conclude that in the context of Mpharane as an isolated village with difficult access to markets and without electricity, livestock used as a physical capital and as a financial capital causes pressure on the grazing areas. The social value of livestock also causes pressure to the grazing areas, while livestock as a natural capital and human capital do not seem to cause pressure on the grazing areas.

Theme 3 – Environment: To what extent is the environmental condition of the grazing areas perceived as a problem by livestock-owning households and how does this compare to the actual observed conditions of the grazing areas? - Rebekka

Perceptions are usually revealed through conversation. The qualitative methods used during the field work and described in the methodology part of the report were useful to gather them. Therefore during interviews, different perceptions of the environmental condition of the grazing lands were shared. It turned out that the perceptions of the issues are quite

heterogeneous, even in a relatively small community. When asked about 'overgrazing' some said that it was present and indeed a problem, but others didn't see it as a problem because of the abundance of grazing lands. Key informant Innocent said *"overgrazing is not a problem, but the milk quality has gone down"* in a semi-structured interview, another key informant said that overgrazing is not a problem, because they have rotation rules preventing it. The headman of Mpharane and the sub-headmen from Thababosiu and Mahareng see overgrazing as a problem and so do two of the key informants. The official government sees overgrazing as a management issue that is solvable, because land is not a limiting factor suggesting fencing as a solution. Ainslee (2002) also sees bad management as the main reason for overgrazing. The second focus group mentioned that signs were put up in the valley, so people were able to see which areas were reserved for winter (although we did not see signs). The issue about fencing is probably more relevant in the mountain which is described as *"the real grazing area"* by the ward councillor. Another issue with overgrazing could be the way that it was translated into Xhosa and Sesotho, since it was translated as 'grass finished' and that could turn into a rather subjective understanding of the actual meaning. Overgrazing has actually been discussed for a long time and even the scientific term is ambiguous (Mysterud, 2006). Table 15 provides examples of how overgrazing was defined by informants and Schwennesen (2005).

Table 15: Comparison of definition and monitoring of overgrazing.

Informant	**Definition or monitoring of overgrazing**
Sub-headman of Thababosiu	He uses the height to determine if there is overgrazing. Low grass=overgrazing
Tsepo Lesholu	When grazing has been going on for a long time in the same area and the cows graze where there is no grass.
Sub-headman of Mahareng	He uses the livestock as an indicator. When they starve, the area is overgrazed.
Schwennesen, 2005	"" Overgrazing" is the removal of tissue from a living plant, to the extent that the tissue removed exceeds the ability of the plant to replace it, within a growing season."

As show in table 15, the two sub-headmen represent two very different ways of looking for signs of overgrazing. One looks at the plants to see if overgrazing is present and one looks at the animals which is a more indirect sign of overgrazing. Overgrazing is influenced by the animals grazing, vegetation cover which is again influenced by climate, herbivory and soil and topography (Rowntree et al., 2004).

The stocking rate has been widely debated since a controversial conclusion was made in the beginning of the nineties that the communal grasslands of South Africa, especially the moist areas like Mpharane, weren't as severely degraded and beyond recovery as originally thought (Shackleton, 1993). This led to two ways of looking at overgrazing, the equilibrium model and the non-equilibrium model. The equilibrium model focuses on stocking rates and their influence on the vegetation, and the non-equilibrium model, developed for areas with high rainfall variability and frequent droughts, focuses on the condition of the vegetation and its influence on the livestock(Rowntree et al., 2004). It is striking that the two different ways of monitoring overgrazing in Maraheng and Thababusiu is somewhat in line with these models. However, due to the climatic conditions in Mpharane, the equilibrium model seems to be the most relevant and the recommended management strategies, like stocking at the carrying capacity, rotational grazing and rest, and judicious, controlled burning, could be implemented. Informal authorities are already trying to rotate grazing and reserve areas for

winter grazing, but the problem in the winter is that burning is not controlled and stocking numbers are increased near the village, this leads to overgrazing in the valley during the last period of winter (August to December).

Figure 6 Erosion caused by livestock near the river

Figure 7 Erosion gully in of one of the sub-villages

Another issue concerning the perception of the environmental conditions of the grazing areas in Mpharane is erosion. Erosion was mentioned as a serious problem, and water erosion was observed during the transect walk close to the settlement – see figure 7. Near the river on the 'transit pasture' grazed by livestock on their way to the mountain, the area was heavily overgrazed judging from the unpalatable grass species present (ratstail). The overgrazing of this exact location had also resulted in a loss of vegetation cover and along the river, the soil was eroded as seen in figure 6. This showed how overgrazing caused by livestock management can cause erosion due to loss of vegetation cover. It was also mentioned that this type of erosion was worse at the foothills of The Drakensberg. Another type of erosion caused by the use of livestock was the trails of the sleighs dragged by cattle coming down from the mountains collecting wattle for firewood. Informants mentioned the lack of electricity as a cause for firewood dependency, therefore an indirect cause for this erosion. However, farmers didn't feel they had the resources to change erosion unless they received help from the government. They mentioned that another village close by (Mount Fletcher) had decreased their firewood use by 50% after having been electrified. The issues concerning erosion seemed to be restricted to certain areas and activities. In general, the grazing areas that were encountered during the field work period didn't show signs of livestock induced erosion. In the winter grazing area however there were reports of overgrazing near the village, and it could be possible that heavy grazing would decrease the vegetation cover thus leaving bare soil vulnerable for water erosion, but it was not possible to see how at the time. In the winter time, the precipitation is low, so maybe water erosion is not as severe as in the wet summer season.

Table 16: Perception of the burning of the grazing area

How do you consider the burning of the grazing area	Answer
Bad	12
Good	5

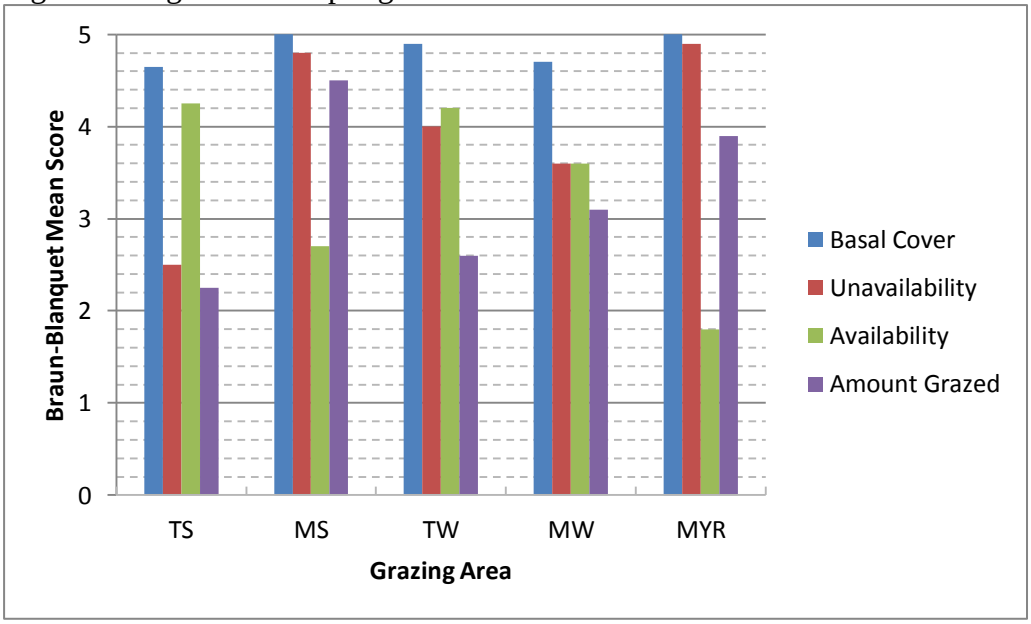
Yearly burning was generally perceived as a bad thing since it is done illegally at winter time. All key informants said that burning the grazing area too often was a problem causing erosion and decreasing grassland quality. Furthermore, some informants found overgrazing as an indirect cause to the fire problem, because it makes the grass very dry when all the green

biomass is removed by the livestock. In the survey people didn't quite agree on perception about burning as is presented in table 16

Burning actually speeds up the repopulation of the vegetation in the grazing areas (Manson et al., 2007), and burning done the right way is actually a tool for managing the balance between unpalatable and palatable species and widely used in grasslands in South Africa according to Trevor Hill.

The vegetation analysis was done to triangulate people's perceptions of the environmental condition of the grazing areas. The results are a point in time. However, to get a real idea on how vegetation and grazing patterns change, it would be better to have a temporal sample frame, bringing more insights about different patterns in different seasons under different conditions.

Figure 8: Vegetation sampling results



TS=Thababosiu Summer Grazing Area, MS= Mahareng Summer Grazing Area, TW= Thababosiu Winter Grazing Area, MW=Mahareng Winter Grazing Area, MYR=Mountain Year Round Grazing Area.

Graph 8 shows that the basal cover is generally high for all of the five sites. This is because of the summer season and the abundance of vegetation during this time of the year. For each site, ten samples were made and the graph represents the average. In the Mahareng summer area and the mountains the unavailability is quite high, giving hints that these areas are relatively unpalatable, that fits with the low availability. It is also these two areas with the highest amount grazed which means that since there is not much here, the livestock grazes more intensely in the available grass. It's a bit more ambiguous to compare the summer and the winter sites, but it seems that the availability is higher

Definition of Braun-Blanquet terms:
"Basal cover" means how much of the quadrant is covered with green at ground level.
"Available" means how much of the basal cover is grass edible by animals.
"Unavailable" means how much of the basal cover is herbaceous dicots, unedible for the animals. "Amount grazed" is the part of the available that is actually grazed, we looked for bite marks on the grass.

in the winter area, which shows that these areas are reserved for winter grazing. Although the amount grazed suggests that this area is in fact grazed, which was also directly observed.

The conclusion is that people perceive environmental problems in different ways, but it is found that overgrazing might be a problem in the winter period down in the valley because of overstocking. Future management strategies would be stocking at the carrying capacity, rotational grazing and rest, and judicious, controlled burning. The challenge would be defining the carrying capacity, make sure that the areas for resting are clearly marked and increased control over burning. Some steps have already been taken, but more information is needed. Erosion caused by livestock is seen in the area, but the government needs to be more active in providing services and informing people about changes in practices. More information about correct burning techniques also needed to be given.

5. Conclusion – ALL

The aim of this paper was to shed light on how the land use management of communal grazing areas and household livestock practices has affected the condition of communal grazing areas in Mpharane. In trying to answer its problem formulation, the paper used three main themes: institutions, households and environment.
In terms of institutions, it was found that informal and formal authorities' management of the communal grazing areas is weak, thereby negatively influencing the grazing areas. Overall, tenure reform is needed to create a working legal and institutional basis for decision making in the common property regimes and for the proper management of the pasture areas. In terms of how household's livestock practices influence grazing areas, livestock used as a physical capital and as a financial capital causes damage to the grazing area, while its social meaning also causes pressure to the grazing areas. These pressures might change in the future though due to the lack of interest of youth in traditional livelihoods. The perceptions of livestock-owning households were also collected and compared to the observed conditions of the grazing areas. People perceived environmental problems in different ways although they seemed to agree on overgrazing in the valley during the winter season. Future management strategies for common grazing lands would be stocking at the carrying capacity, rotational grazing and rest, and controlled burning. Some steps have already been taken, but more information is needed. Erosion caused by livestock is also seen in the area, but the government needs to be more active in providing services and informing people about changes in practices to avoid erosion and stop veld burning.

6. Fieldwork reflections – ALL

Through this field experience, we have familiarized ourselves with new methods in new surroundings. Some reflections on the fieldwork are:

- A lot of people perceived overgrazing as a problem, but since the word is not translatable in their language, there is a risk that this term might have been misinterpreted all along.
- Despite thorough work on methods and theory before field departure, there was a feeling that we lacked knowledge once in the field, especially concerning livestock practices in the area and environmental conditions and local customs. More knowledge would have made our questions could have been more precise from the beginning and we could have dug deeper.

WORD COUNT: 9,000

APPENDIX A – Synopsis

ILUNRM SLUSE FIELD COURSE 2013
SYNOPSIS

LIVESTOCK GRAZING ON COMMUNAL RANGELANDS IN MPHARANE: Environmental Pressure, Livelihood Practices & the Natural Resource Governance Regime

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February 22, 2013

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Accronyms

IDP	Integrated Development Plan (IDP
CASP	Comprehensive Agricultural Support Program
PRA	Participatory Rural Appraisal
GPS	Global Positioning System

1. Introduction

There is a long history of land reforms in South Africa. For instance, Betterment Schemes were introduced in rural villages throughout South Africa from the 1930s onwards and sought to increase agricultural productivity by changing the structure and management of common lands. After the end of the apartheid in 1994, the South African government centered land reform on municipal commonage with the 1994 Restitution of Land Rights Act whereby the Department of Land Affairs acquired new land for new, emerging farmers to complement existing old commonage (Davenport et al, 2009). However, despite land reform legislation such as the Extension of Security of Tenure Act or the 2004 Communal Land Resources Act (overturned in 2010) (Ashton 2012), the success of land tenure reform and distribution has been limited, mainly due to weak local institutions, poor commonage management practices and irregular support from the Department of Agriculture (Ainslee, 2002). Moreover, conflicts have arisen between traditional tribal regimes and democratically elected government official regimes in terms of the use of commonages, further complicating an already complex system of commonage and natural resource management (Bennett et al, 2012). This is particularly challenging for the Eastern Cape Province where grazing land comprises 81 % of the total surface area (Erasmus 1996). The Matatiele Municipality 2012/2017 Integrated Development Plan (IDP) in particular denotes the challenges of land use and land rights in the area as well as the need to introduce grazing land management programs to protect the common public lands from excessive pressure and poor management (IDP 2012).

Households owning livestock use them for a myriad of benefits; direct uses include draught power, transport, milk, dung, meat, hides, cash sales and herd growth, and indirect uses include savings and security (Davenport, 2009). Furthermore it bestows as prestige and status as well as social goods that underpin social relationships – for instance, wealth status can be valued according to the number of livestock (Ainslee, 2002). However, despite livestock being the largest component of the agricultural sector in South Africa (in terms of value) (IGDP 2012), agricultural extension and support programmes such as the Comprehensive Agricultural Support Program (CASP) and the Land Care Foundation (Ashton, 2012) have provided limited assistance to small-scale livestock owners causing widespread frustration among rural smallholder owners (which should be differentiated from white-owning commercial owners) (Ainslee, 2002). The failure of land reform and limited extension services affect rural households' livelihood practices, their use of livestock, and therefore their use of common public lands.

A key assumption in the literature is that the rangelands in communal areas in Eastern Cape are vastly overstocked and on the brink of ecological collapse because of the lack of regulation of use inherent in communal systems, which causes overgrazing (Ainslee 2002). Thus, field research is needed to examine the reality behind these assumptions, more specifically, the research team would like to further investigate the environmental pressure on the communal lands in the village of Mpharane (located in Matatiele) caused by overgrazing and how this is perceived by different stakeholders in the village. While many central questions can be raised around the theme of overgrazing, due to the limited time available in the field and the fact that the research team is quite small, the research has been focused mainly around the interplay between communal lands, livestock, livelihood and governance.

2. Research questions

The main research topic is as follows:

To what extent has livestock farming put environmental pressure on communal rangelands in Mpharane?

The subtopics identified are:

- ***How does households' decision-making related to livestock influence this environmental pressure?***
- ***How does environmental pressure impact the choice of livelihood strategies related to animal husbandry?***
- ***What role does natural resource governance play in this case?***

For an overview of the research questions and data required, please see the data matrix (Appendix A).

3. Definitions

The following definitions are offered for the key terms involving the research topic:

- ***Household***: he main unit of analysis for this project, the household is "considered as the social group which resides in the same place, shares the same meals, and makes joint or co-ordinated decisions over resource allocation and income pooling" (Ellis, 2000:18). With the problem of migration to urban centers such as Durban, a household member is a person who has spent more than six months at home as a household member (Cavendish, 2002).
- ***Livelihood***: It refers to the "capabilities assets (including both material and social resources) and activities required for a means of living" (Ellis, 2000:27), therefore descirbing the everyday and annual activities and practices that households execute.
- ***The five capitals***: Ellis' livelihood approach is based on the idea the resource and assets (or capitals) that people have are fundamental to understanding their options, strategies, outcomes and vulnerability context (Ellis, 2000). There are five kind of capitals: human, social, natural, physical and financial:
    - *Human capital* is in the form of labour, ability to work, skills and information, education, knowledge and health.
    - *Social capital* is networks and connections, membership of formalised groups, relationship of trust, access to institutions reciprocity and exchange.
    - *Natural capital* is land, water, wildlife, biodiversity and environment but also animals owned.
    - *Physical capital* is made of basic infrastructure, producer goods, shelter and energy.
    - *Financial capital* is financial resources such as saving, credit, remittances and pensions used to sustain or better livelihoods.
- ***Livestock***: So far, the research team has not zoomed in yet on a single type of livestock and would like to further investigate in the field before deciding whether it will focus on ox, cattle, sheep, or goats.
- ***Overgrazing***: It is defined as occurring where there is a concomitant vegetation change and loss of animal productivity arising from the grazing of land by herbivores." (Wilson A. D. and Macleod N.D, 1991)
- ***Environmental pressure***: It is defined as the continuous physical strain exerted on the soil.

- ***Communal grazing land***: Also referred to as communal rangelands or commonage, it describes public lands with no private stake on them which are administered either by the village chief or other governmental agencies and are used for livestock grazing by villagers.
- ***Natural resource governance***: Part of the livelihood's framework under the label of institutional environment, it describes the power, process and practice and how these have shaped the patterns of access, control and use of the communal lands (Mandondo, A., 2000).

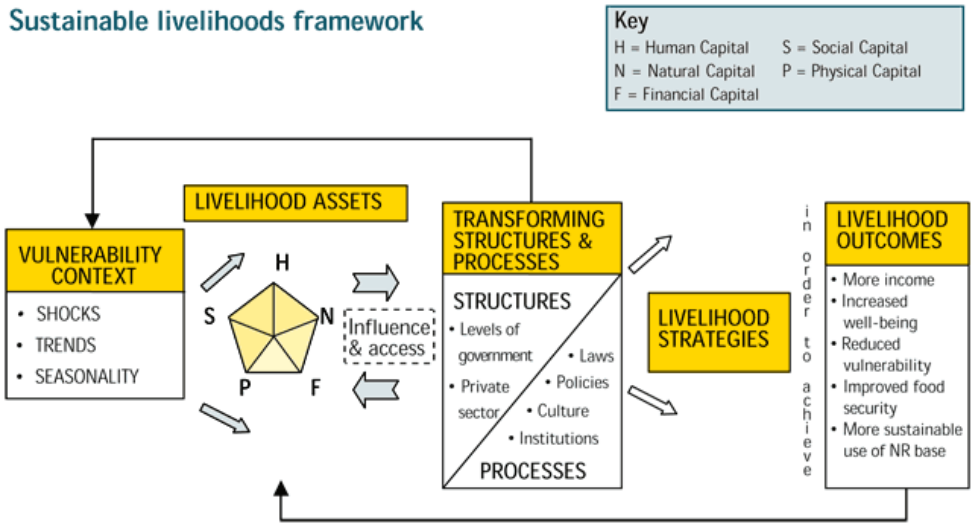
4. Methods

a) Methodology – the Sustainable Livelihood Framework

The team plans on using the sustainable livelihood framework (Ellis, 2000) for its analysis (see appendix I) and plans on focusing on the following facets of the livelihood framework (see figure 1 below):

- The natural capital (rangelands, livestock) as starting point as well as how the degradation of this natural capital might affect the other capitals
- The transforming structures and process (natural resource governance)
- Vulnerability context (seasonality as well as climate change)
- Livelihood strategies related to livestock
- Livelihood outcomes related to the sustainable use of natural resource base as well as the well-being of households

Figure 1:



b) Methods that will be used

In choosing what methods to use, the research team tried to make use of the different competences in the group. Our different backgrounds have made us able to see the problem of overgrazing in Mpharane from different angles and that has been helpful in determining how to use the methods.

Our choice of methods as it is presented here is made on the basis of preliminary research made by Torben Birch Thomsen and relevant literature studies. We are aware of the fact that

reality in the village might reveal new aspects and it is our expectation that we will have to reevaluate the importance of the methods presented in this synopsis when we get to Mpharane. The data obtained from implementing these methods will hopefully make us able to draw conclusions on our problem statement. If we make changes we will do it to reach the objectives in the best possible way.

Participatory Rural Appraisal (PRA)
These methods are a good way of including the villagers in the process of research by giving them opportunities to participate and express what they see as important issues in terms of livestock grazing, local governance and environmental pressure on the local natural resource – see appendix G for more details. It enables us to bring home physical data representing the thoughts and ideas of the local people and make notes about the discussion taking place during the exercise. We want to conduct a mapping exercise in which selected livestock owners from the questionnaire survey are invited to meet and draw a map of the grazing lands used to sustain their livestock production. Selection of these people is made to represent a broad as possible sample of the people owning livestock in terms of livestock numbers and social and financial status. It is also our plan to ask the people at this gathering to make a Venn diagram that will show the actors involved in controlling the access to the area grazed and how these are interlinked and perceived in terms of importance to the livelihood strategies of the villagers. Lastly, we will use this session to ask the selected livestock owners to do a seasonal mapping of their grazing activities using a map over the area. This will enable us to see if there is a rotational scheme implemented in the area and maybe discover some of the dynamics in the group while making this exercise.

Questionnaire survey
We plan to do 30 relative short household questionnaires of about 45 minutes – see appendix C for the questionnaire survey. We will select an area that is said to have many livestock-owning households and in that group we will randomly select households. The survey will help gather information about number and types of livestock, value of livestock, animal health, livestock practices, perception of environmental effect of grazing livestock, dependency of the grazing land and access to this natural resource.

Semi-structured interviews
This interview technique is based on a draft question guide attached in appendix H describing issues to cover to be able to answer our research questions. The semi-structured interview will be an open discussion where there is room for elaboration and in depth questions concerning perception and incentives.

During the first few days, we plan on interviewing relevant key. People of interest include our translator, the village chief, the sub village headman, village elders, agricultural extensionists, local government officials and representatives of farmers associations and/or NGOs working in the area. These first semi-structured interviews will enable us to get more in depth knowledge about the local context of legislation and customs and some kind of categorization system for wealth status in the community and their definition of wealth.

Once the questionnaire survey has been carried out, we also intend to conduct semi-structured interviews with 4 or 5 (depending on time) livestock-owning households in order to follow up on the questionnaire survey questions and get a more in-depth picture of their perceptions and issues. It is our goal to make sure that all wealth groups are represented.

Informal conversation
Informal conversations will hopefully lead us to our first key informants via snowballing. Informal conversation all through the field work will enable us to triangulate the knowledge that we gain from the other methods and give us an idea about the validity of our sources. Informal conversation is also an important part of gaining people's trust and creating report.

Global Positioning System (GPS) mapping
This method will help us map our research area in terms of points of interests, location of grazing areas, location of respondents or other things useful for the overview. Maps created with the GPS will help us describe the grazing areas and help us determine if overgrazing is taking place with current stocking numbers. We plan to record the location of grazing areas visited during our trip to the mountain/common lands as well as the location of households interviewed during our survey questionnaires.

Direct observation
Throughout the field work period we will make direct observations that will help us get an impression of the area and the conditions there. It also important to observe people during interviews and the PRA.

Transect walk
The transect walk will help us get to know the study area and getting an idea of how clear existing boundaries are and is scheduled for the first day in the village along with the translator. We plan on taking notes and sketching on the maps provided by Torben.

Soil texture and color test
This will enable us to describe the soil of the grazing areas visited in order to derive the condition of the soil in terms of its soil moisture content and quality. It is a rather limited method but it is not time consuming and it will give us an idea of how degraded the soil might be (therefore making the connection to the potential overgrazing of communal lands).

Vegetation analysis
Grazing affects vegetation, therefore why we are planning a vegetation analysis to determine the plant types present in the grazing areas. We will do this by marking an area covering $1m^2$ in three places in the grazing field and then with the expertise of Professor Trevor Hill, we will determine the species in the field. This will help us in determining the biodiversity of the grazing area as well as the extent of bush encroachment in the area. This can then be used to ask people about former practices and conditions of the grazing lands.

Focus group discussion
We plan on having two separate focus group discussions: one with key informants and one with elders. The first one will emphasize the issues about access to communal rangelands and environmental degradation of the natural resource – see appendix F for more details. The discussion will hopefully reveal something about management strategies and dynamics concerning livestock grazing in the area. We will ask questions to keep the discussion going, but the important thing is to observe and listen to them while they debate.

The second one will take place with elders of the village or sub-village and will focus on getting a historical perspective to the natural resource management of grazing areas in the village, for more details see appendix D.

APPENDIX A – Data Matrix

Problem Statement	Topic	Objectives	Research Questions	Data Required	Data source/target	Methods	Material needed
To what extent has livestock farming put environmental pressure on communal rangelands in Mpharane?	Natural Environment	Examine the environmental effects of livestock on communal grazing areas	- What are the environmental effects of livestock in the communal grazing areas? - Is overgrazing a problem in the village? If so, what are the environmental impacts of overgrazing? - Is there a conservation plan (e.g. rotation scheme) in the area to prevent this environmental pressure? - Are these impacts perceived as an issue to people in the village? If so, how do they deal with this on a household level? - Has the area grazed changed over a period of time?	- Topography - Quality and conditions of soil - Signs of erosion - Changes in vegetation (biodiversity) - Size of land used, rotation of land - Changes of land use over time - Level of perception of environmental effects of grazing - Stocking number and grazing area - Information about how often and to what extent the livestock owners have access to the grazing areas - Seasonal change	- Villagers through focus groups - Village chief - Village guide - Agricultural officer - Natural Resource Management body or NGO - Elders - Soil - Professor Trevor Hill - Photographs	- PRA mapping of grazing areas, stocking number and seasonal timeline - Follow-up interviews - Semi-structured interviews - Questionnaire surveys - GPS/mapping - Direct Observation - Transect walk - Mountain walk with herders - Soil test: soil texture and chart test - Vegetation analysis	- Flip chart and markers - Maps of area - GPS - Soil testing kit (Soilstick) - Laminated FAO texture chart - Soil color chart - Soil auger - Measuring tape - Camera

Problem Statement	Topic	Objectives	Research Questions	Data Required	Data source/target	Methods	Material needed
	Livelihood Practices	Determine the livelihood practices that influence the environmental pressure on communal grasslands. Examine whether or how environmental pressure impacts livelihood practices.	- What are the status characteristics of livestock owners? - What are their livestock practices? - Does social status affect environmental pressure on common grazing areas? - What type of livestock uses the communal grazing land? - How many livestock use the grazing land? - What are the reasons for holding livestock? - How is the livestock valued? - What is the livestock owners' perception of the relationship between livestock and environmental pressure on communal grasslands? - How does environmental pressure on communal grasslands affect livelihood practices? - Does the environmental pressure on communal grassland cause livestock depletion/affects animal health?	- Status of livestock owners - Livestock practices - Quantity and type of livestock (from dip site) - Use of livestock - Value of livestock - Level of dependence on CPR - Animal health and yields (milk, meat, etc)	- Villagers - Village guide - Village chief - Key informants - List from person responsible for dipping	- PRA focus group – figure out status meaning - Questionnaire survey - Semi-structured interview - Direct Observation - Transect walk	- Flip charts - Notebooks/some printed questionnaires - GPS - Map of village

Problem Statement	Topic	Objectives	Research Questions	Data Required	Data source/target	Methods	Material needed
	Natural Resource Governance	`Understand the dynamics of natural resource governance regimes in the communal rangelands related to livestock in Mpharane	*Management of rangeland* – - Is there a grazing/natural resource management plan in place? - How does it involve livestock? - What is the management capacity of the municipality/village for these commonage?	- Natural resource management plan or grazing plan - Identify who is in charge of the management and how do they deal with livestock grazing and coordinate with villagers - Identify capacity of village to maintain commonage	- Village chief - Villagers - Village guide - Key informants - Farmer/livestock association	- Semi-structured interview - PRA - Venn diagram - Informal conversation - Semi-structured interview	- Notebooks/ some printed questionnaires - Flip chart and marker
			Land use and access – - How has land reform affected the use of communal rangelands? - How is land use determined for communal rangelands related to livestock? - Are there any conflicts regarding the land use/access related to livestock? - How many people use them, what is their social status, how often and for what purpose?	- Land reform process, land rights and effect on land use - Identify communal rangelands: where they are, which ones are used for livestock - *Decision-making process*: Identify who is involved in commonage's access and use - is it dependent on social/economic status?	- Village chief - Local government official - Villagers through focus group - Key informants - Farmer/livestock associations	- Semi-structured interview - Focus group interviews with mapping of grazing areas and seasonal mapping - GPS/mapping - Observation - Transect walk - Walk to mountains with herders - Informal conversation - Secondary data	- Flip chart and markers (print outs of different livestock types) - Maps of area - GPS - Notebooks / some printed questionnaires

Problem Statement	Topic	Objectives	Research Questions	Data Required	Data source/target	Methods	Material needed
			Associations/NGOs - Are there any local farmer/livestock associations or other environmental NGOs? - How do they help regulate, manage or influence the use of communal rangelands?	- Association support to villagers in terms of livestock activities - Linkage to commonage use and access	- Village guide - Associations/ NGOs - Villagers	- Semi-structured interview - Informal conversation	- Notebooks/ some printed questionnaires
			Perception/Awareness - Are people in charge or in associations aware of the issues surrounding overgrazing and their potential consequences?	- Perceptions in environmental quality and potential degradation of resources	- Village chief - Village guide - Associations/ NGOs - Key informants	- Semi-structured interview - Informal conversation	- Notebooks/ some printed questionnaires

APPENDIX B - Timeline

START 27 February 2013														
		W	T	F	S	S	M	T	W	T	F	S	S	M	T
		27	28	01	02	03	04	05	06	07	08	09	10	11	12
IN SOUTH AFRICA - FIELD WORK															
	Presentation to university of research topic	X													
	Arriving to Mpharane		X												
	Transect walk through area			X											
	Session with interpreter: research questions/questionnaires			X											
	Visit communal grazing areas				X										
	Vegetation Analysis				X										
	Soil sampling			X	X										
	GPS mapping				X		X	X	X						
	PRA			X						X					
	Mapping									X					
	Informal talk with key informants			X	X	X									
	Questionnaire survey						X	X	X						
	Semi-sctructured focus group					X									
	Semi-structured interview with chief leader					X									
	Semi-structured interviews with selected villagers									X	X	X			
	Semi-structured interviews with associations/NGOs					X									
	Semi-structured interviews with government agents					X									
	Direct observation		X	X	X	X	X	X	X	X	X	X			
	Informal conversations		X	X	X	X	X	X	X	X	X	X			
	Back to Pietermaritzburg												X		
	Presentation to university of preliminary results														X

Notes:

Only one interpreter limits number of activities per day, meaning that group cannot be split up

Timeline may change because of availability of informants, groups or because of changes in program design

Mornings and daytime have been allocated for meetings and outdoor activities

Evenings will be used for data collection analysis, planning for next day (based on timeline)

APPENDIX C – Survey Questionnaire

Village_____ Cluster _____ HH Number _____

No.	Questions	Categories	Notes
1	Is the Head of the Household home?	Yes ___ No___	**If Yes, go to 6**
	If no, continue with subsequent questions in grey		
2	What is your name?		
3	What is the Respondent's relationship to head of household?	Head __ Spouse __ Other __	
4	What is the Sex of respondent?	Male __ Female __	
5	What is the age of respondent?	__ Years	
6	What is the Name of Household Head?		
7	What is the Sex of the head of household?	Male __ Female __	
8	What is the age of the head of household?	__ Years	
9	What is the household head's current marital status?	Married __ Never Married __ Divorced __ Widowed __ Married not living together __	
10	What is the total number of household members? *(Household members living under the same roof and sharing same dish*	Male __ Female __	
11	What are the occupations of the head of household? (Circle all that apply)	Crop husbandry Animal husbandry Trade Casual labourer Other _____ Artisan Salaried employee Pensioner None	
12	Do you own any livestock?	Yes ___ No___	
13	If no, why not?	Reasons:	**END**
	If yes, continue below		
14	What are your main reasons for having livestock? (PRIORITIZE THEM – 1 being the most important, 9 the least important)	Meat __ Milk __ Sale __ Animal traction __ Transport __ Savings __ Security __ Hides __ Other _____	
15			

How many __ do you own?		# Used for Milk	# SLAUGHTERED FOR HHLD CONSUMPTION IN PAST YEAR	# SOLD IN PAST YEAR
Ox				
Cattle				
Sheep				
Goat				
Horse				
_____				

16	What is the source of feed for your livestock?	Grazing/Browsing __ Crop residues ___	Hay ___ Other_____	

17	For how many months of the year does grazing provide enough feed for your livestock?	Months ___		
18	Do you own land that you use for grazing?	Yes __ No __		
19	Do you use common public rangelands for grazing?	Yes __ No __		
20	Are the common public rangelands enough for your livestock's needs?	Yes __ No __		
21	Do you have to pay to use these?	Yes __ No __		
22	How far are the grazing areas?	Kms __ Time __		
23	How do you decide where to take your livestock for grazing?	Coordinate with other livestock owners informally __ Coordinate with other livestock owners formally (e.g. through association) __ Community grazing calendar __ Dependent on availability of herders __ Other _____		
24	What is the condition of the grazing areas?	Poor ___ Average ___ Good ___		
25	Have you noticed a change in the quality of the communal grazing land over the past few years?	Increase of quality __ Decrease of quality __ No Change __		
26	Is the livestock's health affected by the condition of the grazing areas?	Yes __ No __		
27	If yes, how?			
28	Are there grazing/communal land committees in your village?	Yes __ No __		
29	Did any member of your household participate in such activities?	Yes __ No __		
30	Whose responsibility is it to herd the livestock?	Wife __ Female children __ Male Children __ Husband __	Hired labor __ Adult __ Others_____	

THANK YOU FOR YOUR TIME

IF SELECTED FOR SEMI-STRUCTURED INTERVIEW OR PRA/FOCUS GROUPS, ASK IF THE TEAM CAN COME BACK AT ANOTHER TIME FOR A LONGER INTERVIEW OR WHETHER THEY WOULD BE AVAILABLE FOR THE PRA/FOCUS GROUPS.

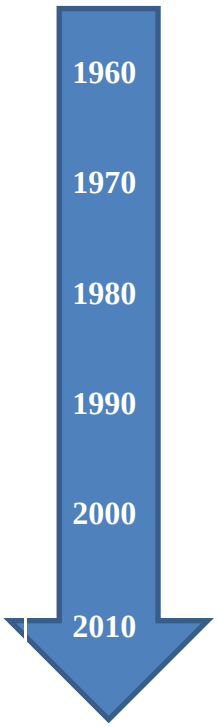
APPENDIX D - Historical Mapping (Timeline)

Description:

- Meet small group of villagers
- Discuss the most important events in the community's past related to communal resource management
- Start with 1960s – Betterment scheme or as far as you can remember
- If sensitive issues are raised, move on to the next time period to not get stuck in deep discussion over sensitive issues
- Allow 1 to 2 hours

Orientation for focus group:

- Introduce selves, where from, what project is about and how long staying, what we will do with information
- Our research is about communal lands and livestock grazing – we are here today because we are interested in learning about land use and land use changes in your village. We need your input to understand how communal lands and the use of these communal lands have evolved over time.
- We would first like to establish a timeline for your village whereby you tell us the most significant events in your community's past, especially those that have influenced land use patterns. Examples include: conflicts, periods of drought or natural disaster, changes in the natural, social, political, or economic environment and the ways in which community members have dealt with them.
- Then if we have time, we will move on to do some mapping whereby you will draw a map with pencils and a piece of paper of how communal land was used in the past in your village. We would like you to make a distinction between the use for crops and the use for livestock grazing on communal lands, since we are mainly interested in livestock grazing and how that has evolved.



Output:

- Understand historical land use patterns and history of village

Facilitation:

- Create a timeline to follow (every 10 years) with evens to be filled in through group discussion, focused on communal land use and communal resource management
- Simple listings of events according to date

Questions to ask:

- What have been major events in your village since 1960s?
- How has the use of communal lands developed over the years?
- Is there a difference between where animals used to go graze 50 years ago and where they graze now?
- How has the animal structure and use developed in your village?
- How have animal herds developed in your village?

If time allows, sketch mapping –

- Do you remember how lands were used in your village 30 years ago?
- Can you draw a map from memory?
- No need to draw with a lot of detail, we are mainly interested in communal land use – how they are used and distributed

Resources: 2 large-sized sheets of paper, pencils and coloured pens

APPENDIX E: Questions for translator/village guide

- Explain research goal and topic
- Go through our activities and timeline with him
- Go through questionnaires with him

General Questions

- Do you know any key informants that might be useful for our study?
- Where should we carry out our PRAs/focus groups? Want a quiet place with plenty of space.
- We are also looking for any environmental NGOs, agricultural officers and NRM officer in the village, can you help us find them?
- Do you know any good location (quiet, closed and a table/chair for working) where we can carry out focus groups/PRA activities?
- Is there a dip in the village? Can we get a list of livestock at the dip?

Research topic questions

- What sort of animals do people have in the village?
- How do they use them?
- Views over overgrazing of communal lands – when would you consider them overgrazed?
- Power structure over management of communal lands
- What can you tell us about the animal structure within the village and the development of animal herds?

APPENDIX F – Key informant focus group

(Can also be used as an informal conversation guide)

1) **Discussion:**

- 2-5 people knowledgeable in the field of livestock grazing in Mpharane selected through informal conversation and snowballing
- Informal setting without external interruptions
- Topics to cover:
    - Wealth categorization in terms of observable signs (house, number of livestock, household size, etc..)
    - Grazing areas, mapping exercise.
        - For them to show us on a preprinted map where grazing of local livestock takes place
    - Livestock ranking for the different livestock types in Mpharane
        - What type is the most dominant
    - List of cattle from dipping?
    - Historical changes in the grazing practices
    - Venn-diagram exercise:
        - To identify external and internal organizations/groups/important persons active in the community in relations to livestock
        - To find out how the different organizations and groups relate to each other in terms of contact, co-operation, flow of information and provision of services (see below for instructions)
    - Which of the institutions influence people's access to livestock?

2) **Venn- diagram exercise**

Key Questions:

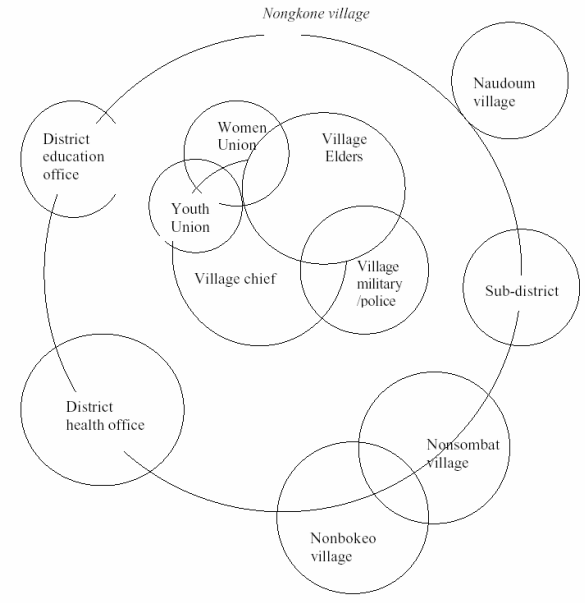
· Which organizations/institutions/groups are working in or with the community?
· Which institutions/groups do the villagers regard as most important, and why?
· Which organizations work together?
· Are there groups which are meant for women or men only?
· Are some particular groups or kind of people excluded from being members of or receiving services from certain institutions?

How to facilitate the process?

1) If time allows it will be good to form separate focus groups for women and men. Make sure that also the poorest and most disadvantaged join the group.
2) Explain to the participants the two objectives (see above) of the Venn Diagram on institutions.
3) Ask the participants which organizations/institutions/groups are found in the village and which other ones from elsewhere are working with them. Make sure that they also think of the small not formal groups like e.g. neighborhood committees. These questions will be useful to ask:
What kind of ways of assisting each other do exist among people? Which local groups are organized along environmental issues (water, grazing, arable land), economic issues (saving, credit, agriculture, livestock), social issues (health, literacy, religion, tradition, education, sport). Are their political groups? Who makes important decisions in the Village?

4) Ask one of the villagers to write down all the institutions that are mentioned and to give each organization a symbol which everybody can understand.
5) Ask the participants to draw a big circle in the centre of the paper or on the ground that represents themselves.
6) Ask them to discuss for each organization how important it is for them. The most important ones are then drawn as a big circle and the less important ones as smaller circles. Ask the participants to compare the sizes of the circles and to adjust them so that the sizes of the circles represent the importance of the institution, organization or group.
7) Every organization/group should be marked with the name or symbol.
8) Ask them to discuss in which way they benefit from the different organizations.
9) Ask them to show the degree of contact/co-operation between themselves and those institutions by distance between the circles. Institutions which they do not have much contact with should be far away from their own big circle. Institutions that are in close contact with the participants and which whom they co-operate most, should be inside their own circle. The contact between all other institutions should also be shown by the distance between the circles on the map:
largely distanced circles: no or little contact or co-operation
circles close to each other: only loose contacts exist
touching circles: some co-operation
overlapping circles: close co-operation
10) Ask them which institutions are only accepting women or men as members. Are there any institutions or groups that do provide services either only for men or only for women? Show the answers by marking the circles with a common symbol for men or women.
11) Ask them to discuss in which organizations poor people do not participate and why. Ask if there are any services of certain organizations from which the poorer people are usually excluded. Mark these institutions on the map by using a symbol for poor. You might also ask if there are other groups of people that usually are excluded from some of these institutions or services.

Handout no. 1.3.2.4.1 - Sample Venn diagram of Nongkone village, Songkone district, Savannakhet



Source for Venn diagram exercise: Cavestro, L. 2003. P.R.A – Participatory Rural Appraisal: Concepts, Methodologies and Techniques. Universita Degli Studi di Padova, Facolta Di Agraria, Dipartimento Territorio E Sistemi Agro-Forestali, Master in Cooperazione Allo Sviluppo Nelle Aree Rurali.

APPENDIX G – Guide for PRA activities

Description:

- 5-10 people representing men, women, rich and poor working with livestock in Mpharane
- An introductory discussion about things learned in the week we have to verify or triangulate
    - Remember to make a list of issues for this bullet point during the week!!!

PRA- methods

- **Resource mapping**
    - ***Description***: The Village Resource Map is a tool that helps us to learn about a community and its resource base. The primary concern is not to develop an accurate map but to get useful information about local perceptions of resources. The participants should develop the content of the map according to what is important to them.

    - ***Objectives***: To learn the villagers' perception of what natural resources are found in the community and how they are used.

    - ***Key Questions:***
        - 1. What resources are abundant?
        - 2. What resources are scarce?
        - 3. Does everyone have equal access to land?
        - 4. Do women have access to land?
        - 5. Do the poor have access to land?
        - 6. Who makes decision on land allocation?
        - 7. Where do people go to collect water?
        - 8. Who collects water?
        - 9. Where do people go to collect firewood?
        - 10. Who collects firewood?
        - 11. Where do people go graze livestock?
        - 12. What kind of development activities do you carry out as a whole community? Where?
        - 13. Which resource do you have the most problem with?

    - ***How to facilitate:***
        - The Village Resource Map is a good tool to begin with. It is easy and fun for the villagers to do. It helps initiate discussion among the community and with the PRA team. All team members should observe the mapping exercise because it provides an overall orientation to the features of the community and its resources.
        - In our PRA, we would like to do this map with separate groups of men and women in the village. This is because women and men may

use different resources. The women will map the resources they think are important (like water sources, firewood sources, etc). The men will map the resources they think are important (like grazing land, infrastructure, etc). Maps may include: infrastructure (roads, houses, buildings, bridges, etc); water sites and sources; agricultural lands (crop varieties and locations); soils, slopes, elevations; forest lands; grazing areas; shops, markets; health clinics, schools, churches; special places (sacred sites, cemeteries, bus stops, shrines, etc).

- **Seasonal calendar**
  - Key Questions:
    - How does rainfall vary over the year?
    - How does forage quality in the communal grazing areas change over the year?
    - How does livestock forage availability vary over the year?
    - When are holidays and how many days in which month?
    - Does the total number of grazing livestock in the village change over a year?

- **Venn-diagram**
  - See appendix F for method description.

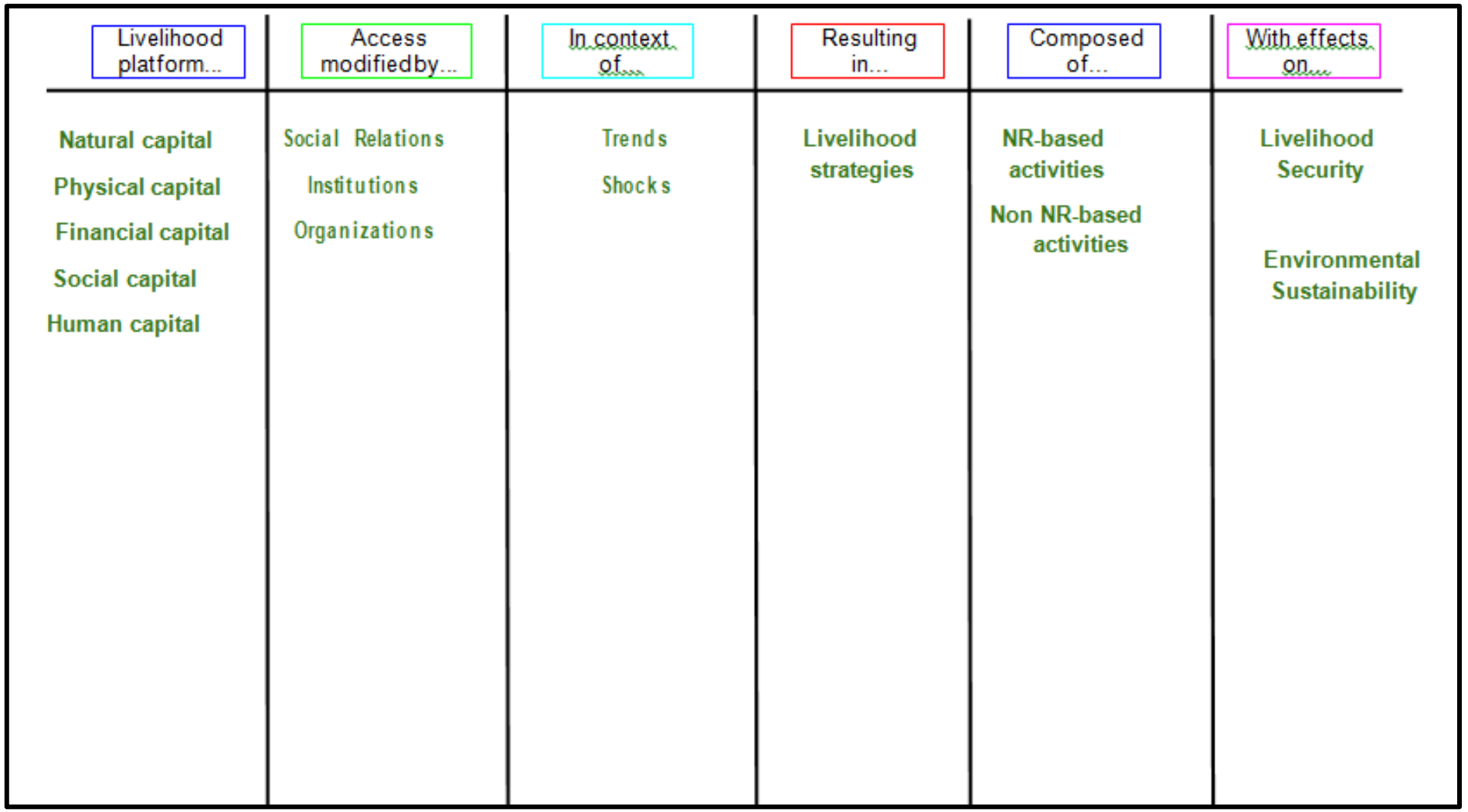
APPENDIX H - Semi-structured interview guide

Research Questions	Sub Questions	Interview Questions	Answers
2. How are households' livestock practices? (General (closed) context questions)	a. What type of livestock uses the communal grazing land?	What type of livestock uses the communal grazing land?	
	How many people use the grasslands?	- How many people use the grasslands? - For what purposes? - How often? - Has it changed over time? - When and why?	
	b. How many livestock use the grazing land?	- How many livestock use the grazing land? - How many of each species? - Has the composition of species changed over time? - When and why?	
	How are the livestock values?	How are the species of livestock ranked in order to importance?	
	c. What are their livestock practices?	What are the livestock used for? - In everyday life? - In annual occasions? - Has it changed over time? - When and why?	
	(d. What are the reasons for having livestock?)		
	f. How are livestock owners linked together informally in relation to grazing?	- Are they herding together? - Are they talking about where to and how to graze? - Are they having informal meeting on grazing issues? - Are they sharing or loaning each other livestock? - Are there any annual rituals because of livestock, like e.g. celebrations or feasts?	
	- What are the status characteristics of livestock owners?	How can you tell that a livestock owner has success? - Do those with more success use more of the communal grasslands than those with less?	
	a. What are the environmental effects of livestock in the communal grazing areas?	What are the environmental effects of livestock in the communal grazing areas?	
1. To what	e. Has the area grazed changed over a	Has the area grazed changed over a period of time?	

Research Questions	Sub Questions	Interview Questions	Answers
extent has livestock farming put environmental pressure on communal rangelands in Mpharane?	period of time?	- When? - How can you tell? - Why?	
	b. Is overgrazing a problem in the village? (- If so, what are the environmental impacts of overgrazing?)	Is overgrazing a problem in the village? - Why? - Has it changed over time? - When and why?	
	d. Are these impacts perceived as an issue to people in the village? If so, how do they deal with this on a household level?	Do people in the village talk about it? - How does it impact everyday life? - How does it impact annual occasion?	
	e. What is the livestock owners', as well as others perception of the relationship between livestock and environmental pressure on communal grazing land?	Why do you there is overgrazing?	
	f. Does social status affect environmental pressure on common grazing areas?	Please rank animals in order by those doing most damage to overgrazing.	
	a. Does the environmental pressure on communal grazing cause livestock depletion/affects animal health?	Do the overgrazing causes lower quality of the livestock? - Does it cause animal diseases deaths? - How does it affect the numbers of livestock? - Does it affect the household to depend less on livestock or change the composition of livestock?	
3. How do environmental pressure impact livelihoods?	b. How does environmental pressure caused by animal husbandry impact the five capitals derived from the livelihood framework; financial, social, physical, human, natural, respectively?	Does the overgrazing directly or indirectly affects you dependency and accessibility of: - Labour? - Networks and connections, with other people? - Resource stocks? - Infrastructure and producer goods? - Financial resources?	
	a. Is there a grazing plan in place? - How does it involve livestock?		
4. What role does natural resource	c. Is there a natural resource management plan (e.g. rotation scheme) in the area to prevent this environmental pressure?	Is there a conservation plan (e.g. rotation scheme) in the area to prevent this environmental pressure? - If yes, are they useful?	

Research Questions	Sub Questions	Interview Questions	Answers
governance play in this case?		- Is there a need for a management plan? Why?/why not?	
	d. How is land use determined for communal rangelands related to livestock?	Who are involved decicions about the communal rangelands?	
	e. Are there any local farmer/livestock associations or other environmental NGOs? - How do they help regulate, manage or influence the use of communal rangelands? - Are people in charge or in associations aware of the issues surrounding overgrazing and their potential consequences?	Are there any local farmer/livestock associations or other environmental NGOs? - How do they help regulate, manage or influence the use of communal rangelands? - Are people in charge or in associations aware of the issues surrounding overgrazing and their potential consequences?	
	c. How has land reform affected the use of communal rangelands?	Are there any present or past reform that affected the use of communal rangeland? - Which? - How?	
	b. What is the management capacity of the municipality/village for these commonage?	Do you think more or different kind of management is needed? Why? Is it possible?	
	e. Are there any conflicts regarding the land use/access related to livestock?	Are there any conflicts regarding the land use/access related to livestock? - Among villager or with people from outside the village, e.g. theft? - Among decision makers, e.g. the chief and the municipality? - Between villagers and decision makers? - How severe is it? - How is it expressed?	

APPENDIX I - Ellis' Framework for Livelihood Analysis



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APPENDIX B – Actual Timeline

# DAY	DATE	ACTIVITIES
DAY 1	**02/27/13**	Presentation to Kwazul-Natal University of research topic, talk to Trevor Hill, finish synopsis and coordinate issues
DAY 2	**02/28/13**	Arriving in Mpharane, have dinner, go to stay family
DAY 3	**03/01/13**	Session with interpreter: explain research questions, ask whether he knows key informants, dry test survey questionnaire; feedback from Amy/Luke Transect walk through area in afternoon, GPS mapping of walk Took 3 vegetation samples from temporary grazing area near plantation to be used as baseline for other samples Wealth characteristics PRA led by Skylar Bee with 5 translators and lodge cook Hodu, mapping of poor/middle class/wealthy areas
DAY 4	**03/02/13**	Semi-structured interview of headman for Thababosiu – Thamsnqa Mdune
		Rewrite semi-structured interview questionnaire
		Prepare for focus group
		Focus group with four people from Thababosiu: mapping of grazing areas, informal talk
		Reflections on focus group and interviews, planning for next few days
DAY 5	**03/03/13**	Church attendance in morning Semi-structured interview with Tsebo from Mahelong Community Trust Finish survey questionnaire and plan for next day
DAY 6	**03/04/13**	Survey questionnaire – Mahareng, 8 questionnaires
		Repolish questionnaire, type up answers and reflect on exercise
DAY 7	**03/05/13**	Survey questionnaires – Dikamareng – 11 questionnaires Appointment with ward secretary but she never showed
DAY 8	**03/06/13**	Dip visit and semi-structured interview with Mohau Chabana, Farming Enterprise
		Mapping with Lefu
		Attended traditional council meeting
		Semi-structured interviews with ward secretary and ward counsellor
		Semi-structured interviews with sub-headman of Mahareng and the headman
DAY 9	**03/07/13**	Matatiele: semi-structured interview with 2 animal health technicians from Department of Agricultural Development and Reform of Eastern Cape Matatiele: semi-structured interview with Musilu from EDA Follow-up semi-structured interview with small-scale farmer in Dikamareng Survey questionnaires – Tababsiu – 11 interviews Focus group with five people from Mahareng: mapping of grazing areas, theft, fire, historical context Presentation to Trevor
DAY 10	**03/08/13**	Vegetation analysis of summer grazing areas for Tababsiu – 2 samples, one on slope and one on top of hill
		Mountain trek to Makabe's outpost
		Semi-structured interview with Makabe and herdman
		Vegetation analysis on mountain grazing area where Makabe's cows were grazing
DAY 11	**03/09/13**	Vegetation analysis of winter grazing area – Tababsiu Vegetation analysis of summer and winter grazing areas – Mahareng Presentation to community
DAY 12	**03/10/13**	Back to Pietermaritzburg
DAY 13	**03/11/13**	
DAY 14	**03/12/13**	Presentation to university of preliminary results

SUMMARY

30 Survey questionnaires
4 Vegetation analyses
11 Semi-structured interviews
2 Focus groups
4 Key informants – Lefu, Tsepo, Mohau, Innocent

APPENDIX C – Survey Questionnaire & Answers – Simplified Version

HH = Household
0 or space = No
1 = Yes

Names not revealed to protect anonymity of households surveyed

Answers for HH1 – HH10

No.	Questions	HH1	HH2	HH3	HH4	HH5	HH6	HH7	HH8	HH9	HH10
		Mahareng								Dikan	areng
1	Is the Head of the Household home?	1	0	1	1	1	1	1	0	1	1
7	What is the Sex of the head of household?	M	M	M	F	M	F	F	M	F	M
8	What is the age of the head of household?	84	63	76	80	73	80	32	54	43	42
9	What is the household head's current marital status?	Married	Married	widow	widow	Married	widow	Married	Married	Marri	Married
10	What is the total number of household members?			2	1	3	5	4	4	3	4
11	What does the household head do for a living?										
	Charity										
	Crops	1				1					
	Employed							1		1	
	Entrepreneur					1					1
	Grant	1	1	1	1		1				1
	Home Garden		1	1	1		1	1			
	Livestock	1	1	1		1	1		1		1
	Pension					1					
	Remittances										
12	Do you own any livestock?	1	1	1	0	1	1	0	1	0	1
13	IF NO, did household use to own any livestock?	0	0	0	1	0	0	1	0	1	0
14	IF YES, why don't you anymore?										
	If yes, continue below										
15	How many cows do you own?	3	50	3	0	10	8	0	8	0	3
	Uses?		sale, milk	milk, sale, cultural		plowing,	milk, selling		Sale		Milk, sale
	# sold?		4	1					1		0
	# slaughtered?	1	1						0		1
	How many oxen do you own?	0	10	1	0	6	4	0	2	0	2
	Uses?		wood coll	collect wood, plow		wood, plo	when big enough, v		too young so do esn		firewood
	# sold?		4	1							
	# slaughtered?		1								
	How many sheep do you own?	1	0	0	0	0	0	0	0	0	0
	Uses?										
	# sold?										
	# slaughtered?										
	How many goats do you own?	9	7	0	0	0	0	0	0	0	0
	Uses?										
	# sold?		2								
	# slaughtered?		1								
	How many horses do you own?	2	4	1	0	3	3	0	4	0	4
	Uses?		transport	transport		transport	transport		transport		transport
	How many donkeys do you own?	0	3	0	0	1	0	0	0	0	0
	Uses?		transport, mini mil		transport,	transport, mini mil					
	# sold?		2								
	# slaughtered?		1								
	How many pigs do you own?	0	3	0	0	1	0	0	0	0	0
	Uses?										
	# sold?		2								
	# slaughtered?		1								
16	What does your livestock eat?										
	Graze	1	1	1		1	1		1		1
	Hay Bales					1			1		
	Salt	1	1								
	Crop Residues		1	1		1			1		
	Meal		1				1				
17	Do you have an outfield? If yes, do you use the crop residues for animal feed?	0	1	1	0	1	0	0	0	0	1
	Do you plow it?	0	1	1	0	1	0	0	0	0	0
	Do you use it for the animals?	0	1	1	0	1	0	0	0	0	0
18	Do you find getting enough fodder for your livestock is a problem?	0	1	1	0	1	1	0	1	0	1
19	Where do you graze In the summer?	Valley	Mountain	Valley		Mountain	Valley		Valley		Mountain
	Where do you graze In the winter?		Outfield	Outfield		Mountain	Valley		Valley		Mountain
20	How far are the grazing areas in the valley?		15				10				180
	How far are the grazing areas In the mountain?		15			150					180
21	Are the community grazing lands enough for your livestock's needs?	1	1	0	0	0	0	0	0	0	1
22	Have you noticed a change in the quality of the communal grazing land since 2000?	0	1	0	0	1	1	0	0	0	1
	Positive	0	1	0	0	0	0	0	0	0	0
	Negative	0	0	0	0	1	1	0	0	0	1
23	What do you think is the impact of burning the grazing areas?			Bad		Good	Bad		Bad		Bad
24	Are there any rules for the grazing ares? What are they?	1	1	1	0	0	1	0	1	0	0
25	Do you think people respect the rules of the grazing areas? If no, in what way?	0	0	1	0	0	0	0	1	0	0
26	Do you assist the headman in making decisions for the grazing areas? How?	1	1	1	0	1	1	0	1	0	1
27	Whose responsibility is it to herd the livestock?	Household	Hired	Hired		Hired	Household		Household		Household
	WEALTH RANKING	Poor	Rich	Average	Average	Rich	Average	Average	Average	Averag	Poor

Answers for HH11 – HH20

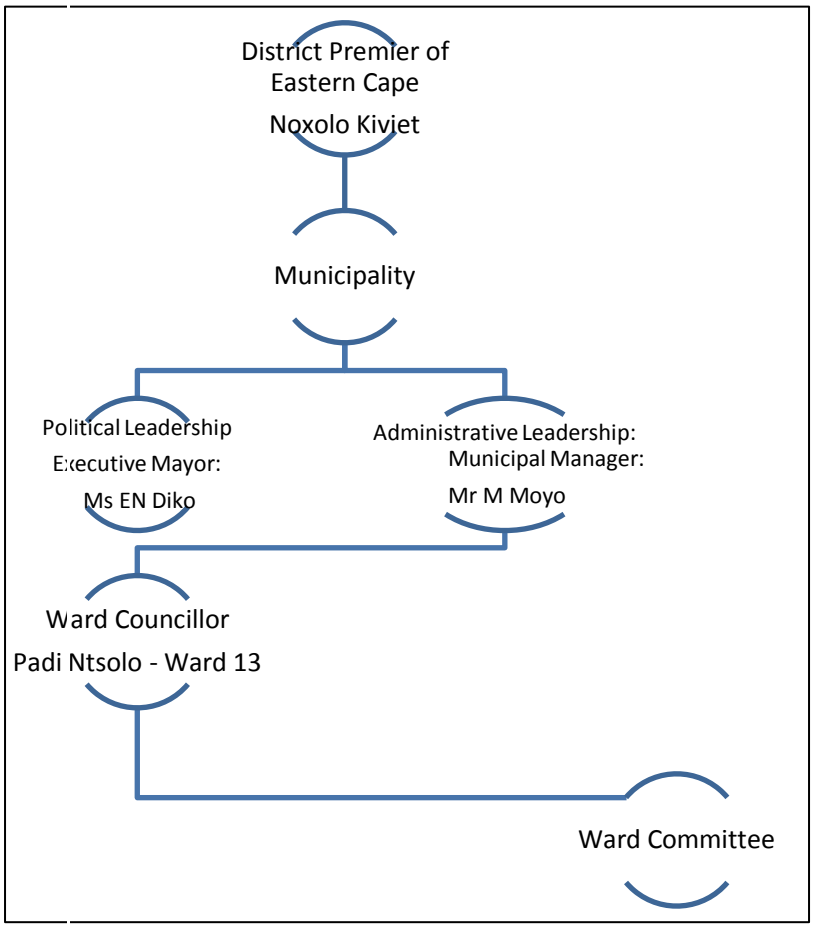
No.	Questions	HH11	HH12	HH13	HH14	HH15	HH16	HH17	HH18	HH19	HH20
											Thababos
1	Is the Head of the Household home?	1	0	1	0	1	1	1	1	1	0
7	What is the Sex of the head of household?	M	F	M	M	F	M	F	M	F	M
8	What is the age of the head of household?	48	49	27	42	61	85	66	67	61	46
9	What is the household head's current marital status?	Married b	Widow	Married	Married	Widow	Widower	Never ma	Married	Widow	Married
10	What is the total number of household members?	8	2	4	2	6	5	6	4	1	11
11	What does the household head do for a living?										
	Charity							1			
	Crops									1	1
	Employed		1								
	Entrepreneur				1						
	Grant		1	1			1		1	1	1
	Home Garden	1		1							
	Livestock	1	1	1			1		1		1
	Pension					1					
	Remittances	1		1							
12	Do you own any livestock?	1	1	1	0	0	1	0	1	0	1
13	IF NO, did household use to own any livestock?	0	0	0	0	0	0	1	0	1	0
14	IF YES, why don't you anymore?										
	If yes, continue below										
15	How many cows do you own?	4	3	12			1		5		50
	Uses?	just starte	people w	Milk, sale			Ploughing, selling,		Milk, selling, sold c		Milk, sell
	# sold?	0	2	0			0		1		0
	# slaughtered?	0	1	0			0				0
	How many oxen do you own?	1	0	6			1				20
	Uses?	same as above		plow, firewood			ploughing, selling, collect firewood				Plowing,
	# sold?		0	0			0				0
	# slaughtered?		0	0			0				0
	How many sheep do you own?	0	0	0			0				250
	Uses?										sell them,
	# sold?										8
	# slaughtered?										1
	How many goats do you own?	0	1	0							90
	Uses?		meat, cultural purposes – 2 for funeral, 1 for wedding								sell them,
	# sold?										0
	# slaughtered?		3								0
	How many horses do you own?	1		5			1				3
	Uses?	transport		transport			transport				transport
	How many donkeys do you own?	0		3			1				4
	Uses?			transport, mini meal			collect maize				transport
	# sold?										0
	# slaughtered?		3								0
	How many pigs do you own?	0		3			1				4
	Uses?										
	# sold?										0
	# slaughtered?		3								0
16	What does your livestock eat?										
	Graze	1	1	1			1		1		1
	Hay Bales			1			1		1		
	Salt	1	1				1		1		
	Crop Residues			1			1		1		1
	Meal										
17	Do you have an outfield? If yes, do you use the crop residues for animal feed?	0	0	1	0	0	1	0	1	0	1
	Do you plow it?	0	0	0	0	0	0	0	0	0	0
	Do you use it for the animals?	0	0	0	0	0	1	0	0	0	1
18	Do you find getting enough fodder for your livestock is a problem?	1	0	1	0	0	1	0	0	0	1
19	Where do you graze In the summer?	Private	Mountain	Private			Mountain		Mountain		Mountain
	Where do you graze In the winter?	Private	Mountain	Private			Valley		Outfield		Mountain
20	How far are the grazing areas in the valley?	45	220	60			35		30		
	How far are the grazing areas In the mountain?		220	60			30		180		180
21	Are the community grazing lands enough for your livestock's needs?	0	1	0	0	0	1	0	0	0	1
22	Have you noticed a change in the quality of the communal grazing land since 2000?	1	0	1	0	0	0	0	0	0	0
	Positive	0	0	0	0	0	0	0	0	0	0
	Negative	1	0	1	0	0	0	0	0	0	0
23	What do you think is the impact of burning the grazing areas?	Bad	Bad	Bad			Good		Bad		Bad
24	Are there any rules for the grazing ares? What are they?	0	0	0	0	0	1	0	1	0	0
25	Do you think people respect the rules of the grazing areas? If no, in what way?	0	0	0	0	0	1	0	0	0	0
26	Do you assist the headman in making decisions for the grazing areas? How?	1	1	1	0	0	1	0	1	0	1
27	Whose responsibility is it to herd the livestock?	Hired	Hired	Hired			Household		Household		Household
	WEALTH RANKING	Poor	Rich	Rich	Rich	Average	Poor	Poor	Rich	Rich	Rich

Answers for HH21 – HH30

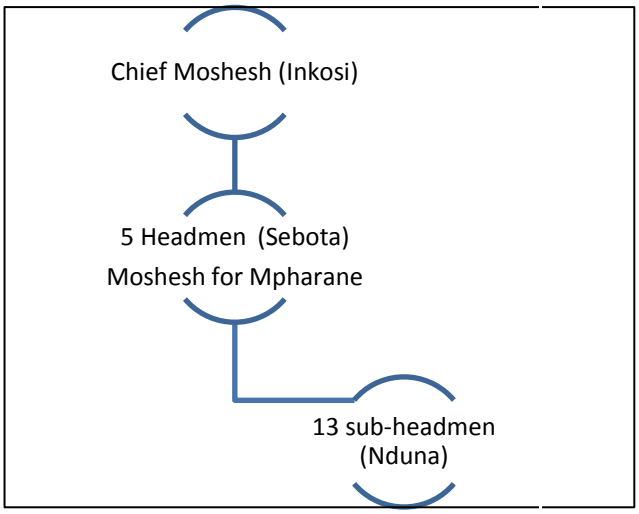
No.	Questions	HH21	HH22	HH23	HH24	HH25	HH26	HH27	HH28	HH29	HH30
		Thababosiu									
1	Is the Head of the Household home?	1	1	0	0	1	0	1	1	1	1
7	What is the Sex of the head of household?	M	M	M	M	F	F	M	F	M	M
8	What is the age of the head of household?	29	50	49	41		51	71	68	72	49
9	What is the household head's current marital status?	Married	Married	Married	Married	Widow	Married	Mrried	Widow	Married	Married
10	What is the total number of household members?	13	7	10	4	5	6	11	2	6	5
11	What does the household head do for a living?										
	Charity	1									
	Crops				1	1	1		1	1	1
	Employed		1	1	1		1				
	Entrepreneur										
	Grant	1	1	1	1	1		1	1	1	1
	Home Garden										
	Livestock	1			1	1	1			1	1
	Pension										
	Remittances			1							
12	Do you own any livestock?	1	0	0	1	1	1	0	0	1	1
13	IF NO, did household use to own any livestock?	0	0	1	0	0	0	1	0	0	0
14	IF YES, why don't you anymore?										
	If yes, continue below										
15	How many cows do you own?	1				3	8			14	12
	Uses?	Still growing them				Milk selli	Milk, selling			Milk, selli	Milk, selli
	# sold?	0				1				0	0
	# slaughtered?	0								0	0
	How many oxen do you own?	1				1	6			14	1
	Uses?	Still growing them				Firewood	Wood collection and farming			Firewood	Not used
	# sold?	0					2			3	
	# slaughtered?	0								1	
	How many sheep do you own?										
	Uses?										
	# sold?										
	# slaughtered?										
	How many goats do you own?				12					9	
	Uses?				Selling, celebration					Selling, Xhosa tradit	
	# sold?				3					3	
	# slaughtered?									4	
	How many horses do you own?					2				9	1
	Uses?					Transport				Transport and sellin	
	How many donkeys do you own?				2					2	1
	Uses?				Collect maize meal and groceries.						
	# sold?				1						
	# slaughtered?										
	How many pigs do you own?				4		1			1	
	Uses?				Selling in summer, eating in winter						
	# sold?				2		1				
	# slaughtered?				1						
16	What does your livestock eat?										
	Grazing	1			1	1	1			1	1
	Hay Bales									1	
	Salt	1			1		1				
	Crop Residues					1				1	
	Meal				1					1	
17	Do you have an outfield? If yes, do you use the crop residues for animal feed?	1	0	0	0	1	0	0	0	1	1
	Do you plow it?	0	0	0	0	0	0	0	0	0	0
	Do you use it for the animals?	0	0	0	0	0	0	0	0	1	0
18	Do you find getting enough fodder for your livestock is a problem?	0	0	0	0	0	0	0	0	1	0
19	Where do you graze In the summer?	Valley			Valley	Village	Mountain			Mountain	Mountain
	Where do you graze In the winter?	Valley			Valley	Village	Mountain			Mountain	Outfield
20	How far are the grazing areas in the valley?	120			30	30					
	How far are the grazing areas In the mountain?	0					90			60	60
21	Are the community grazing lands enough for your livestock's needs?	0	0	0	0	1	1	0	0	0	1
22	Have you noticed a change in the quality of the communal grazing land since 2000?	0	0	0	0	1	0	0	0	0	0
	Positive	0	0	0	0	0	0	0	0	0	0
	Negative	0	0	0	0	1	0	0	0	0	0
23	What do you think is the impact of burning the grazing areas?	Bad			Good	Bad	Good			Bad	Good
24	Are there any rules for the grazing ares? What are they?	1	0	0	1	1	0	0	0	0	1
25	Do you think people respect the rules of the grazing areas? If no, in what way?	1	0	0	1	0	0	0	0	0	1
26	Do you assist the headman in making decisions for the grazing areas? How?	1	0	0	0	1	0	0	0	1	1
27	Whose responsibility is it to herd the livestock?	Household			Household	Household	Household			Hired	Household
	WEALTH RANKING	Average	Poor	Average	Average	Average	Poor	Average	Average	Rich	Poor

APPENDIX D – Formal and Informal Authorities Structures

Formal Authorities – Ward 13



Informal Authorities – Mpharane



<u>Mpharane sub-villages – Ward 13 (unless otherwise stated):</u>

Thabaneng
Mahareng
Dikamareng
Ha Masopha
Ha Bamaqele
Ha Mohapi
Mpharane
Thababosiu
Tihakanelo
Kholokwe
Letswapong
Queen's Mercy (Ward 14)
Khubetswana (Ward 14)

APPENDIX E – Semi-structured interview guide

Research Questions	Sub Questions	Interview Questions
1. How are households' livestock practices? (General (closed) context questions)		
	a. What type of livestock uses the communal grazing land?	What type of livestock uses the communal grazing land?
	b. How many people use the grasslands?	- How many people use the grasslands? - For what purposes? - How often? - Has it changed over time? - When and why?
	c. How many livestock use the grazing land?	- How many livestock use the grazing land? - How many of each species? - Has the composition of species changed over time? - When and why?
	d. What are their livestock practices?	What are the livestock used for? - In everyday life? - In annual occasions? - Has it changed over time? - When and why?
	e. How are livestock owners linked together informally in relation to grazing?	- Are they herding together? - Are they talking about where to and how to graze? - Are they having informal meeting on grazing issues? - Are they sharing or loaning each other livestock? - Are there any annual rituals because of livestock, like e.g. celebrations or feasts?
2. To what extent has livestock farming put environmental pressure on communal rangelands in Mpharane?		
	a. What are the environmental effects of livestock in the communal grazing areas?	What are the environmental effects of livestock in the communal grazing areas?
	b. Has the area grazed changed over a period of time?	Has the area grazed changed over a period of time? - When? - How can you tell? - Why?

	c. Is overgrazing a problem in the village? (- If so, what are the environmental impacts of overgrazing?)	Is overgrazing a problem in the village? - Why? - Has it changed over time? - When and why?
	d. Are these impacts perceived as an issue to people in the village? If so, how do they deal with this on a household level?	Do people in the village talk about it? - How does it impact everyday life? - How does it impact annual occasion?
	e. What are the livestock owners', as well as others perception of the relationship between livestock and environmental pressure on communal grazing land?	Why do you there is overgrazing?
	f. Does social status affect environmental pressure on common grazing areas?	Please rank animals in order by those doing most damage to overgrazing.
3. How do environmental pressure impact livelihoods?		
	a. Does the environmental pressure on communal grazing cause livestock depletion/affects animal health?	Do the overgrazing causes lower quality of the livestock? - Does it cause animal diseases deaths? - How does it affect the numbers of livestock? - Does it affect the household to depend less on livestock or change the composition of livestock?
	b. How does environmental pressure caused by animal husbandry impact the five capitals derived from the livelihood framework; financial, social, physical, human, natural, respectively?	Does the overgrazing directly or indirectly affects you dependency and accessibility of: - Labour? - Networks and connections, with other people? - Resource stocks? - Infrastructure and producer goods? - Financial resources?
4. What role does natural resource governance play in this case?		
	a. Is there a grazing/natural resource management plan in place? - How does it involve livestock?	

	b. Is there a conservation plan (e.g. rotation scheme) in the area to prevent this environmental pressure?	Is there a conservation plan (e.g. rotation scheme) in the area to prevent this environmental pressure? - If yes, are they useful? - Is there a need for a management plan? Why?/why not?
	c. How is land use determined for communal rangelands related to livestock?	Who are involved in decisions about the communal rangelands?
	d. Are there any local farmer/livestock associations or other environmental NGOs? - How do they help regulate, manage or influence the use of communal rangelands? - Are people in charge or in associations aware of the issues surrounding overgrazing and their potential consequences?	Are there any local farmer/livestock associations or other environmental NGOs? - How do they help regulate, manage or influence the use of communal rangelands? - Are people in charge or in associations aware of the issues surrounding overgrazing and their potential consequences?
	e. How has land reform affected the use of communal rangelands?	Are there any present or past reform that affected the use of communal rangeland? - Which? - How?
	f. What is the management capacity of the municipality/village for these commonage?	Do you think more or different kind of management is needed? Why? Is it possible?
	g. Are there any conflicts regarding the land use/access related to livestock?	Are there any conflicts regarding the land use/access related to livestock? - Among villager or with people from outside the village, e.g. theft? - Among decision makers, e.g. the chief and the municipality? - Between villagers and decision makers? - How severe is it? - How is it expressed?

APPENDIX F - Field Trip Summaries

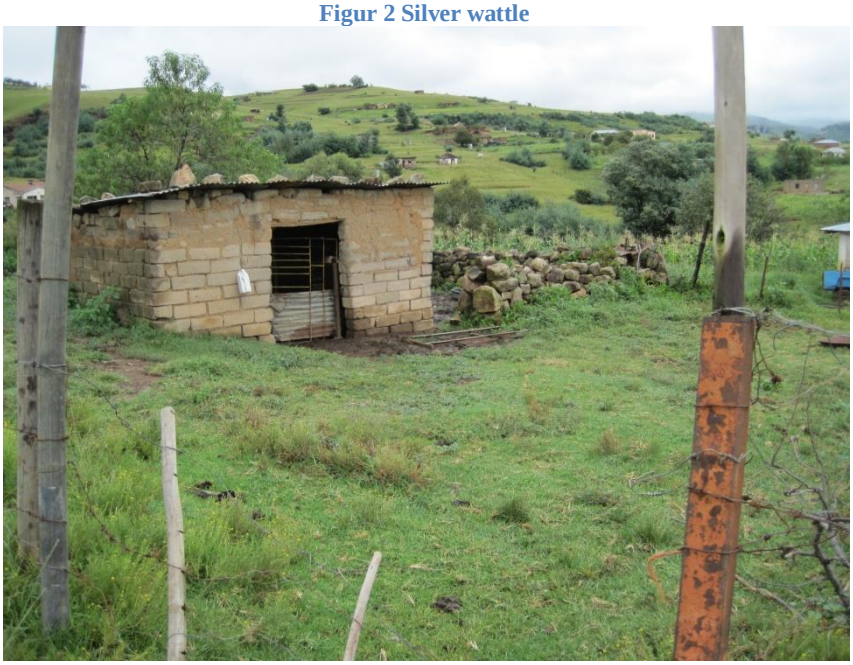
Contents

1. Transect walk 28-02-2013

To get an impression of the area, we walked with our translator through the village near the Chalet. We also passed different livestock owning household identifying the crawls and visited parts of the grazing area.

Figur 1 Emil, Alley and Lefu

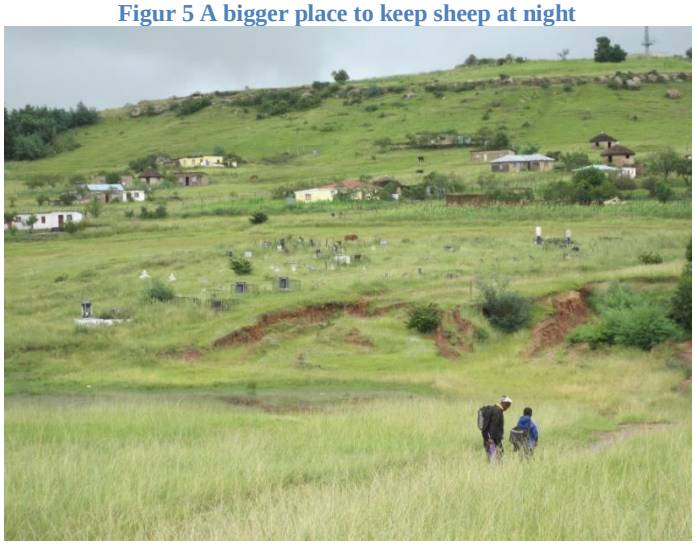
Figur 2 Silver wattle



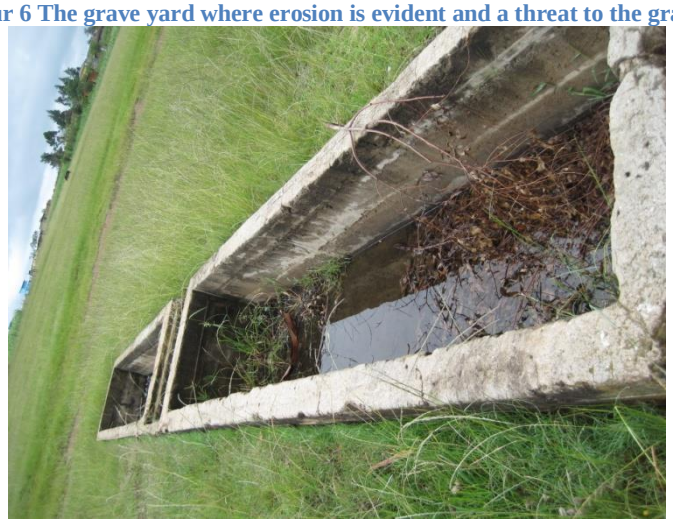
Figur 3 Crawl for the livestock to sleep at night

Figur 4 Erosion gully in the middle of one of the sub-villages. According to our translator, erosion is a big problem in the village, and they try to minimize the problem by planting trees.

Figur 5 A bigger place to keep sheep at night



Figur 6 The grave yard where erosion is evident and a threat to the graves



Figur 7 Old dip baths

Figur 8 cows grazing in the community grazing area

Figur 9 Erosion caused by livestock near the river where the animals go to drink

Figur 10 An area near the river termed by our translator as “temporary grazing lands” because it was a “walk trough” place when going to the mountains. Heavily overgrazed and the species we found there was unpalatable for livestock.

2. Interview with our translator Lefu 01-03-2013

In hindsight we have reasons to believe that when Lefu said chief in this interview, he was refereeing to the sub-headman.

- He lives in a household with goats, sheep, cattle and one lazy donkey
- He still lives in his parents household
- Unemployed
- He tells us that the chief decides where they can graze, but he can't ban people from using the community grazing areas or the mountains
- There is a Monday meeting where the chief decides what to do and not to do
- If there is 8-10 livestock gathered they will take them to the mountains, and if there are fewer they will let them stay in the village grazing areas.
- Injection for the livestock is coming from the government
- If there is illness (especially a problem in the winter time)
    - Tell chief
    - Ask households
    - Call the office in Matatiele
- Grass dries in winter
    - Livestock starves in the winter
    - They have to buy extra fodder for the winter time
- Sheep and goats are most numerous
- Mountains are free area for grazing
- 20 male livestock owners help chief decides
- Temporary shelter that can be moved depending on how good pasture is.
- Overgrazing of an area makes winter dryness worse (if someone is not careful about overgrazing)
- In winter, grass is very dry, need to find good pasture for cows
- Mountains are borders to Lesotho but there a lot of passes
- You claim an area first and no one else is allowed there, some have guns. If see a Basotho, ask them to move and if conflict, go to headman.
- During winter, everyone is allowed to graze in outfields. People cannot prohibit other people from grazing there. During summer, these areas are mainly for weak animals.

3. Wealth Ranking (Friday 1st March)

Doing questionnaire surveys, semi structured interviews and focus group discussions, we needed to be certain to cover all social layer in order to have a representative image of the village of Mpharane.
In order to be able of ranking according to social level of the people we interviewed, we needed to determine how the division of social layer is locally perceived.
The other four groups also had the same need, so we collaborated on facilitating a focus group meeting. 5 of our local interpreters participated (Puleng Tsaling, Lefu Ramailapeng, Moshweswhe Ntioma, Lufefe Yalshiya, Innocent Lecheko) plus the responsible of the chalet (Kholu Theluso) we stayed at. They are 2 women and 4 men, so both genders were represented. 5 of them are in their early 20's and Kholu is 34 years. They are all living in Mpharane. Kholu was joking about that she has more experience. Anyway, it seemed like she was taking the lead in the discussion. It might be influenced of her social status. When we asked about their own social status, they all considered them selves as middle class. But when Kholu left, the others said that she definitely is wealthy because both her and her husband have jobs and they live in the wealthier area, Haramaqele (map 1). It can have influenced that the younger participants said less, than if the had all been equal. Kholu's modesty can have influenced her not telling everything about her household, but that is less relevant as the target was to figure out general signs of wealth and not their own personal wealth.

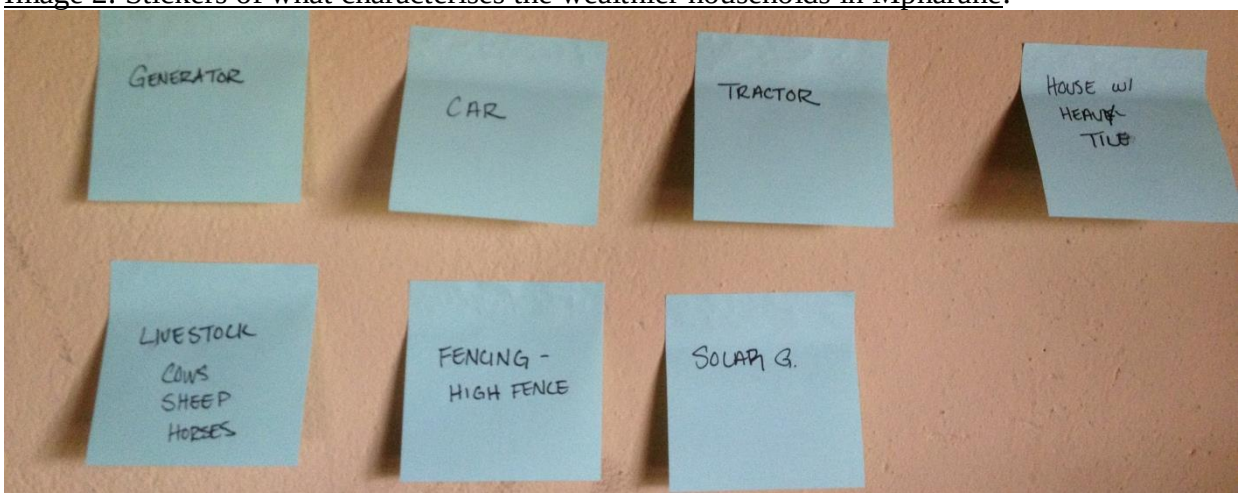
Event though Kholu took the leading role, everybody mainly acted confident and participated equally. Thus, even though they do not represent all social layers and generations of Mpharane, the group as such must be considered as being capable of characterising the social division.
We instructed them to discuss and find consensus for answers of which characteristics describe respectively, wealthy households, average households and poor households, looking at house character, livestock, technology etc. We told them to write the characteristics on stickers with same colour according to wealth category. They discussed in Sesotho, but as all of them speak English too we could let them explain what they were discussing. This might have influenced that few phrases were lost in translation.
The characteristics are not to be understood as stringent divisions. There might be overlapping and exceptions from household to household.

Image 1: Focus group discussion

Wealthier households in Mpharane

As can be seen on image 2, what characterises wealthier households is to owe many cows, sheep, horses, but not goats and pigs. At wealthier households you will often find heavily tiled roof and house constructed of bricks. You will often find high fences, solar generator and solar panels. You will possibly also find a car and a tractor. They might also own fields and home gardens. Some wealthier households are not dependent of farming and livestock. E.g. Kholu and her husbands that both have an income because of jobs. Thus, they do not necessarily have livestock, tractors, fields and home gardens.

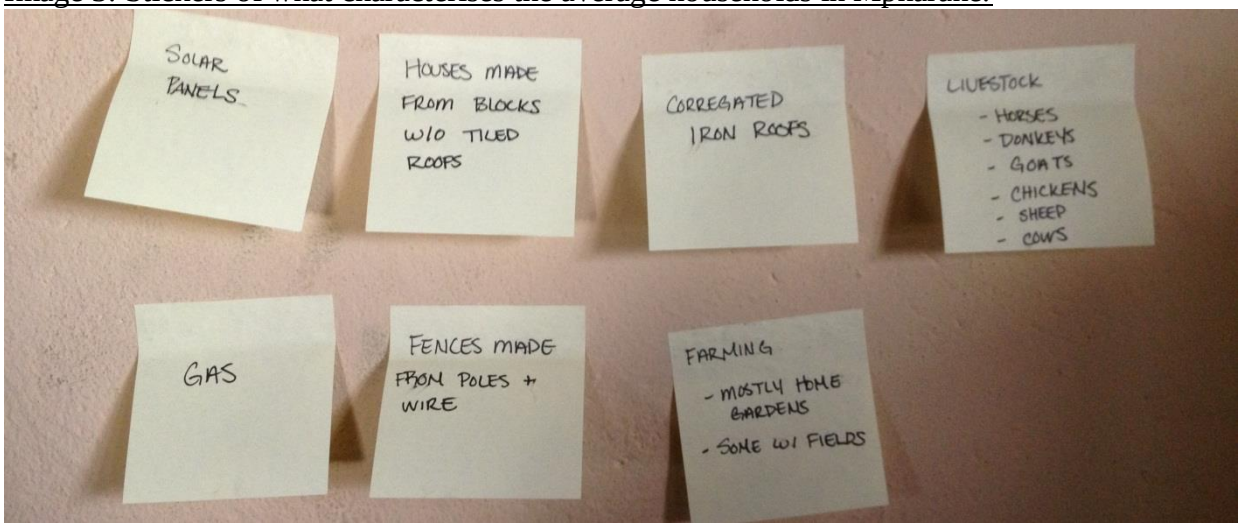
Image 2: Stickers of what characterises the wealthier households in Mpharane.



Average households in Mpharane

Average households in Mpharane are characterised by houses mad of blocks with corrugated iron or tiled roofs. Fences are made from poles and wire. They use gas for cooking. Some characteristics are overlapping, as can be seen when comparing image 2 and 3. Average households also have solar panels, but you will more often see home gardens and some has also outfields. It is a risk to farm, because of weather, condition, livestock eating crops etc. Wealthier households can better afford the risk and are more reluctant to make investments in e.g. tractors. Average households are characterised by goats, donkeys, chicken, but also sheep, horses and smaller stocks of cows. Average households also have solar panels. Households with characteristics of middle class can be wealthier, because they have prioritised to save their money instead of spending them.

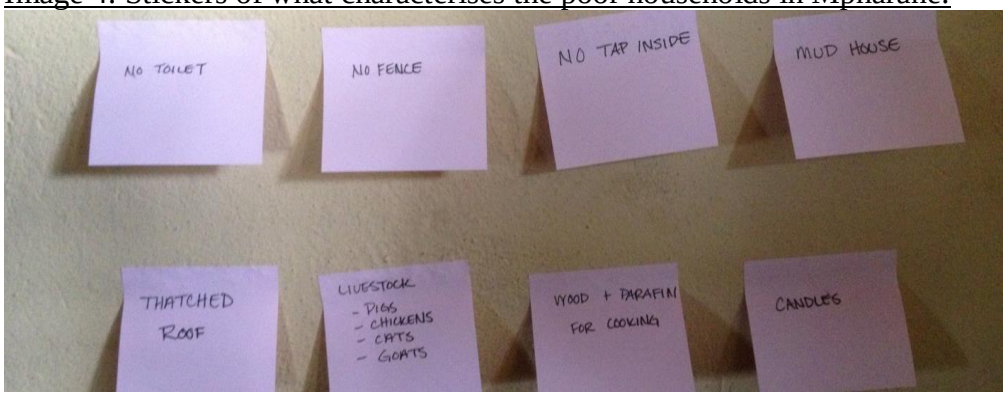
Image 3: Stickers of what characterises the average households in Mpharane.



Poor households in Mpharane

Poor households in Mpharane are characterised by mud houses with thatched roof[2] and have no fence around their households. They don't have taps inside the houses and before the municipality provided toilets for all, the poor households didn't have toilets at all. The poor households in Mpharane use wood and paraphin for cooking and candles for lightning. The poor households have pigs, chicken, goats and cats(?). Poor households are more dependent on their livestock, because they have to sell animals in order to pay for e.g. school fees. A fewer amount of the children of the poor households go to school, so during week days more children will be seen in the "poorer" areas. It was said during the discussion that poor people are lazier. But there might be a bias in that perception, as no one of the participants are belonging to the "poor class".

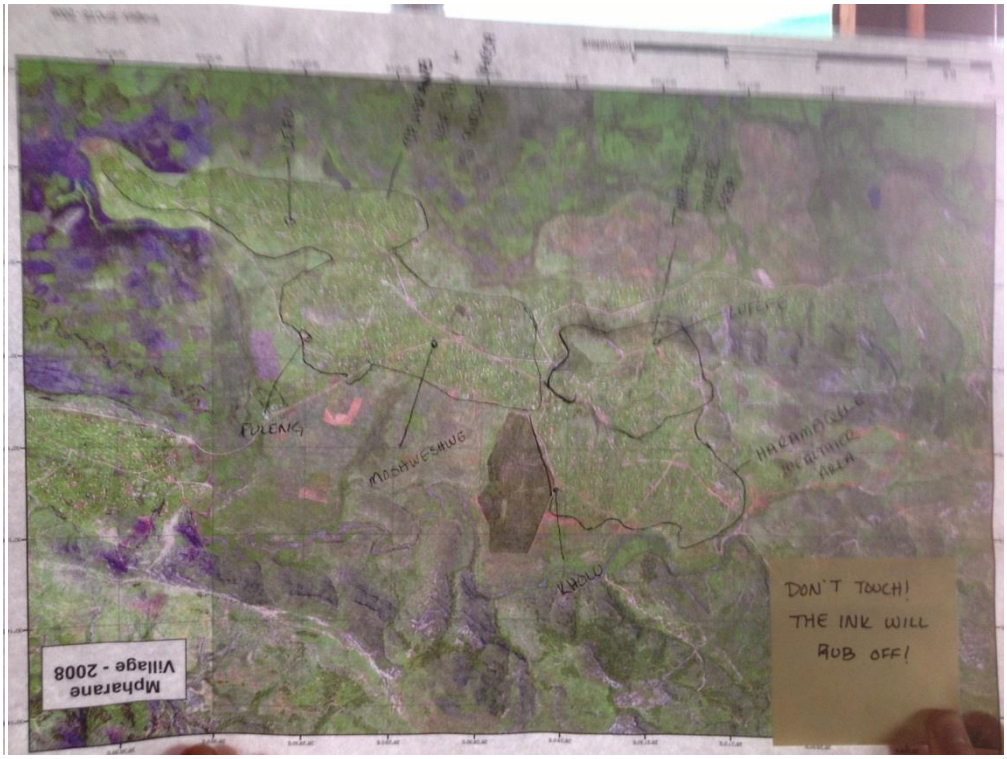
Image 4: Stickers of what characterises the poor households in Mpharane.



[2] Our experience from wealth ranking during questionnaire surveys is that also average households have mud houses with thatched roof. We estimatet hat if house holds raise in social status, those rasing to average households still have the mud houses they build when they where poor.

Mapping the social sub villages.
We asked the participants to mark 3 sub villages that can be characterised as representing respectively the 3 social layers. The made it clear that all sub villages have a mixed composition of households. Said that, they pointed out that Haramaqele (where Kholu lives) represents the wealthier households, Mahareng (where Lefu, Puleng and Moshweshwe live) represents the average households and Thababosiu (where Lufefe lives) represents the poor households (map 1).

Map 1: Mpharane divided in order of local wealth status and place of home of focus group participants.



4. Semi-structured interview with the sub-headman of Thababosiu, Thamsane Nduna 02-03-2013

- He has 49 oxen, 31 cows, 8 horses, 34 sheep, 9 donkeys and 26 goats
    - It seems difficult for him to remember
- For him sheep is the most important because he sells the wool and the skin.
- He brings his livestock back in the winter time and buys extra food for them.
- The sub-headman decides where they can graze, and these decisions are discussed on community meetings.
    - Everyone follows the rules.
- In the winter the pastures in the community areas gets too small because of high stocking numbers due to the fact that most people take their livestock back in the winter because of water shortage, theft and near the village they are easier to monitor.
- He saw a direct linkage between overgrazing and erosion, overgrazing is seen as a big problem in the village. He also said something about the animals not being able to eat the roots, and less oxygen being evolved because of less plant availability???
- He used height of the grass to determine if overgrazing was present. Low grass = overgrazing.
- According to him there is no way to prevent overgrazing.
    - He perceives overgrazing as a circumstances on which they have no influence.

    - Overgrazing is caused by too many animals on too small an area.
- Starving animals is the most important impact of overgrazing.
- Cows overgraze the most.
- It is the community that decides who will be sub-headman.

5. Focus group discussion 02-03-2013

Names of the people present:

- Petros Sello from Tababosiu has a farm and is the brother of the sub-headman.
- Nosakhele Nduna, wife of the sub-headman.
- Thamsane Nduna, sub-headman of Tababosiu
- Kwahele Bali, lives in Tababosiu and cousin to the sub-headman

The people there were invited by the sub-headman following an interview with him earlier the same day.

Mapping exercise

- Introduction of people present
- An introduction of the map and a chance for people to identify local landmarks like the plantation, schools, church etc.
    - One black circle indicates where they live
- No mountains on the map, but they indicate two areas in the valley with red where the people of their sub-village can graze.
    - It is also allowed for other sub-villages to graze in these areas.
    - They rotate between the two areas, six months one place and six months the other place.
- The area indicated with blue is an area where they have problems with overgrazing in the winter.
    - Winter is from May to early September.
- The pasture areas haven't changed over the last ten years, a big area around the village is pasture but the sub-village only uses the two areas indicated with red.
- They have seen a bigger pressure on the area for grazing because of increase in livestock number, building on the land and wattle.
- They think that their sub-village is the one in Mpharane with the most livestock

Venn diagram exercise

The Venn diagram exercise didn't went quite as we have thought. We had put out paper and pens for people to give us some names on informal groups, organizations, committees, etc. but it seemed that either they or our translator had a hard time understanding these concepts despite our efforts to explain it in as many ways possible. Instead it turned out to be more informal and instead of a nice diagram, we got some names, and ways of making decisions about grazing and decision making in general.

- The chief is the main institution around
- Fire group
- Theft committee
- Monthly meetings where men from the sub-village attend.
    - Every man is in charge to see if there is overgrazing, and then they can bring it up on these meetings.
    - All the different sub-villages have these meetings
    - These meetings will also be about general livestock practices and problems with theft or health.
        - Every man has the responsibility for the well being of his own livestock
        - Sometimes a vet comes to help if they call for it.
            - There is no vet in the village so they depend on the vet in Matatiele

- They introduce us to a weekly meeting attended by the Mpharane local sub-headmen and the headman
    - This meeting will deal with things that are not solved on the monthly sub-village meetings for example theft issues.
    - We decide to attend this meeting the following Wednesday.
- They haven't seen any extension officers helping them with livestock related issues.
- There seems to be no place to sell livestock in Mphrane.
    - They sell it to each other informally by word of mouth. Especially related to big ceremonial feasts like funerals, circumcisions and weddings.
    - There is a market in Matatiele but they don't use it.
- Definition or observation of overgrazing made by Thamsane Nduna
    - Low grass means overgrazing and tall grass means good grazing conditions.

Reflections on the focus group discussion

- When someone (sub-headman) promises you to find people, the chances are high that it will be family neighbors etc.
- Don't expect them to know about all the decision making processes even though they themselves plays an important part in decision process.
- Ask translator about formal rules and make sure that he understands the concepts you want to ask about.
- Don't do it the afternoon, some of the people that were invited were out drinking.
- In this case informal conversation was better than the Venn diagram exercise. So be ready for the method to change along the way.

6. Interview with key-informant Tsepo Lesholu 03-03-2013

- Have no livestock
- Ranking of the livestock, cattle is the highest ranking
    - Collects firewood
    - You can sell an ox for 10.000 R depending on the quality of the animal
    - Milk
    - Ploughing
- Sheep need vaccination once a month, cattle only need vaccination once every six month.
- Xhosa → goats
- Sotho → sheep
- Some but the vaccination, other people get it from the government.
- Every household have a book in which number of livestock is written down.
- Theft from Lesotho is a problem
    - Lesotho can graze in South African areas in the mountains
- Overgrazing is a problem
    - Erosion, especially along the river
    - Species are disappearing , he have been talking to traditional healers.
    - He sees it as an all year around problem
- Dunga → stream caused by erosion
- Overgrazing definition
    - Where grazing have been going on for a long time
    - When cows grass where there is no grass
- It's the Ndunas that are responsible for a rotation plan
- Sheep and goats prefer short grass, that means that they cause more erosion
- Cows prefer long grass
- There is a penalty if people take their livestock grazing in prohibited area. Cows can be taken.

- 10 years ago they respected the Ndunas more
- The sub-headman have assistance for making decisions
    - Elders from the community help him
- The ward counselor is the political equivalent to the traditional headman. They govern the same area.
- Before 1994 there were no counselors
- People with livestock don't get enough information
- They burn once every year instead of once every third year.
    - It washes the soil away
- Grazing land areas has decreased
    - Dungas
    - Traction makes tracks where the grass don't grow
- Number of livestock have decreased because of stock theft
- Young people find it risky to invest in livestock because of this theft problem
- Theft association
    - Association of local livestock owners
    - Finds the cattle when someone reports the theft
    - If they find the thief they might kill him, but it is rare.
- Lesotho works together with SA to send livestock back.
- Overgrazing has no effect on the animals and no effect on the buying of food
- The government are trying to give people information about veld fires and overgrazing
- "People will always break the rules"
- The most important rule is that the livestock can't graze near the maize field.
- Mehloding site is informing people about erosion. But people need even more information and resources in the future.
- There are a plan in place (The plan that were signed on Thursday)

7. Wednesday 6th of March - Francena Chale, ward clerk/secretary

Quotes to use: "Livestock is a man's domain", "Young people here are the laziest"

Prices:
Sheep: 1500
Goat: 1000
Female horse: 2000
Big cow: 7000
Small cow: 5000
Very small cow: 4000
Wood for 5 months : 900 (women in charge)

Francena works closely with the ward counsellor and is very knowledgeable. When asked about land programs in the area, she informed me that there is a firewise rogram for combatting fires which also includes wattle cutting, checking dungas and land rehabilitation. There are no erosion programs. This program is led by someone who is based in Cape Town and is managing 75 people.

According to her, the quality of the grazing land hasn't decreased because there is an abundance of grazing lands in the area. The only threat is theft and that is dealt with by the traditional authorities for small cases. There is no police in the village and in any case the police only deals with big cases such as rape and murder. They don't deal with livestock at the ward level, only

the traditional authorities deal with livestock through the theft committee and the chief. She had 20 cattle stolen in 2003 and mentioned that theft has a really negative impact on the village because the firewood collection, transport and farming has decreased because of it. Thieves mainly come from the Lesotho border and there are not enough military guys to control the border - the area is too big. The majority of headboys come from Lesotho but are underpiad so steal at the first opportunity. People are too lazy to herd themselves so hire Lesothans even if they know better.

She mentioned that the wattle is invading the grazing lands and is consuming a lot of wther too. The crops don't grow as much because of it. The municipality has a few people employed to deal with the wattle issue, about 20. According to her, there is no linkage between burning and wattle.
When asked whether people respect rules in the village, she said that there is a little bit of respect but not a lot. People reserve places for the winter for livestock grazing but it is not always followed because people are lazy and they are not afraid of the headman and chief. For instance, the area above Thababosiu is reserved for the winter and is monitored by the sub-headman. The only land management plan is the rotation of grazing lands and the use of outfields after harvest.
People let their animals roam all over and they will sometimes invade a field and will be confiscated. The fine depends on the owner of the field and how much damage has been inflicted by the animal. Nighttime roaming is more expensive because more damage is caused. People think that they know more than the authorities because they have a radio/tv.

People know about overgrazing because they are told by the authorities but they are too lazy to listen. Lack of electricity also means over-reliance on firewood (more dungas/erosion). There are more cows in the village, almost as many sheep - not as many goats. She said that too many oxen are not a problem. There are some pigs and they are eaten whenever peole want - folks share milk and meat with neighbors. Goats cause the most damage on grazing lands - they graze so much and they are too troublesome but their numbers have decreased because of stock theft. Horses cause a lot of damage too.

Communal grazing has decreased over the years - there is more erosion, more dungas and stones which have decreased the area in the village, especially the area for planting/outfields because people cannot field over the side of the mountain. The dungas occur because of overgrazing beause people are lazy and are using the same path over and over again. The sub-headman asks people to court for overgrazing and penalizes them. The defendant doesn't have much of an opportunity for a case since the chief listens to the sub-headman.

8. <u>Padi Ntsolo - Ward Counsellor - Ward 13 - 12 villages in Mpharane</u>

Quotes: "Our lives depend on livestock, they depend on agriculture", "People around here, they like livestock", "fire is something uncontrollable in our area", "In reality, the mountains are the real grazing areas", "We are lucky because our land is so vast"

Rough estimates: 10,000 cattle, 16,000 sheep, 8,000 goats.

The municipality only deals with the environmental services, while the traditional authorities deal with the livestock. So far, the sub-headman manages the grazing areas.

The Department of Agriculture has an upcoming agricultural program to alleviate hunger - Zero Cropping Hunger Crop. Eastern Cape is the poorest province in South Africa. The department of

agriculture has assigned an agricultural extension officer who also deals with livestock. There is a vet in Matatiele but he only comes for the big diseases. For instance the "red water" disease, it took 5 years to stop the disease and people lost a lot of livestock.

Because of theft, the grazing areas are becoming richer because not as much cattle grazing. Stock theft is threatening the way of life of the village, the number of livestock has decreased over the years - there used to be more sheep than cows. Target of agricultural programs have been more on cattle but generally people are more interested in sheep, they can sell the wool, share the meat.

Burning: sheep owners believe that for their sheep to grow better, they need a short grass - that's why they burn the grass. Cattle owners believe that for their cattle to grow well they need a fertile area so that's why they burn the fields. It is difficult to manage burning because if it starts in SA, then spreads over to Lesotho, it is impossible to follow the fire into Lesotho to stop it. People from Lesotho are burning and it spreads into SA as well and causes erosion. There is a program of firefighting and it will expand over time to help grazing areas as well.

There is a program that talks about the conservation of grazing areas - the "Umzimvubu Catchment Base Program" for this district only. It would be an umbrella progrm that would encompass nature conservation, wattle removal, landcare program (not implemented now, have to make an application in case of erosion - the ward will apply soon because there is a problem), firefighting.

There is no link between burning and wattle and according to him, people respect rules. There is very small problem of land use/access for agriculture/livestock because people with livestock want to graze on the outfields. People mostly keep their cattle in the mountains and bring them down for milking, slaughter or dipping (and that's when they graze on communal lands). There is no overgrazing during the winter, the threat is fire in the winter but overgazing is an indirect cause to the fire problem because it makes the grass very dry. Overgrazing is not a problem, it is manageable. Apart from cattle, horses cause overgrazing because there are a lot of horses that graze all over.

Chief is custodian of land but government owns the land. People themselves decide where to graze. They also identify the outfields and go to the chief to ask for an outfield. They need to do an application for fencing the outfields to the Ministry of Agriculture (e.g. Masupa site) but there is no fencing in the grazing areas and there is no need for it because people know the place resting for the winter.

9. Interview with sub-headman of Mahareng 06-03-2013 at the weekly sub-headman meeting near the community hall

- He has seen no change in the grazing areas
- Burning is bad thing, the sub-headman decides together with the headman when and what to burn
- People don’t follow the rules. According to the rules you are never allowed to burn
    - They burn too often (once a year) during winter
    - They can make a case at the meeting if someone burns too much.
- Wattle is good for firewood and shelter for the animals, but it decreases the grazing area because it takes the water.
- He makes rules to prevent overgrazing and protect the crops-
- Conflicts arise when livestock eat the crops. They are solved with compensation.
- He monitors overgrazing by looking at the animals. When the animals starve, the area is overgrazed.

- The number of livestock has decreased because people are getting increasingly poor.
- The area grazed has been increasing because of the starving livestock.
- There is a rotation plan in his area in which livestock only graze in the same area for three months at the time.
    - The sub-headman make this plan together with another man chosen by the community
- He doesn't know anything about erosion.

10. <u>Interview with the headman Motley Moshweshwe (cousin of the chief) one of six headmen in the George Moshweshwe district 06-03-2013 after the weekly headman meeting near the community hall.</u>

- Overgrazing is a problem
- Burning is a problem, it reduces grazing area
- Every decision made, has to go through him.
- Livestock owners has to pay the crop farmers, if the livestock causes damage to his crops.
- The responsibility of taking care of the grazing resource is that of the sub-headman. The headman is only involved if the sub-headman is unable to solve the problems on his own.
- "Erosion is our daily lives" the erosion comes from the traction of firewood. The firewood is a necessity so they have to live with the erosion. Even though it is their own doing they can't do anything about it until the government provide them with better traction opportunities.
- Everyone is in charge of taking care of the resources.
- The organizations working in the area do not interact with the headman.
- They feel that the government sees the area as a part of Lesotho and therefore forgets it. As an example he mentioned the road from Matatiele to Mpharane.
- To the question on the education of the sub-headmen, he answers that he informs them if they need to know something.

11. <u>Interview with Mohau at the dip Wednesday 7th March</u>

- After he forgot our appointment at the chalet at 8am, I drove to his house. We went together to the dip. While walking around the dipping area I interviewed him. Afterwards we sat in the shade in the car and continued the interview.
- Mohau is Mpharane based working for Farm Secure (private NGO, working for sustainable food supply via increased income), and comes from Mpharane. He has also been working in KZN. In Mpharane he works to provide health info about livestock in Mpharane for potential buyers, so they will be more reluctant to buy. He helps with dipping, castration etc.
- Farm Secure arrived in Mpharane in 2011 and the livestock health situation has bettered since.
- They do the dipping especially in the summer time because the heat makes the problem of the tics severe. Many cows get diseases and die because of that.
- The dip is only for cows and it happens once or twice at month. The government pays for the dip. Goats and sheep are dipped privately.
- Mohau don't bring his own cows because he thinks the dirty water makes the chemicals weak, and instead of being repellent to the tics it makes the tics resistant to the chemicals. He says that the government extension officer doesn't provide information about this to the cattle owners. (He tells this standing 20 meters from the group of cattle owners having their cattle dipped. Afterwards he helps getting the cattle through the dip.)
- Mohau says there are +/- 1000 cattle in Mpharane.

- I talked to one of the cattle owners who told that he was bringing 10 cows for dip. 3 died this month because of tics. Once he had 23 cattle, but a lot was stolen.
- Mohau told that a big problem in winter is that people don't have money to buy fodder and the animals die. There is not grass enough.
- Talking about cattle, this is caused buy the composition between cows and oxen, which is half/half. Oxen cannot be used for as many purposes as cows. They eat way more grass, which causes the lack of grass in winter. They should sell them on markets. This would also generate an income to buy fodder. But they don't. Instead they have less money for fodder and more and big animals to feed. (Lefu told us that most animals are sold among villagers in Mpharane). Although, there is plenty of grass in the mountains, but "no one" go there because of theft.
- Mohau said that the lack of animal transporters is crucial. Without animal transporters the animals cannot be driven to the market. "(Crash pens) are very important, you cannot handle animals without (crash pens). It is very difficult".
- Mohau says that in KZN the government provides animals transporters for free and in Eastern Cape they don't. The villagers don't have money to buy them their selves. It costs 200 000 rands. Neither can they afford hiring one. It costs 6000 rands. Mohau estimates that last month there could have been sold 150 oxen from Mpharane if they had an animal transporter, but instead only one was sold.
- He says, "if oxen were sold, overgrazing could be prevented and people would have income for fodder".
- He says that there is a cultural problem that black people don't share information. They don't want to. Mohau think it is the responsibility of the department of agriculture of the government of Eastern Cape to bring new technology and spread new information, but they don't. In comparison they do it in KZN, where it functions very effectively.

12. Semi-structured interview with Pina HH1 – grandfather and grandson

Before 1994 – place near fields, only one person allowed to do so because written by with chief
After 1994 – place near fields protected by law after harvest – everyone allowed to graze there now – more democratic now
Value: Cattle most important/useful animal –
Prices: Oxen – 6,000 – 7,000
Bigger cow – 9,000 – 10,000
Trained horse – 8,000
Not trained – 2,000
Had sheep stolen in 1992/93.
Overgrazing, not a problem because animals don't graze in the same place, just a problem of burning. Sometimes headmen tells them not to burn but doesn't explain why they should, no workshops. The communal grazing area is the same but the population has decreased because of theft and many diseases. Before many more sheep and goats than cattle, now this has reversed.
He sells in the community, sometimes there's a market in the farms nearby, white men come and buy the cattle. They would like to sell further away but problem of transport.
Cows and horses – most damage to fields

Buys hay bales but mostly for the horse, sometimes for the cows when thin – spent 1200 Rand on it last year. There is a rotation plan, summer in mountains, winter near fields after harvesting. Thinks the plan is good. They can graze wherever apart from protected areas.

Decision-making – the community and sub-headman work together to decide about the community grazing areas. It was not clear/transparent before apartheid.

There is an organization just for fighting thieves, but not an association. Sometimes people have a meeting when there is a disease to try to phone vet. Would be useful to have an association but no one has given them the idea. No information/awareness from the government. There is no agricultural officer in this area but has seen him in another area.
There are no environmental groups – only groups in the nature reserve where people are taught about not burning fires (firefighters in the reserve), it's illegal to kill animals in the reserve.
Firewise program supposed to do workshops but they don't. There's been a firewise program in this area that he's attended but they are still burning fires at night.
No conflicts because those that have animals also plow the fields. No conflict between traditional and new authorities.
It is hard to tell if hiring Basothos is the problem. People from here too steal cattle and sell them far away.
Registration of cattle - alert subheadman who gives a letter to headman so he can register it and write to the person responsible for the dip.

13. Interview with animal health technicians of the Department of Rural Development and Agrarian Reform of Eastern Cape Government in Matatiele, 8th March

As technician responsible for Mpharane, Bantubelkosia Mhahlwe, was not present, I talked with the two animal technicians Mzimhli Socikwa and Thabo Mateta. They could tell me that even the Department of Rural Development and Agrarian Reform is divided between a livestock department and a farming department, still there is only this one extension officer responsible for all aspects in Mpharane. Before 2003 the municipality was controlled from Maluti and there were only 3 technicians from the government in the whole area. Today there are 70.
They considered the main problem related to overgrazing as that villagers don't have fenced camps, where they can control breading and grassing. If they had, villagers could control certain species and certain areas for certain seasons. Lack of fences also influences the lack of control with fires. The fires are also a problem in the mountains.
They also considered the lack of fence between Lesotho and Mpaharane as a problem. – Which is a responsibility of the national government. The livestock gets stolen and livestock that is not vaccinated is brought from Lesotho to Mpharane. This livestock get diseases.
I asked about the animal transporters. They said that they provide animal transporters, but the villagers prefer to sell internally, because villagers don't negotiate the prices and they can earn more. (Thus, the big livestock owners selling livestock for feast create inequality to those that have none.)
They say that Mpharane is not worse than other villages. Mpharane have a dip tank and sheep shaving. Other villages haven't. The other villages as well lack fenced camps and have problems with theft. There are soldiers from the national government to take care of the theft problem in the mountains, but farmers say that it doesn't help. People say that they went down from the mountaintop again because they think that the Sesothans make lightning to kill them.
The technicians agree that the many oxen are a problem and they try to tell the villagers. They have a farmers day 4 times at year in the community hall, to teach the villagers and they have done that since 2003.
"They should buy fodder before winter and snow. When snow comes the animals go 3 weeks without food and they die. It is better to sell one animal before winter and buy fodder, than loose a lot because of snow"
The problem is that people listen to the Ndunas and not the government. They have been used to throughout history that the Ndunas decides. Extension officers have only been present for 5 years and challenge the power of the Ndunas. The cooperation is not working even though they talk with the Ndunas.

14. Interview with Mosilu Kvali from Matatiele Environment and Development Agency (EDA)

Introduced by Tsepo we met at the Signing for memorandum of understanding of Umzimbubu Catchment Partnership Programme (UCPP). Mosilu is born in Mpharane. She has more than 30 years in politics behind her and is now doing NGO-work for EDA.
She said that there are rules about grazing and burning, but that they need to be revived. The skills of the Ndunas are not good enough. That is why we have the Community Resolution (a triplet consisting of the traditional leadership, the counsellor and representatives of the community) to make trust from the community.
Mosilu said that there actually is land enough for the grazing livestock. It just needs management. People can also get more out of their resources. E.g. she knows a household in Mpharane that has only 2 cows that produces 10 litres of milk pr. day. They are lucky to have a partnership, so that they can sell 18 litres pr. day and have a decent income. This example shows that people needs partnership and capacity building from the government. The government is responsible for building a market. It is the responsibility of the traditional leadership to tell people to make the products for the market and help overall development. NGO's and civil society can also do that, but they don't do it at the moment. Even though it have been lacking she finds the hope. It has never happened before that there is a ministry for rural development and land reform.
I asked Mosilu about the Farmers' Day in Mpharane arranged by the government. Her response was that, "Farmers' Day don't work. They come one day and go back to office and sit in their chairs. They should stay!"
She also finds fire a problem for grazing. But it is getting better because of the fire protecting committees. Here, the community takes responsibility.
She says that wattle is a very crucial part in the problem of grazing because people see it as a resource. Management program for removal of wattle is needed. Government should initiate a payment for removal of wattle, so that people have an income to buy other sources for fire. (Introduction of electricity would solve this problem).
Mosilu thinks that there is an attitude problem in Mpharane. People are lazy and don't share information. The older generation have an "I can't help it"-attitude. Because of the apartheid they are used to have a white man to tell them what to do. She says that the new generation has more energy, independence and are more educated.
Unfortunately, Musilu said, overgrazing has been increasing since the introduction of democracy caused by a "the government gives me money, so I don't care"-attitude.
Since 1994 she points out three legislative introductions. None of them are working well.

1. Community Property Association (CPA's)
2. The temporary Landownership Document
3. Landowners Trust

Asking about the IDP, she said that it is not working. It is only paper and people don't understand it.

15. Second focus group discussion 07-03-2013 with big livestock owners in the sub-village of Mahareng

People that attended the meeting:

- Heshe Mangole, 5 sheep, 2 horses and 12 cattle
- Jabn Tenza, 85 sheep, 12 goats, 2 cattle and 3 horses (39 cattle got stolen)
- Bishop Tenza, 89 sheep, 74 cattle, 36 goats, 3 donkeys and 7 horses
- Mohapi Qheshe, 2 cattle, 1 horse, 1 donkey
- Ben Tenza, 3 horses, 12 cattle and 11 goats
- Lefu Ramatlapemg, translator

Usefulness of livestock, ranking

1. Cattle (they want cattle to reproduce cattle, so they can sell them)
2. Sheep
3. Goats
4. Horse
5. Donkey

Pricing:

- Oxen: +/- 10.000 rand
- Cows: 3,500-6,000 rand depending on the age and size
- Sheep: 950-1,500 rand (1.800 r in the city)
- Goats: 750-1,200 rand
- Horse: 1,500-3,000 rand
- Donkey: 500-750 rand

Overgrazing

- A "mabwela" is an area set aside, reserved for winter grazing
- Overgrazing is controlled by the sub-headman but monitored by all the village men. If they see that an area is overgrazed they report it to the sub-headman
- It is the fault of the livestock owner if he graze in an area set aside for the winter and he risk getting a fine. There are signs indicating where you can't graze.

Mapping

- In green is the summer field for Mharane, it is a small place burned in the winter. A flock of sheep have been burned there.
- In June August there is enough food but after August they start to starve, so they have to go back to the mountain.
- The grazing area is getting smaller because people build more houses

Questions triangulated

- Numbers of animals are decreasing because they die of diseases , they are stolen and sold or killed. Also the lack of food influence the number of animals.
- They have to go to the city to get hay bales and here they have to pay 350 rand for them and most people can't afford that.
- They leave their crop residues and stocks after harvest to feed supply extra food for their livestock in the winter and they also share some of their maize with the animals-
- Fires are started by young children and old people. They are perceived as a bad thing.
- The grazing rules are okay because they prevent grazing of certain areas which makes the grass in that area better and makes sure that there is enough grass in the winter.
- The winter reserves are protected by the local sub-village and there is only enough food for them there. Sometimes young boys don't follow the rules and go graze on these reserves which creates conflicts and lack of fodder in the winter time.
- The reserve is not enough for the starving period from August until December. So they go to the mountains where especially the North facing slopes are good for grazing. The cattle roam for the good grass.
- They feel abandoned by the government in many cases. Government provide them with vaccination that are expired and bad medicine. "If you want a good quality, you will have to pay for it yourself".
- By 1994 everyone respected the rules, now there is not as much respect for the headman anymore. Democracy only made things worse in terms of local governance.
- Global warming and extreme weather conditions is also a problem to the people of Mpharane.
- Last month there was a hail storm, in January 13 goats died during a hails storm.
- Last year they had problems with a lot of snow.
- In November and January last year there was serious flooding which made the disease pressure higher.

- In 1983 there was drought in the area. In 2000 there was an outbreak of red water disease.
- Erosion is caused by fires, overgrazing, firewood collection and the flow of water.
- Erosion is a problem because it takes away land for grazing and there is a higher risk for the animals to fall into the pits made by erosion.
- They think if they have had electricity they would probably be able to bring down their need for firewood down 50% same thing had happened in a village close by called Mount Fletcher.
- They know that they are responsible for the erosion but hey think that for them to change the situation, they need help from the government.
- They share information with each other and if they have sick livestock they will go and tell it to their neighbor to try and find a shared solution to the problem.
- They sometimes see the agricultural officer but he give them cheap expired stuff.
- They even suggest to buy your own chemicals for dipping.
- One of them give their cow injections and buy his own dip but his brother take his cattle to the dip twice a month even though he thinks the dip is not that good.
- Only a bonified citizen can build a shelter in the mountains. Otherwise they would have to ask the chief's permission.
- It often takes a whole year to sell an oxen
- They advertise by the word of mouth.
- Especially when they know that someone are having funeral or wedding
- If they sell in the city it goes faster.
- Cedarville for example is too expensive to transport and the price that they are getting for an oxen there is too low to accept. They might only get 5,000 rand. So they feel cheated going to sell in the city.
- In the beginning of the 90'ies white people use to came and hold auctions, but since they didn't have any completion the prices ended up too low for the locals to accept.
- One of the interviewees had 96 sheep stolen last year. He found them killed.
- At least 800 cattle were stolen last year
- This year soldiers were taken in to protect the mountains.
- They also have a theft committee which they are all members of. The committee was founded after 1992. If animals are reported stolen, they call each other, and go to guard the passes into Lesotho. If the Lestoho police holds back the livestock it can sometimes be difficult for the SA livestock owners to get it back because even though the brand is clear, they have to know all kinds of specific details about their livestock, for example what kind of spots they have on their bodies. If the livestock owners just make one single mistake they risk losing their livestock.
- People graze more in community land which creates more pressure on the land, that means more pressure on the grass resource. This means that livestock starve and die.
- The springbok is taking over and taking grazing opportunities for domestic livestock.

16. Interview with Makabe and headboy Zwelithine Kalache at cattle post 8/3/2013

- The headboy is 22 years old and takes care of 23 goats and 23 cows. He started in January of last year. He stays at the cattle post all year round and eats meal, milk and water from the river stream. During winter, he gives salt to the animals but he basically stays around the cattle post in winter and dones't move around, just goes a bit further. The cows don't really like change, that's why they don't bring them down to the outfields during winter. They also keep them around the outpost at night. The cattle outpost was built in January (with cement and rocks) but Makabe's parents always used to have this cattle post. This place was chosen because the grass is good and because of the location of the sun. The land in the mountain cannot be rotated thought because anyone could come and graze in the "rested" land.

- The sub-headman is in charge of the mountain area too, one can tell the sub-headman that they plan on having an outpost in the mountain and where. There is another outpost nearby and the two herders work together. There are no conflicts. According to him, the grass is enough for now. He is from Lesotho and makes 700 rand/month. He's happy with his wages. In Lesotho, people are paid by animal so wouldn't make a lot of money there. Makabe checks up with him once a week or more often. He gets one week in December to spend with his family as well as the whole month of September during harvest season. When the headboy is on holidays, Makabe stays up with the cattle instead. He says that some people just drop off their cows and check on them once a month so the thief sees an opportunity there.
- People burnt on top of the mountain near the river but they don't know who is doing it.
- There is some overgrazing – for instance one of the fields opposite where we were sitting was mostly yellow and so it looked overgrazed – Makabe said that the cows don't like to eat that and most people know that. People should rotate where they take their cows but they don't because there is an abundance of the unpalatable species. He wouldn't tell anyone not to graze on a part of the mountain though because people have a bad attitude about it and respond: ***"If you want to be a teacher, why don't you go to school"***
- Hunters and cattle post owners hunt.
- Stealing happens during winter because of the long nights. The rivers are also dry so it is easier to cross them and they do not disturb thieves as they would in the summer. According to Makabe, 50% of cattle owners keep their cattle in mountain in winter. In the summer, there are more health issues, for instance ticks (February/March/April) and red water disease. In winter (September/October/November), there is the lampiskin disease.
- In walking with Makabe, he would be able to tell a good grass by pulling it, also he knows that grass is not round. He attended a three month workshop organized by Farm Enterprise at Batubele about farming, grazing and cow diseases.
- Seboku – means good grass
- In the winter, the cows want to be at the foothill near the shrubs because it protects them from the wind. There is more erosion at the top but less overgrazing and more overgrazing at the foot of the hill.

17. <u>Key informant – Innocent Lecheko</u>

- Hale killed goats/sheep two years ago
- Climate change: hale a couple of years, snow, hotter in summer, colder in winter.
- "the crawls are empty"
- "There's more grass than people"
- Overgrazing is not a problem. Quality of milk has gone down though.

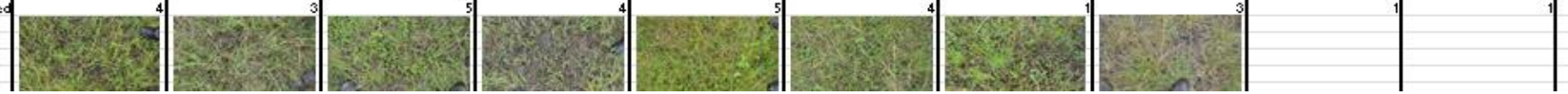
APPENDIX G – Vegetation Analysis

Where?	Thababosiu Summer Grazing (Valley) - Lower burg of grassland										Average
# Sample	1	2	3	4	5	6	7	8	9	10	
Basal Cover	5	5	3	4	5	5	5	5	5	5	4.7
Unavailability	5	5	2	2	5	1	5	5	5	5	4
Availability	3	3	5	2	3	5	4	4	3	3	3.5
How much grazed	3	3	3	5	1	5	3	3	2	3	3.1
Pictures:											

Where?	Mountain - Grazing area										
# Sample	1	2	3	4	5	6	7	8	9	10	
Basal Cover	5	5	5	5	5	5	5	5	5	5	5
Unavailability	4	5	5	5	5	5	5	5	5	5	4.9
Availability	5	1	1	1	2	2	1	2	1	2	1.8
How much grazed	5	2	3	5	3	5	5	2	5	4	3.9
Pictures:											

Where?	Thababosiu - Winter Grazing Area										
# Sample	1	2	3	4	5	6	7	8	9	10	
Basal Cover	5	5	5	5	5	5	4	5	5	5	4.9
Unavailability	4	5	5	5	1	5	3	5	5	2	4
Availability	5	4	5	5	5	4	4	2	3	5	4.2
How much grazed	1	1	1	1	5	5	2	5	2	3	2.6
Pictures:											

Where?	Mahareng - Summer Grazing Area										
# Sample	1	2	3	4	5	6	7	8	9	10	
Basal Cover	5	5	5	5	5	5	5	5	5	5	5
Unavailability	5	5	5	5	5	5	5	5	5	3	4.8
Availability	3	4	2	2	2	2	3	3	1	5	2.7
How much grazed	5	5	5	5	5	5	5	5	5	0	4.5
Pictures:											

Where?	Mahareng - Winter Grazing Area										
# Sample	1	2	3	4	5	6	7	8	9	10	
Basal Cover	4	4	5	5	5	4	5	5	5	5	4.7
Unavailability	3	3	5	4	3	5	3	5	3	2	3.6
Availability	2	5	2	4	5	0	5	3	5	5	3.6
How much grazed	4	3	5	4	5	4	1	3	1	1	3.1
Pictures:											

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