CONTRASTING LIVELIHOODS IN THE UPPER AND LOWER GARIEP RIVER BASIN: A STUDY OF LIVELIHOOD CHANGE AND HOUSEHOLD DEVELOPMENT

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Abstract

This study investigated rural livelihoods in two contrasting environments in the upper and lower reaches of the Gariep River: Sehlabathebe in the Lesotho highlands, and the Richtersveld in the Northern Cape, and how these have changed over time. Livelihoods were examined using the Sustainable Livelihoods Framework in conjunction with the household development cycle. This study therefore adopted a multi-scale approach, where a micro-level household analysis was framed within the macro level social, political, environmental, economic and institutional context, while taking into account the role of temporal scale of livelihood change. A multi-scale approach facilitated the identification of the major drivers of change, both exogenous and endogenous.

The combination of livelihood strategies pursued differed between the two sites. Households in Sehlabathebe are reliant mainly on arable and garden cultivation, livestock in some households, occasional remittances, use of wild resources, petty trading and reliance on donations. Households in the Richtersveld relied primarily on livestock, wage labour, use of wild resources and State grants or pensions. The livelihood strategies pursued in each site have not changed markedly over time, but rather the relative importance of those strategies was found to have changed. The assets available to households, the livelihood strategies adopted and the changes in these livelihood strategies are influenced by a households stage in the development cycle and differing macro-level factors. Drivers of change operate at multiple spatial and temporal scales, and are often complex and interrelated. The major drivers of livelihood change were identified as macro-economic, demographic, institutional and social and climatic.

This study highlights the importance of using historical analysis in the study of livelihoods, as well as the complexity and diversity of rural livelihoods. Ecosystem goods and services were found to play a fundamental role in rural livelihoods and are influenced by institutional factors. Rural households are heavily reliant on the formal economy, and macro-economic changes have had a significant impact on livelihoods. This is highlighted by how the drastic decline in migrant labour opportunities for households in Sehlabathebe has negatively affected them. Vulnerability was shown to be a result of external shocks and trends, such as institutional transformation, a decline in employment opportunities, theft and climatic variation; and differed between the two sites. The role of institutional breakdown was shown to be a major factor influencing rural livelihoods, and this is related to broader economic and political changes. This study contributes to the growing literature on rural livelihoods by allowing for an appreciation of how differing environments and contextual factors influence livelihood strategies adopted, and which different factors are driving change.

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Glossary

BCP	Basutholand Congress Party
BNP	Basutholand National Party
CPA	Communal Property Association
CMA	Common Monetary Area
DEAT	Department of Environmental Affairs and Tourism
DFID	Department for International Development
GA	Grazing Association
GoL	Government of Lesotho
IDP	Integrated Development Plan
IDS	Institute for Development Studies
IPA	Interim Political Authority
LCD	Lesotho Congress for Democracy
NPB	National Parks Board
RGBK	Richtersveld Gesaamentlike Bestuurs Komitee (Joint Management Board)
RNP	Richtersveld National Park
RMB	Richtersveld Management Board
RMP	Range Management Project
SANParks	South African National Parks
SLF	Sustainable Livelihoods Framework
SNP	Sehlabathebe National Park
TRANCRAA	Transformation of Certain Rural Areas Act
UNDP	United Nations Development Programme
VDC	Village Development Council

1 Chapter 1

1.1 Introduction

This study came about as part of the Southern African Millennium Ecosystem Assessment (SAfMA), a multi-scale assessment of the capacity of ecosystems to provide the services needed to support human well-being. The Gariep River basin was one of the SAfMA basin level sites, wherein four local level studies were conducted. This study focussed on two of the local level sites, the upper Gariep basin and the lower Gariep basin. These sites have been selected to assess the differences and /or similarities in livelihoods in communities living at two ends of the same catchment with very contrasting environments, and what factors have been driving changes in livelihoods and the environment over the past 30 years. The need for, and importance of case specific analyses that consider historical processes has been highlighted (Adger 1999a, Murray 2002). This study aims to provide detailed case studies of changes in rural livelihoods and frames these within the broader spatial and temporal context.

While acknowledging the multi-scale nature of changes that affect rural livelihoods, this study seeks to explicitly analyse local level processes. Research has shown that rural livelihoods are complex, differentiated and adaptive and are influenced by multiple factors at differing spatial and temporal scales (Cousins 1999, Dahlberg 2000, Francis 2000, Ellis 2000, Gibson *et al.* 2000, Mortimore and Adams 2001, McNab 2004). Rural households have a multiple and diverse livelihood base and are managers of complex asset portfolios that are often diversified and geared towards managing risk and uncertainty (Moser 1998, Ellis 2000, Scherr 2000, Shackleton *et al.* 2001, Bryceson 2002, Campbell *et al.* 2002, Soini 2005). Many rural households are highly dependent on the natural resource base, relying on a range of environmental goods and services which provide essential sources of food security, nutrition, income, medicines, fuel, water, building materials, and which are of cultural and spiritual importance (Cousins 1999, Shackleton *et al.* 2001, Campbell *et al.* 2002, Van Jaarsveld *et al.* 2005). Environmental and social changes are closely linked, and are dynamic and variable (Dahlberg 2000,

Glavovic *et al.* 2002, Hinshelwood 2003). There has been a growing recognition of the increased importance of off-farm sources of income, such as waged employment, remittances, State pensions and grants and other alternative income generating activities, in rural livelihoods (Francis 2000, Ellis 2000, Devereux 2001, Bryceson 2002, McCusker 2002, Slater 2002, Rigg 2006). At the same time, it is recognised that rural households are seldom able to survive solely on on-farm strategies due to multiple reasons including environmental constraints, lack of access to markets and inputs, institutional factors, population growth and land degradation (Murray 1981, Campbell *et al.* 2002, Andrew *et al.* 2003). Rural livelihoods therefore exhibit great complexity, as highlighted by Cousins (1999), who identified five main characteristics of rural livelihoods: 1) they are multiple, diverse and dynamic (Ellis 2000, Bryceson 2002), 2) they bridge the rural-urban divide (Beinart 1980, Tacoli 1998), 3) they involve maintaining complex social and economic relationships, locally and non-locally (Campbell *et al.* 2002), 4) they are highly differentiated by social identity, and 5) are institutionally mediated (Scoones 1998, Lambin *et al.* 2001, Sarch 2001).

Scale, both spatial and temporal, is an important aspect of the analysis of livelihood change. A historical analysis of livelihoods allows for an appreciation of the diversity and complexity in patterns of spatial and temporal change (Fairhead and Leach 1996, Scoones 1998, Gibson *et al.* 2000, Murray 2002), as well as allowing for an understanding of the larger scale and longer term changes that affect the conditions under which livelihoods are constructed (Bagchi *et al.* 1998, Adger 1999b). Scoones (1998) highlights the importance of an appreciation of the institutional and political processes that mediate the relationship between agency and structure across multiple scales in the process of environmental and social change.

A broad range of factors are instrumental in driving change in livelihoods (Dahlberg 2000, Lambin *et al.* 20001, Cundill 2005, Misselhorn 2005). A driver can be said to be any natural or human induced factor that directly or indirectly causes change (Millennium Ecosystem Assessment 2003). Drivers occur at multiple scales: exogenous drivers are those drivers that are beyond the control of local decision makers, while endogenous

drivers are those within the control of local decision makers (Johnson 1997, Millennium Ecosystem Assessment 2003). Millennium Ecosystem Assessment (2003) illustrates this difference saying that local decision makers can influence factors such as the choice of technology adopted, changes in land use and external inputs (i.e. endogenous changes), but have no control over factors such as prices and markets, property rights or climate (i.e. exogenous). Livelihood change is therefore a result of exogenous and endogenous drivers, and a household's response to these drivers.

Spatial and temporal scale play an integral role in the understanding of change and the drivers of change. Different processes have different temporal characteristics, some are long term (such as population growth) while others are short term or intermittent (such as drought or an economic crisis) (Campbell *et al.* 2003, Millennium Ecosystem Assessment 2003). Similarly, spatial scale must be taken into account, as events in one area may drive changes in other areas (Campbell *et al.* 2003). Changes are caused by multiple interacting drivers at different levels and therefore exploring these interrelationships between drivers at different scales, and responses to these drivers, are key to understanding livelihood change. Assessing changes and drivers of change is complex, as many drivers are interconnected and act synergistically, and changes themselves lead to feedbacks on the drivers (Geist and Lambin 2002, Millennium Ecosystem Assessment 2003).

Two main conceptual frameworks have been used to understand the processes of livelihood and environmental change, the Sustainable Livelihoods Framework (SLF) and the household development cycle, which together allow for an appreciation of the effects of spatial and temporal scale on livelihoods (Section 1.3). This study therefore adopted a multi-scale approach, where a micro level household analysis was framed within the macro level social, political, environmental, economic and institutional context, while taking into the account the role of temporal scale in livelihood change. This study contributes to the growing literature on rural livelihoods by allowing for an appreciation of how differing environments and contextual factors influence livelihood strategies adopted, and what different factors are driving change. A thirty year time scale allows for

a comprehensive understanding of the temporal changes, both short and long term, and driving forces of these changes in livelihoods, rather than providing a snapshot view of the present.

This study compares and contrasts livelihoods in two diverse areas at either end of the Gariep River catchment, Sehlabathebe in the upper reaches, and the Richtersveld in the lower reaches of the catchment. The two sites have markedly different climates and environments, Sehlabathebe being a high altitude grassland, and the Richtersveld a rocky desert area with high biodiversity. However, both areas have rural communities living in or near national parks, the formation of which was a source of conflict (Boonzaier 1996, Glavovic 1996, January 2002, Matela 2003), both have harsh environments that constrain livelihood options and both are remote sites with poor infrastructure. In addition, households in both areas have been integrated into the formal economy for over a century and livelihoods in combine both on-farm and off-farm strategies, and are therefore influenced and affected by macro-level economic and political trends. Although the two sites have both differences and similarities, studying household development framed within broader level changes over thirty years provides insight into changes in livelihoods and the factors driving this change which can then be compared across the two sites. Due to the different histories, context and climates of the areas, the factors driving change differ. This makes it difficult to directly compare the effect of the different drivers across the two sites. However, this study allows for the identification and analysis of the drivers of livelihood change at each site, and these can then be compared. This study therefore allows for an appreciation of the multiple and diverse factors influencing rural livelihoods.

1.2 Objectives and key questions

The main objective of this research was to determine how livelihoods have changed over the past thirty years in two contrasting environments, and what have been the main drivers of this change. To address this the following key questions were posed:

- How do people currently secure their livelihoods?

- What assets are available to households (natural, financial, human, social and physical)?
- What are the dominant livelihood strategies pursued by households?

- How have livelihoods changed over the past thirty years?
  - What assets were available to households in the past?
    - How do households perceive access to and availability of assets to have changed?
  - What were the dominant livelihood strategies pursued in the past?
- What macro-level factors have influenced livelihoods?
  - What major political, social, economic, institutional and environmental trends and events have occurred in the past thirty years?
  - How have these influenced livelihoods?
- What are the drivers of livelihood change?
- Have households become more or less vulnerable over time?

1.3 Conceptual framework

1.3.1 The Sustainable Livelihoods Framework

The concept of "sustainable development" gained increased attention after the 1987 Brundtland Commission report, and marked a shift towards pro-poor policy and thinking (Solesbury 2003, McNab 2004). This set the stage for a move towards more participatory approaches to the study of poverty, and a move away from the more conventional approaches based primarily on income and consumption as the sole indicator of poverty, measured through the use of large scale surveys (Moser 1998). Participatory approaches were instead focussed on attempts to embrace the complexity and diversity of the livelihoods of the poor and appreciate the local realities in which they live (Chambers and Conway 1992). Sustainable livelihoods thinking was pioneered by Chambers and Conway (1992), who offered a framework that stressed enhancing capability, improving equity and enhancing social sustainability (Solesbury 2003, Toner 2003). Sustainable livelihoods analysis became widespread in the 1990s and was adopted by several major organisations, including United Nations Development Programme (UNDP), CARE, Oxfam and the Institute for Development Studies (IDS). Several frameworks for

livelihoods analysis have emerged over the years (Ellis 1998, DFID 1999, Bebbington 1999, CARE, Oxfam and UNDP (see Carney *et al*. 1999). The DFID Sustainable Livelihoods Framework (Figure 1.1) has been used in this study.

The framework emerged in 1999, and is based on much of the previous work conducted, particularly that of Chambers and Conway (1992), Scoones (1998) and Carney (1998), and draws on the work of others such as the entitlements framework by Sen (1981) and the urban asset vulnerability framework by Moser (1998). All of these approaches have several factors in common: 1) a focus on the household and the assets it controls, 2) a recognition that diverse livelihood strategies are pursued by households, 3) attention to the dynamics of household well being, particularly how households balance short and long term strategies as a means to buffer themselves against vulnerability, 4) a multi sectoral approach to development problems, and 5) attention to the institutional context which plays an integral role in determining the resources available to households and the livelihood strategies that they can pursue (Conway *et al*. 2002).

The analysis of livelihoods sees people as managers of complex asset bases who make strategic decisions based on their capabilities, and mediated by institutional factors. Livelihood analysis therefore deals with not only income, but focuses on the way in which a living is obtained (Ellis 2000). The SLF is an analytical framework that allows for an understanding of the assets available to households, and the diverse and complex dynamics that influence livelihood strategies pursued. It is a holistic, dynamic, multi-scale framework that captures the complexity of livelihood analysis. It is non sectoral, recognises that there are multiple influences and actors involved in understanding livelihoods, and acknowledges that households often pursue multiple livelihood strategies (Farrington *et al.* 2004). It also allows for an understanding of livelihood change as livelihood portfolios shift in response to the capacity of households to generate new strategies in response to needs and opportunities, and how these are influenced by the changing vulnerability context and transforming structures and processes (Farrington *et al.* 2004). The SLF is therefore a useful tool for understanding the livelihood assets

available to households, the strategies adopted to utilise these assets, and how these are influenced by external factors.

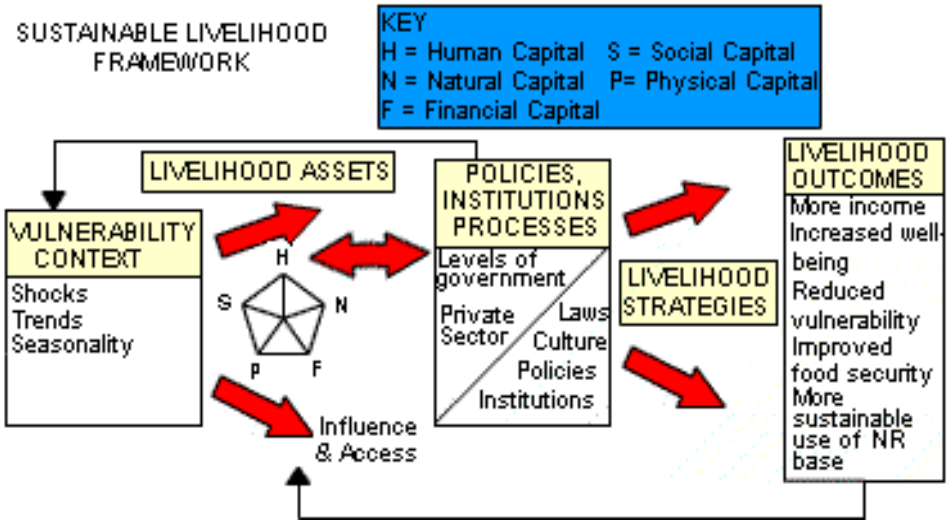

Figure 1.1 The Sustainable Livelihoods Framework (DIFD 1999)

According to Ellis (2000: 10) "a livelihood comprises the assets (natural, physical, human, financial and social capital), and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household". A livelihood is sustainable when it is able to "cope with and recover from shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the resource base" (Carney 1998: 4).

There are five main components of the SLF: the livelihood asset pentagon, the vulnerability context, the transforming structures and processes, livelihood strategies and livelihood outcomes (Figure 1.1). The asset pentagon consists of the five main types of capital that households draw upon to build their livelihoods (Carney 1998, Scoones 1998, Farrington *et al.* 1999, Ellis 2000):

- Natural capital – the natural resource base and ecosystem goods and services used in livelihoods
- Social capital – the social networks, associations, relationships and access to wider institutions

- Human capital – the education, skills, ability to labour important to pursue livelihood strategies
- Physical capital – the basic infrastructure and production equipment which enable people to pursue their livelihoods
- Financial capital – the sources of cash, savings and credit available to households

Households construct their livelihoods by combining the assets available to them, and rely on multiple assets as a means to avert risk (Ellis 1998). Access to assets and the livelihood opportunities available to households are influenced and mediated by exogenous factors, which are encompassed in the vulnerability context and transforming structures and process. The vulnerability context describes the external environment which influences livelihoods. The access to, and availability of assets, and the associated livelihood strategies are influenced by shocks and trends which are beyond their control (DFID 1999). The transforming structures and processes describe the institutions (see below), organisations, policies and legislation that shape livelihoods (DFID 1999). They operate at all levels and determine access to assets and the value of assets, access to decision-making bodies, as well as determining which livelihood strategies are open or attractive (Carney 1998, DFID 1999, Farrington *et al.* 2004).

Several linkages and feedback loops exist within the SLF. Transforming structures and process are linked with, and feedback to, the vulnerability context. Adger (1999b) provides an example of how existing policies and practices in agriculture and forestry can have perverse effects on vulnerability, and therefore be maladaptive. The vulnerability context influences livelihood assets and therefore livelihood strategies. Another linkage exists between transforming structures and processes and the asset pentagon, and livelihood strategies. An example is that of institutions, which fall under the transforming structures and processes, and influence access to assets and livelihood strategies pursued. Institutions can be described as the "rules, regulations or conventions imposing constraints on human behaviour" (Mehta *et al.* 1999:13), and can be both formal (rules, laws, constitutions), or informal (norms, conventions, imposed codes of conduct) (Mearns *et al.* 1998, Berkes and Folke 1998). O'Riordan and Jordan (1998:81), describe

institutions as “both structures of power and relations as found in organisations with leaders, membership, resources and knowledge, and socialised ways of looking at the world”. Institutional structures determine the power relations between the state and citizens, as well as equity between citizens (Hobley and Shields 2000). The opportunities available to people are conditioned by the institutional environment in which they operate and therefore the institutional context affects the composition of livelihood portfolios (Scoones 1998, Hobley and Shields 2000). Adger (1999b) illustrates this saying that resources and wealth do not themselves constitute security since access to resources is mediated by institutions, i.e. property rights.

However, the SLF has been criticised for a number of reasons. Bryceson (2002) expresses concern that the social and political factors conceptualised in the SLF as laws, policies, incentives and institutions are largely contextual and are outside the sphere of the household. Hobley (2001) maintains that markets play a fundamental role in livelihoods and are absent from the SLF. Baumann (2000) argued that the SLF requires a sixth capital asset, political capital. He feels that the SLF does not deal adequately with politics and power relations, which are a key capital asset and constraining factor, and cannot be captured through the transforming structures and processes. Adato and Meinzen-Dick (2002) have a similar criticism in that notions of power and power relations are not adequately covered in the SLF. However, as Toner (2003) argues, a sound definition and thorough assessment of social capital would include a consideration of power and political relationships. Similarly, Hinshelwood (2003) argues that the simplicity of the SLF could result in it being used rigidly, uncritically and without reflection. This highlights one the key problems with the SLF, it is a tool that can be adapted and interpreted in many ways, yielding different results.

The SLF is a valuable tool for conceptualising rural livelihoods and the macro-level factors influencing them, but did not allow for an understanding of the main drivers of change. Bryceson (1999) provides an example of this in a study on migration, where the SLF was criticised for not appreciating the underlying causes of migration, but rather focussing on whether migration has a positive or negative effect on livelihoods. To

overcome this, the Millennium Ecosystem Assessment Framework (Figure 1.2) was also considered, as it allows for the conceptualisation of the drivers of change. This, in conjunction with the SLF therefore allowed for an analysis of the macro-level factors (i.e. the vulnerability framework and transforming structures and processes) and an appreciation of the historical factors that have been instrumental in driving the changes in livelihood strategies. The SLF can therefore be used to highlight the complexity of the asset base available to households, as well as the multiple factors outside of their control. Using a thirty year time frame provides an understanding of how these have changed, and the incorporation of the Millennium Assessment Framework allows for and understanding of the factors driving livelihood change. However, neither the SLF nor the Millennium Ecosystem Assessment framework allowed for an appreciation of how individual household strategies have changed over time, and to address this, the household development cycle has been used.

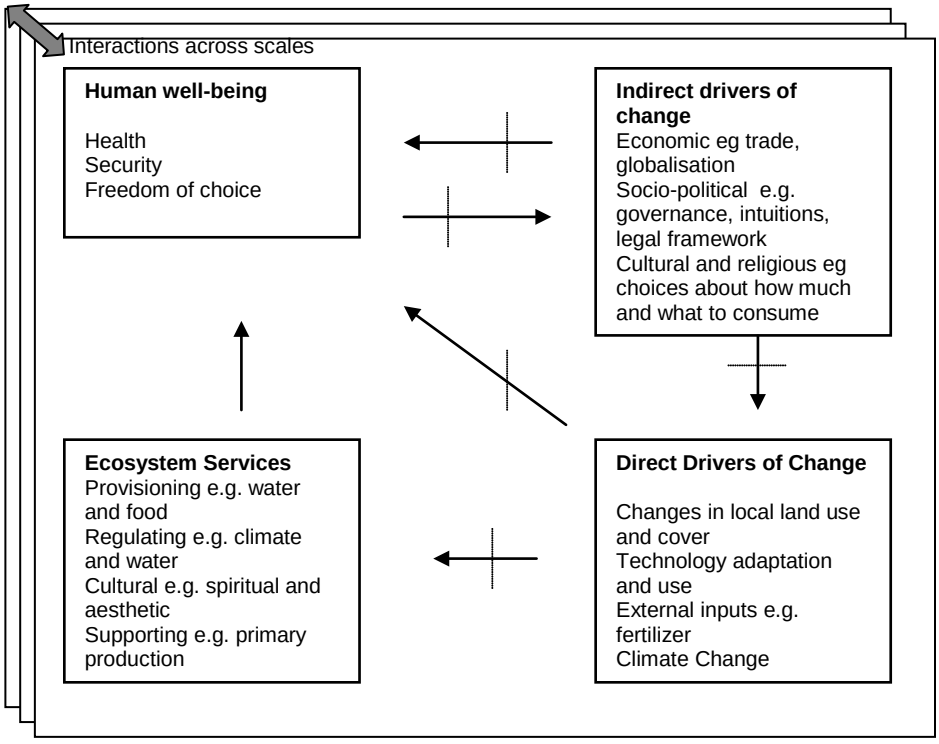

Figure 1.2 The Millennium Ecosystem Assessment Framework

1.3.2 The household development cycle

Looking at current livelihood strategies provides only a static picture; it does not allow for an understanding of shocks and trends, or the cyclical nature of a households' access to land, wage earnings and other assets, or provide an indicator of their stability over time (Spiegel 1980, McKay and Lawson 2003). It is therefore necessary to consider the role of temporal scale, and by looking at a household over time, one is provided not with a snapshot of the present, but rather an understanding of the development cycle of the household.

The notion of a development cycle describes the typical stages that a household progresses through over time. The development cycle concept originated from work conducted by Chayanov on the Russian peasantry in 1917 (Thorner *et al.* 1986). Chayanov sought to explain differences in the amount of land cultivated in terms of a households' dependency ratio. The need for work was determined to be a function of the number of consumers in the household, and the ability to work to meet these requirements determined by the number of workers in the household (Heron 1991). Chayanov determined that the dependency ratio changes through the course of a households' life cycle, which in turn determines the households' ability to cultivate at certain stages of the life cycle (Thorner *et al.* 1986, Perz 2001).

Fortes (1970) describes the five broad stages in the development cycle, firstly, establishment, where the family is established, there may still be dependence on the parental group at this stage. The second phase is expansion, where the new household becomes more independent and children are born. Thirdly, consolidation, which involves the growth of the household and to its pinnacle point, children have become adults and this is the most advanced stage a household reaches where labour and capital are most abundant. The fourth stage is one of dispersion or fission, where the children of the household move away and establish their own household and therefore no longer contribute labour and/or capital in the form of regular remittances to the household. The fifth and final stage is one of decline, where the households' labour availability, earning potential and asset base decreases (Fortes 1970, Low 1986). The particulars of the phases

is the development cycle can differ from location to location (see Murray 1980 and Heron 1991 for southern Africa, and Walker and Homma 1996 and Perz 2001 for the Amazon), but still follow the broad trend of expansion and later decline. The particulars of the development cycle in each site are expanded upon in Sections 5.2 (Sehlabathebe) and 8.2 (Richtersveld). Although the development cycle of households differs across the two sites, it is a useful tool because it highlights that households pass through different phases at different stages in their life cycle, which allows for an enhanced understanding of the reasons for livelihood change.

Chayanov's theory did not take into account the role of migration, wage labour, and agricultural input, credit or product markets, and assumed that agricultural practices were more or less homogenous across households (Murray 1991, Heron 1991, Perz 2001). In rural southern Africa, households have been integrated into the wider formal economy, and migration in search of wage labour has been a key strategy for almost a century. Most households are no longer solely reliant on on-farm livelihood strategies, but have become increasingly reliant on the export of labour (Murray 1981). The interaction with the wider economy and the consequent strategies adopted are therefore very different from those described by Chayanov. It is necessary to take the role of class into consideration when using the household development cycle, as differences between households may be due to factors other than a household's stage in the development cycle (Murray 1981, Heron 1991). Murray (1981: 98) highlights this, saying that "the inequalities of income distribution…reflect the exigencies of the development cycle under conditions peculiar to the labour reserve".

The use of the development cycle has been criticised when used alone as a tool for understanding household change, because the structural changes brought about by changes in the wider economy are ignored (Heron 1991). Therefore, it is essential that the household development cycle be analysed within a broader context (Murray 1981). This study therefore incorporated an analysis of the broader macro trends through the use of the SLF with the household development cycle, which allows for the distinction to be

made between development cycle factors and from other macro-level factors or structural changes in the environment (Francis 2000).

A household's position in the development cycle, and the associated structure and composition of a household, can affect the household's ability to cope with external shocks and pressures (Moser 1998). For example, a female headed household in the decline stages will typically be less resilient than a male headed household in the consolidation or zenith stage, with access to labour and capital. However, this example also highlights the importance of taking class into consideration, as class may disrupt this typical situation. A household in the advanced stages of the development cycle need not necessarily be in decline, they may have accumulated assets over time and therefore be better off than other younger households. A household's stage in the development cycle also influences their capacity to pursue certain livelihood strategies and to respond to changing livelihood opportunities (Slater 2002). Using the development cycle in conjunction with the SLF therefore allows for an appreciation of the differing asset and livelihood portfolios of households as they progress through the development cycle, while also providing an understanding of the external macro-level context which shapes livelihoods. This study is therefore essentially a micro level study, at the household level, but is framed within the macro-level context.

1.4 Structure of thesis

Chapter 2 introduces the study areas detailing the location, climate, vegetation, history, economy and livelihood strategies of both Sehlabathebe and the Richtersveld. This is followed by an overview of the methods used in this study and the approach to analysis.

The body of the thesis consists of two parts, Chapters 3, 4 and 5 which deal with Sehlabathebe, and Chapters 6, 7 and 8 which deal with the Richtersveld. The first chapter for each site (Chapters 3 and 6) considers the vulnerability context and transforming structures and process, and provides an understanding of the macro-level economic and political trends, followed a discussion of other major trends that have influenced livelihoods. Chapters 4 and 7 deal with the livelihood assets available to households and

the perceived changes in the asset base over time. The various links that exist between the capital assets are also discussed. Chapters 5 and 8 deal with the changes in livelihood strategies over time in Sehlabathebe and the Richtersveld respectively, using the household development cycle to show how access to assets and therefore livelihood strategies change over time. The categorisation developed by Spiegel (1978;1980) has been used in Sehlabathebe, and the typology developed by Modiselle (2001) used in the Richtersveld. The categorisations were used to classify households, both in the past and present, and then show how and why households have moved between the categories over time. The current livelihood strategies are then dealt with in more detail, showing how the assets available to different households determine the success of livelihood strategies pursued.

Chapter 9 provides a synthesis and discussion, in which the major findings of the research are discussed and the differences and similarities between the sites explored. This chapter highlights the main trends of livelihood change as well as the major drivers of change, and responses to these changes, and how these differ across the sites. This is followed by a discussion of the diversity of livelihood strategies. The use of the development cycle as a tool for understanding livelihood change is then discussed, followed by a discussion of the overall vulnerability of households in both areas.

2 Chapter 2 Study area and methods

2.1 Introduction

This chapter provides an introduction to the context of the upper and lower Gariep basin sites in terms of location, climate and vegetation, history and livelihood strategies adopted, as well as the methods employed in this study, both in data collection and in analysis.

2.2 Sehlabathebe

2.2.1 Location

Sehlabathebe is located in the south east of Lesotho in the mountain district of Qachas Nek, and borders KwaZulu Natal (Figure 2.1). Lesotho is a small landlocked country surrounded by South Africa, and covers an area of 30 355 km^2. Lesotho is divided into four agro-ecological zones: the lowlands, foothills, Senqu River valley and the highlands or mountains (Spiegel 1979, Chakela 1999). This study focuses on the village of Ha Mavuka, one of the eight villages in the Sehlabathebe area, which is adjacent to the Sehlabathebe National Park. The Sehlabathebe National Park (SNP) covers 6 475 ha. The site is located at 29°01´E to 29°10´E and 29°49´S to 29°58´S. The area ranges from 2 300 to 3 100 m above sea level.

2.2.2 Climate

Lesotho is generally classified as having as a semi-arid temperate continental climate. The mountain areas have extreme winters with snowfalls common between May and August. Frost can occur at any time of the year, often to the detriment of crops. Winters are generally cool to cold and dry, and summers mild to hot and wet. Over half of the rainfall in the area falls between December and February (Matela 2003, Turner 2003a). The average rainfall for the area is between 600 and 1 200 mm per annum. The growing season in the mountain areas is usually only three months and this, coupled with very low daytime temperatures in winter and unseasonal frosts, often hampers successful crop production (Ivy and Turner 1996, Matela 2003, Turner 2003a).

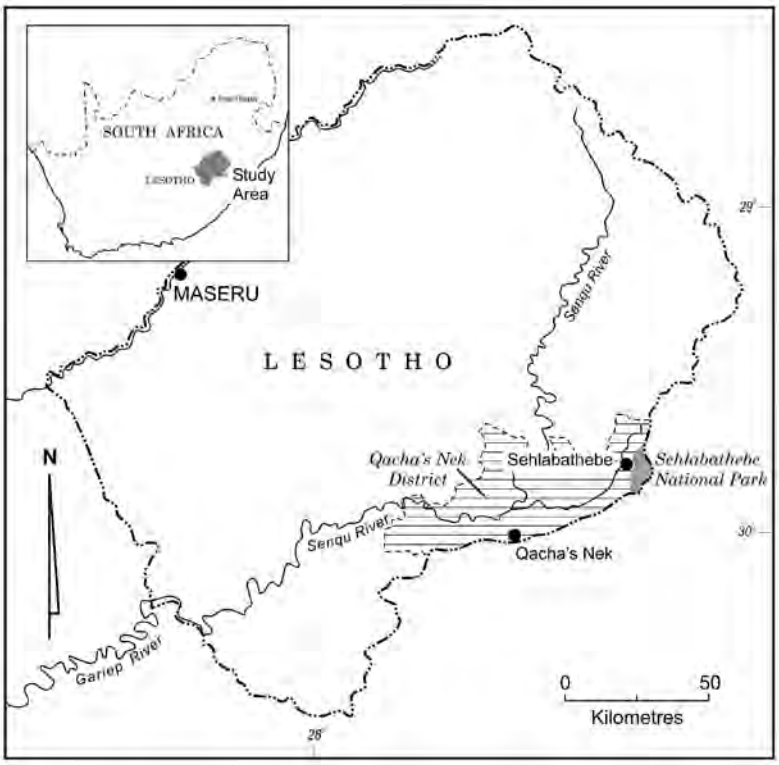

Figure 2.1 Map of the Sehlabathebe area

2.2.3 Vegetation

The area is a mountainous grassland with high diversity and endemism, which falls within the Moloti/Drakensberg or Eastern Mountain hotspot. It is also known as the Drakensberg Alpine Region (Drucker 1994). There are several differing descriptions of the vegetation. According to Ivy and Turner (1996), there are two dominant vegetation types: highland sourveld in the lower altitudes, with the main grass genera being *Themeda, Tristachya* and *Heteropogon*; and alpine sourveld at higher elevations, characterized by *Festuca, Meurxmuellera* and *Helictotrichon.* Staples and Hudson (1938 in NES 2000) describe three main vegetation types: Sweetveld or Seboku grasslands in the mountain valleys, with *Themeda* being the dominant genus; Letsiri grassland in the higher lying areas of above 3 000 m, with the *Festuca* being the dominant species, and finally Sehalahala scrub, which is the low woody scrub or bush interspersed in the grasslands, typified by the *Chrysocoma* species. Low and Rebelo (1996) classify two dominant vegetation types, the Afroalpine grassland that is found at altitudes exceeding 2 500 m or areas that receive in excess of 1 000 mm rainfall annually, and Afromontane

grassland which occurs below 2 500m. Trees have never been abundant in the area, but woody shrubs are found in certain areas (Matela 2003). The area is of a uniform vegetation type, and there is no difference between the vegetation type in the SNP and the area surrounding the villages.

2.2.4 History

Originally, most of the settlements in Lesotho were located in the lowlands, whilst the mountain areas were traditionally used for summer grazing. This expansion into the mountains was at the expense of the San people that inhabited the area (Gay *et al.* 1995, Green 2000, Ziervogel 2001). The mountain areas were divided into 22 wards under the 22 principal chiefs (Chakela 1999), and applications could be made to the chiefs for summer grazing posts in the mountain areas. Despite the emergence of settlements in the early 20th century, most of the mountain areas remained under the jurisdiction of the principal chiefs and continued to be used as summer grazing areas (Ivy and Turner 1996).

Land is held communally in Lesotho, under the Laws of Lerotholi, which are underpinned by the concept that land is the birthright of all Basotho (Green 2000). The Laws of Lerotholi dictate that all married Basotho males have usufruct rights to three arable fields in the rural areas, but with the steadily increasing population, this is no longer possible (Gay *et al.* 1995). Approximately one third of households in Lesotho do not have access to arable land (Turner 2003a). The chief has the right to revoke rights to arable land if left unplanted for two consecutive years. After Lesotho's independence from Britain in 1966, the land tenure system remained unchanged, and land was allocated by the principal chiefs, who were answerable to the King (Selebalo 2001). With the introduction of the Land Act of 1979, the right to allocate land was transferred from the principal chiefs to local community based institutions called Village Development Councils (VDC's) (Selebalo 2001).

All Basotho have the right to utilise the grazing land that surrounds the village in which they live. Grazing has traditionally been managed through a system known as *leboella (*plural *maboella*), in which the grazing area is divided into areas that are closed for

grazing at certain times (Chakela 1999). Penalties are lodged against those using areas that have been closed. Rangelands in Lesotho have long been described as overgrazed and overstocked, with extensive degradation and soil erosion due to improper agricultural practices and overgrazing (Lawry 1988, Gay *et al.* 1995, Ivy and Turner 1996, Chakela 1999, Turner 2003a). This has sparked interest from donor countries who have embarked on soil conservation projects in an attempt to rectify or at least curb the problem. The United States became involved in range management issues in the 1980's and instigated the establishment of Lesotho's first Range Management Area (RMA) in Sehlabathebe. The Range Management Project involved ten villages in the area and sought to redress degradation by providing people in the area exclusive rights to the rangeland (Ivy and Turner 1996) (Section 3.3.2.2).

2.2.5 Demography

The mountain districts of Lesotho are the least densely populated districts, with an average population density of 35 people per km^2, compared with the average of 71 people per km^2 for Lesotho as a whole (Bureau of Statistics 2001). The Qachas Nek district accounts for 3.7 % of Lesotho's total population, and has a population density of 34 people per km^2 (Bureau of Statistics 2001). In a study conducted over three mountain districts, the average household size was found to be 5.3 people, and 54 % of the population was found to be under 20 years of age, indicating a high proportion of children and young people in rural areas (IFAD 2001). According to an FAO study conducted in 1996 (in DAO 2002), 80.2 % of mountain households are male headed. However, due to the high number of males who are employed in South Africa, many of these households are *de facto* female headed for the majority of the year. Ha Mavuka has 79 households.

2.2.6 Economy

Lesotho's economy is largely based on remittances, subsistence agriculture and livestock husbandry. Over 50 % of household heads in the mountain districts state agricultural activities as their occupation (IFAD 2001). Lesotho and South Africa have had a long standing economic relationship, with a large proportion of Basotho men having worked on the mines in South Africa for the majority of the 20^{th} century. Migrant labour

opportunities drastically decreased in the 1990's, and according to Turner (2003a) there were 116 129 Basotho working in South Africa in 1993 compared with 62 827 in 1999. Wages earned on the mines still represent the highest source of income for the mountain region, despite the relatively small percentage of people involved (IFAD 2001). There are limited formal sector jobs available in Lesotho especially in the mountain areas, although increases in the textile industry have resulted in an increase in available jobs (Standard Bank 2003, Turner 2003a).

2.2.7 Infrastructure

Sehlabathebe is accessible from the town of Qachas Nek in the south by a well maintained gravel road. The roads to the north are generally poor and require a 4x4 vehicle. All the villages in Sehlabathebe have access to clean piped water through communal stand pipes. The area is not electrified and there are no telecommunication lines. There are several general stores in the area, most villages have at least one. The area has a police station, a post office, a court, churches, four primary schools, a clinic and a Range Management Centre. The Sehlabathebe National Park is approximately 15 km from Ha Mavuka on a poor quality road.

Figure 2.2 Typical households in Ha Mavuka

2.2.8 Livelihood strategies

The dominant livelihood strategies in Sehlabathebe are arable and garden cultivation, migrant labour, livestock husbandry and petty trading. Agriculture is generally for

subsistence purposes, and usually involves low inputs and low costs (DAO 2002). The main crops planted are wheat, maize, sorghum, and pulses. According to the DAO (2002), 80 % of households in the Qachas Nek district do not produce enough to meet the households' food requirements for six months. Gardens are another source of food production, and the IFAD (2001) study showed that over half of households in the mountain areas have gardens.

Although wage employment in South Africa has declined in the past 10 years, it still provides an important source of income for many households in the area. The DAO (2002) states that in the Qachas Nek district between 12 % and 15 % of households had a member employed in South Africa, and a further 12 % to 19 % had members who were employed in Lesotho.

Livestock is an important livelihood strategy as it provides households with meat and milk, draught power, manure, cash income and transport, as well as serving important cultural purposes, such as the payment of bridewealth (Spiegel 1980, Lawry 1988, Green 2000, Mortimore and Adams 2001, Lestela *et al.* 2002b). According to the DAO (2002), 45 % of households in the district do not own livestock. The increase in stock theft has resulted in a decline in the number of households with livestock in the area, as households have either had their herds stolen or have sold them to avoid them being stolen. Dung from livestock provides an important fuel source to the area, and even those who do not own livestock reap the benefits. Many households are involved in the collection of wild resources such as wild vegetables, fuelwood and shrubs, thatch grass and medicinal plants.

2.3 The Richtersveld

2.3.1 Location

The Richtersveld is situated in the north-western corner of the Northern Cape, in the magisterial district of Namaqualand (Figure 2.3.). The Northern Cape is the one of the largest provinces in South Africa but has the lowest population density, with large areas which are sparsely populated and uninhabited (Dept. of Labour 2001). At 513 919 ha

(Hendricks 2003), the Richtersveld is the largest of the six former coloured reserves established in Namaqualand during apartheid. In the top north-western corner of the reserve is the Richtersveld National Park (RNP) (16°54´ E to 17°24´ E and 28°02´ S to 28°99´ S) which is 162 455 ha in extent, and was established in 1991 as the first fully contractual park in South Africa, wherein mining and limited stock farming are permitted. Under the contractual agreement, 26 farmers have rights to graze their livestock within the park. This study focuses on the Richtersveld National Park and the adjacent towns of Kuboes and Sanddrift (Figure 2.3).

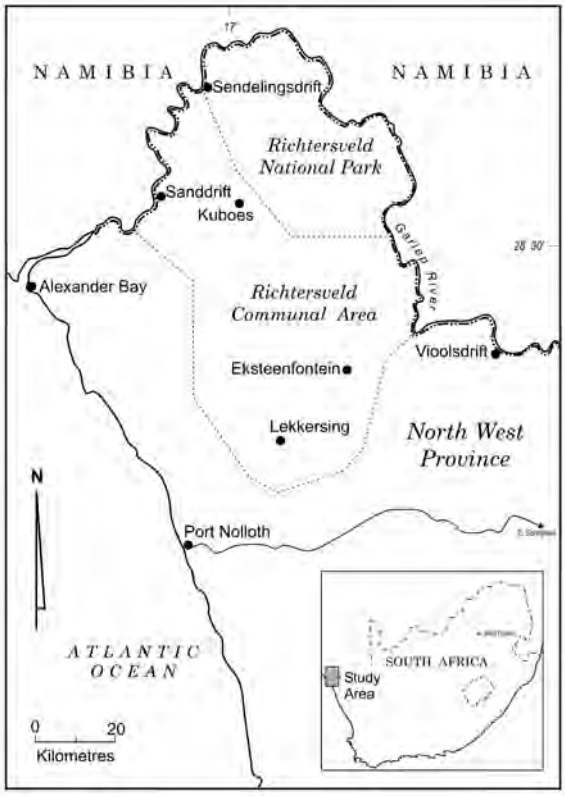

Figure 2.3 Map of the Richtersveld area

2.3.2 Climate

The climate in the Richtersveld is arid, with an average annual rainfall of between 5 and 150 mm. Rainfall in the area is unpredictable, both spatially and temporally, but is more reliable in the winter rainfall area than in the summer rainfall area. The largest portion of the Richtersveld receives winter rainfall (Archer 1994). The area has hot dry summers

and mild winters, with average temperatures of 25° C in January and 15° C in July, with high variability. Daytime summer temperatures have been known to reach up to 52° C. There are two dominant climatic systems in the Richtersveld- a high pressure cell that causes the warm temperate winter rainfall area from the central mountains westward, and a low pressure cell which causes the subtropical summer rainfall area in the east (Williamson 2000, Oppel 2002, Hendricks 2003). The eastern portion falls within a rain shadow area created by the central mountains and this, combined with high temperatures and resultant high evaporation, result in desert conditions for most of the year (Archer 1994). The low temperatures of the Benguela Current on the west coast ensure minimal evaporation from the ocean and therefore the air moving inland to the Richtersveld contains very little moisture, but often brings in fog that provides an essential source of moisture for the area, especially the mountain areas (Hilton-Taylor 1994, Desmet and Cowling 1999a, Williamson 2000).

2.3.3 Vegetation

The Richtersveld has extremely high succulent diversity and high levels of endemism. It falls within the Gariep centre of endemism, which extends into Namibia in the north (Hilton-Taylor 1994). According to the IDP (2002), the area has higher levels of biological diversity than any other desert in the world. This great diversity and endemism is said to be a result of the unique variety of geological formations, rugged relief and diverse soils, which result in a myriad of habitats with different moisture availability, sunlight and temperatures (Hendricks 2003). The vegetation generally responds to the available precipitation and therefore most plants are hardy perennials with moisture storing abilities. Annuals and grasses are found in the area, but only for a short time after precipitation (Smith 1991).

The area consists of two biomes, the Nama-Karoo in the eastern portions, and the Succulent Karoo in the western portions. However, according to Hilton-Taylor (1994) these two units are closely linked floristically and are best considered as one loosely bound unit. According to Archer *et al.* (1994), there are two dominant types of vegetation: the mesophytic vegetation along the Gariep River and the xerophytic vegetation away from the river. The xerophytic vegetation is divided into four types: the

sandveld in the coastal plain area, the succulent karoo to the east of the coastal area, Namaqualand broken veld in the northern and eastern parts, and the western mountain karoo which is found in the mountainous parts of the central and southern Richtersveld. Soils in the area are relatively shallow, despite the aridity, allowing plants to react quickly to even small amounts of precipitation (Smith 1999).

2.3.4 History

The region was originally inhabited by the San, who were hunter gatherers that were later displaced by the Khoikhoi pastoralists, who came from Namibia and Botswana. These people lived in small groups close to water and moved in search of grazing. They also hunted wild animals and utilised the indigenous flora for food and medicines (Joseph and Parris 2000). These were the descendants of the Nama who still live in the Richtersveld today. The first Europeans arrived in the area in 1779 and renamed the Orange River the Gariep River (Joseph and Parris 2000, January 2002). In the Eighteenth century, European settlers moved into the area, and because the Nama were nomadic and very scattered, the Europeans claimed that the land was uninhabited. They eventually drove the Nama people further north into the more arid regions. Mission stations were established in the area, which helped the Nama obtain 'tickets of occupation' in 1927. This afforded the people some degree of title to the land, under which land was held communally and outsiders were barred from obtaining title (Williamson 2000, Joseph and Parris 2000, January 2002). The four towns in the Richtersveld were established around these mission stations. In 1963 the area was officially classified as a 'coloured' Reserve. The area demarcated as the reserve was much smaller than the area that the people had previously had access to, because over the years large tracts of the land were sold as mining concessions, land was allocated to white farmers and the Bosluisbasters were moved into the area (Boonzaier 1987). The socio-political history is discussed in more detail in Section 6.2.1.

2.3.5 Population size, density and profile

There are four settlements in the Richtersveld: Kuboes and Sanddrift in the north, and Lekkersing and Eksteenfontein in the south (Figure 2.3). There are some discrepancies

with regard to population estimates of the area: the 2001 Census determined the population to be 3 662, Joseph and Parris (2000) estimate 3 710 and Hendricks (2003) estimates the population to be 5 000 people. According to the census data (Table 2.1) there are 1 092 people living in Kuboes, 1 137 in Sandrift, 449 in Eksteenfontein and 423 in Lekkersing, and 561 people in the Richtersveld area, which includes all households that do not fall within the above mentioned towns (Census 2001). The majority of the people in the Richtersveld are coloured (86.9 %), while 8.9 % are black and 4.1 % are white (Table 2.1). Most people are of Nama descent, particularly in the northern towns. The average household size is between five and six people (Hendricks 2003). The majority of households (68 %) in the area are male headed (Table 2.1).

Table 2.1 Population distribution in the Richtersveld, and gender of household heads

	Population per town	**Gender of household head**		
	Total	**Male**	**Female**	**Total**
Eksteenfontein	449	80	54	134
Kuboes	1092	149	118	268
Lekkersing	423	40	73	113
Richtersveld	561	240	39	279
Sanddrift	1137	237	66	303
Total	3662	746	351	1097

(adapted from Census 2001)

2.3.6 Economy

The study area falls under the Richtersveld Municipal area. The municipal area includes the former Port Nolloth Transitional Council, Richtersveld Transitional Council, portions of the Diamanstreek Transitional Council and the Namaqua Transitional Council, which were amalgamated under the Local Government Municipal Demarcation Act in 1998 (IDP 2002). The Richtersveld Municipal area falls under the Namaqua District Municipality.

The communal areas of Namaqualand are characterised by high unemployment, with approximately 30-40 % unemployment in the Richtersveld Municipal area (Anon. 1998, IDP 2002). Mining, initially copper, then diamonds, has been the mainstay of the

economy for over a century. Mining is the main economic pillar of the region, providing 21.5 % of the regional Gross Geographic Product (GGP) and providing employment for 10 % of the active population (Dept. of Labour 2001). However, the life span of the mines is uncertain due to the finite nature of the diamonds, and many of the mines are in the process of downscaling as the mineral resources are becoming exhausted (Dept. of Labour 2001). Working conditions on the mines are generally characterised by low wages and job insecurity, as a result of the fickle market and downscaling (Khrone and Steyn 1991, January 2002). Agriculture (which includes forestry, fisheries, subsistence agriculture, capital intensive production and extensive livestock production) contributes 9.6 % to the regional GGP, and provides employment for 32 921 people, compared with the 23 941 employed by mining (Dept. of Labour 2001). Agriculture, although providing more jobs, contributes substantially less to the GGP.

Surveys have showed that the cash economy in the former Namaqualand reserves is largely dependent on state pensions and grants (43 %), agriculture and livestock (35 %) and wages and remittances (20 %). This can be compared with the macro economy of Namaqualand where mining constitutes 62 % of the economy, community services 12.5 % and trade 11 % (Anon. 1998).

2.3.7 Infrastructure

The Richtersveld coloured reserve, like other Bantustans formed during the apartheid era, was largely neglected by central government, and as a result, little social or physical development was implemented in the area. The area is characterised by poverty, low service provision and poor infrastructure. The majority of infrastructure in the area is centred around the mines, and this has positively affected towns such as Sanddrift, where the mine has provided water to the town and maintains the roads. The mining towns of Baken and Sendelingsdrif have well maintained road access and petrol stations. The roads between the other towns are generally poor quality gravel roads. The area has recently been electrified; there are telephone lines, clinics, pre-primary and primary schools, and basic shops in all the villages. According to Joseph and Parris (2000), the

majority of houses in Kuboes, Lekkersing and Eksteenfontein are formal structures, while in Sanddrift the majority are informal.

2.3.8 Livelihood strategies

The main livelihood strategies adopted by people in the Richtersveld are stock farming, welfare grants and wage employment on the mines (Berzborn 2003, Hendricks 2003). The majority of stock farmers breed boer goats or fat tailed sheep, or both. Estimates regarding the number of stock farmers in the Richtersveld vary. Archer (1992 in Hendricks 2003) estimated 50 % of households to be involved in stock farming. Oppel (2002) estimates there to be approximately 290 stock farmers in the Richtersveld with a combined total of approximately 40 000 small stock units. Not all those who own stock are full time farmers, many are employed on the mines and either have a herder looking after their stock or combine their flock with that of a relative (Sharp and Boonzaier 1994, Hoffmann *et al.* 1999, Hendricks 2003). Livestock is said to be the cornerstone of Nama tradition, and provide households with meat and milk, and cash income from sales.

Mining is the main employer in the area, with approximately 46 % of the active population employed on the mines (Hendricks 2003). As alluded to earlier, some of the mines are in the process of downscaling, specifically Reuning in Sendelingsdrif and Alexcor in Alexander Bay (IDP 2002), and as a result there will be fewer employment opportunities available to people in the Richtersveld. Tourism provides a few jobs in the area but it is being promoted to provide income for more people. Government grants, in the form of pensions and disability grants, provide an important source of income for many households (Hoffmann *et al.* 1999). Natural resources play a vital role in terms of grazing for stock, fuelwood, building materials, medicinal plants and wild foods (Hoffmann *et al.* 1999).

2.3.9 The establishment of the Richtersveld National Park

The Richtersveld area was earmarked for conservation in the 1970s because of its rich succulent diversity and high levels of endemism. A portion of the Richtersveld was set aside for conservation and in 1988 a contractual agreement for the establishment of a

National Park was reached. However, the Richtersveld Management Board, which represented the community in these negotiations, was not representative of the community, nor democratically elected. As a result there was great dissatisfaction regarding the lack of community consultation and the terms stipulated in the contract. An interdict was obtained by members of the community and negotiations renewed between the community and SANParks, the result of which was a renewed contract and the proclamation of the Richtersveld National Park in 1991. This will be expanded upon in Section 6.3.1.

2.4 Methods

2.4.1 General approach

This study used qualitative methods to gain an understanding of the nature of rural livelihoods and their change over time. The study adopted a retrospective approach as a means to assess livelihood change over time. Retrospective studies involve the respondent remembering and reconstructing events of their own life course and allows for the collection of data on a set of units and what has happened to them across time (Ruspini 2002). A retrospective approach allows for an understanding of the historical perspective and the broad trends of change (Buck *et al.* 1996, Murray 2001, Ruspini 2002, Payne and Payne 2004). A 30 year time span was used to assess household change and therefore older households were interviewed who could provide information on the past. However, in the Richtersveld, only livestock owning households were interviewed and some of the interviewed households were not yet formed 30 years ago. In such cases the 'past' is taken to be the start of the household. All households that have access to the park are livestock owners, and therefore only livestock owning households outside the park were interviewed to increase comparability between park and non-park farmers. The main method of primary data collection was semi-structured interviews with a life history approach, as well as participatory workshops.

Semi-structured interviews allow the interviewer latitude to probe further on certain topics and also allow for clarification and elaboration on answers given, and therefore often allow for increased dialogue (May 2001, Payne and Payne 2004). A range of

participatory techniques were used in the workshops (Section 2.4.2.3) to obtain information on the present and the changes that had occurred over time. Participatory techniques encourage the active participation of the individual involved in the research and are a useful way of facilitating a process of listening to and learning from rural people, who are the managers of the natural resources (Cornwall 1992, Chambers 1994, Bless and Higson-Smith 2000). Secondary data were obtained from a variety of sources and was used for triangulation.

The methods used in the study differed between the two study sites due to the differing nature of the communities and the environment. In Lesotho workshops and semi-structured interviews were conducted on two different field visits, in June 2003 and July 2004. In the Richtersveld, it was not possible to conduct workshops with the residents inside the park because farmers' stock posts are generally large distances apart, and farmers are unable to leave their stock unattended. Therefore, no group workshops were conducted in the Richtersveld site, but were in the Lesotho site. Two field visits were conducted in the Richtersveld, in October 2003 and April 2004. Translators were used in both sites. The following section outlines the field techniques used in both sites, and this is followed by a discussion of the methodological considerations.

2.4.2 Field techniques

2.4.2.1 Semi-structured interviews with a life history approach

2.4.2.1.1 *Sampling- Sehlabathebe*

Sixteen out of the 79 households in Ha Mavuka were interviewed, representing a sample size just under 20 %. Two interviews were conducted with each household. However, one household was unavailable for the follow up interview and therefore the life history of this household was not obtained. The chief was responsible for selecting the participants. He was asked to provide a list of households whose head is over 55 years old, and 16 households were selected from this list.

2.4.2.1.2 *Sampling – Richtersveld*

The Richtersveld fieldwork was conducted in two stages: inside the park on the first field visit, and outside the park on the second. Although 26 farmers have rights to graze within the park, only 20 have exercised these rights. Due to the mountainous terrain, some of the stock posts were near impossible to reach, and as a result only those stock posts that were accessible by road were interviewed. Therefore, 11 park farmers or their herders were interviewed. All interviews were carried out at the stock posts, either in the early morning before the farmer/herder took the stock out to the veld to graze, or in the evening once they had returned from grazing. Four of the interviews were conducted with herders, because the owner was not at the post at the time.

The second stage of fieldwork in the Richtersveld involved interviewing households in the towns of Kuboes and Sanddrift (Figure 2.3). Snowball sampling was used to determine the respondents in Kuboes and Sanddrift. Some of the respondents were farmers in the park who were absent from their stock post when the original interviews were done, and they were therefore interviewed, or were affiliate farmers of one of the permanent park farmers. Affiliate farmers are farmers whose herd is joined with that of a park farmer, usually a relation. One park household was interviewed twice, the son at the stock post on the first visit, and the mother at the household in Kuboes on the second visit, and the two interviews have been combined as one household. Ten households from each of the villages were interviewed, using the snowball method, i.e. the first household would tell us where to find other older stock farmers and so forth. In total, 11 farmers were interviewed in the park at their stock posts, and seven park farmers in the towns (one in Sanddrift, six in Kuboes). Eight non park farmers were interviewed in Sanddrift and three in Kuboes. Therefore, 17 park farming households were interviewed, and 11 non-park farming households, making a total sample of 28 interviews. Four of the interviews in the park were conducted with herders, who stay permanently at the stock post while the owner resides in one of the towns. The interviews in Kuboes and Sanddrift were conducted at the farmers household rather than out at the stock post, and the wife of the farmer was interviewed if he was unavailable.

2.4.2.1.3 *Technique*

Semi-structured or non-scheduled structured interviews involve the use of a pre-determined list of issues, which can include some precise questions and some alternative sub questions that can be asked depending on the answer to the main question (Bless and Higson Smith 2000). A life history approach was used, which differs from life histories, in that life histories are an in-depth account of ones life (Babbie *et al.* 2001). The life history approach to semi-structured interviews involved in-depth questions about the past, but not a detailed account of the respondents whole life. Therefore this study had a relatively small sample size and conducted in-depth interviews that aimed to determine how the respondents lives had changed over a period of 30 years, thereby giving an indication of changing livelihood strategies and resource use. Two interviews were conducted with each household in Lesotho and one with most households in the Richtersveld. It was necessary to conduct two interviews in Lesotho because a wider range of livelihood strategies were adopted and this meant that the interview would have been too lengthy to conduct in one sitting. Conducting two interviews was beneficial in that it allowed for greater interaction with the households and this increased the rapport and trust. The head of the household was interviewed, but in some cases in the Richtersveld the household head was out at the stock post for an extended period and therefore unable to be interviewed. In such cases the household heads wife was interviewed.

2.4.2.2 Participatory approaches

2.4.2.2.1 *Participant selection*

On the first field visit, permission was granted by the chief of Sehlabathebe to commence the research in Ha Mavuka. The chief was asked to identify and invite up to eight older (over 55 years old) community members, male or female. Six people attended the workshop, five males and one female. The workshops were held everyday for five days with the same participants. A second set of workshops were held on the second field visit with eight of the respondents from the household interviews (Section 2.2.4.1). The workshops were used to gain an overall perception of the situation of the village and the changes that had occurred.

2.4.2.2.2 *Techniques used*

The main techniques used were matrices, seasonal calendars, ranking, pie charts and mapping.

- Matrices

  Matrices were a useful technique to use because they allowed for the investigation of the changes that have occurred over the years, and allowed for the assessment of a variety of aspects on one diagram. For example, a matrix was used to determine from where participants obtained their food. On the horizontal axis on the top of the matrix were several sources of food- i.e. fields, gardens, donations, shops, etc., and on the vertical axis were the different types of food, i.e. vegetables, meat, eggs, maize, etc. The participants were then asked to place counters in the boxes, with five being the highest and zero the lowest, to show where each of the food types is most often obtained.

- Ranking

  Ranking and matrices were often used hand in hand. In the example given above, it can be seen that participants were asked to rank the importance of each source of food against each type of food. Simple ranking exercises were also conducted, for example, once the participants had identified the main political events that had occurred in the last 30 to 40 years, they were asked to give each a score, the most important events being the highest and vice versa. The ranked list was then re-written in order of importance. Kersten (1996) notes the benefits of using matrix ranking in initiating discussion on the ranked items.

- Pie charts

  Pie charts are a useful tool to illustrate the proportional importance of a range of factors. For example, the participants were asked to show the proportional importance of certain food types in their diet, at present and 30 years ago. This clearly illustrated the change in the proportion of different food types in the diet.

- Resource mapping

  The participants were asked to draw a map of the area, showing the villages, fields, rivers etc. The objective of this exercise was to allow the researcher a greater

understanding of the area, and to allow insight into which resources the participants regard as important.

- Seasonal calendar

  Seasonal calendars allow insight into whether activities, resources used and uses of resources differ with the season. Seasonal calendars were used in this case to show how various water sources were used for different activities in the different seasons, as well as to show the seasonal importance of livelihood strategies.

Figure 2.3 Using a matrix in a workshop

2.4.3 Methodological considerations

The methods adopted in this study have both advantages and disadvantages. Using a retrospective approach is advantageous in that it allows for an understanding of the events and changes over time in one sitting per se, as opposed to waiting for consequent interviews to measure change. However, there are drawbacks to the use of this approach. The reliance on respondents' memory and recall of events, which may be selective, means that the accuracy of such data can be questionable (Bagchi *et al.* 1998, Solga 2001, Ruspini 2002). Bagchi *et al.* (1998) raise the issue of constantly changing perceptions of what is considered good and valuable: "conceptions of the good and valuable are constantly being revised in the light of perceived processes (involving conflict, negotiation and consensus), memory is selective, constantly responding to (evolving) current experience" (Bagchi *et al.* 1998:461). In addition, the longer the recall period, the more room for inaccuracy as the quality of information recalled decreases the further

back in time the respondent is asked to go (Ruspini 2002). This was evident in the interviews, as many respondents did not recall dates of their marriage and beginning of their household, or the age of their children for example. However, oral histories remain one of the few sources of information about the past in many regions (Dahlberg 2000).

The methods used differed across the two sites due to various reasons (Sections 2.4.1 and 2.4.2). As a result, both interviews and workshops were conducted in Lesotho, while only interviews were conducted in the Richtersveld. Conducting both workshops and interviews was beneficial in that it allowed for triangulation and clarification where necessary, whereas this was not possible in the Richtersveld. The data from the workshops also provided a clear overall picture of changes that had occurred, particularly with regard to the quantity and quality of the natural resource base. This, in conjunction with the perceptions of change obtained from the interviews allowed for a clearer picture of change in Lesotho than in the Richtersveld. The different methods used therefore had implications on the quality of the data collected at the two sites. The number of household interviews conducted also differed between the sites, two interviews were conducted with each household in Lesotho, while only one was conducted with each household in the Richtersveld. This was done because in Lesotho it was found that conducting one interview was too lengthy because there was a greater range of livelihood strategies in Lesotho. Therefore, to avoid tiring the respondents, the remainder of the interview was conducted at another time. In the Richtersveld it was found that all the information could be gathered in one interview. Aside from increasing the rapport between the interviewer and the respondents, this did not have any implications for the quality of data gathered.

To gain an understanding of change, older households were interviewed because they would be able to provide information from 30 years ago. Although this strategy allowed for an understanding of change and provided a picture of livelihoods in both areas, it does not allow for a fully representative understanding of households and their livelihood strategies in the area, only the older ones. Older households are more likely to be in the later stages of the household development cycle (Section 1.3.2) where their asset base has

declined. Younger households are more likely to be in a better position and therefore the nature of the sample may mean that the data is not representative of the livelihood strategies of the entire community.

Interviews were conducted with household heads, but in some cases in the Richtersveld this was not possible (Section 2.4.2.1.3). The data is therefore based on that given by the household head, and therefore may not be representative of the whole household. In the Richtersveld, where the household head was not available, his wife was interviewed and this may have affected the data in that livestock is typically the domain of men and therefore the respondents may not have been able to provide as thorough answers as the household head would have.

Translators were used in both sites. In Lesotho, the manager of the Sehlabathebe National Park was used as a translator on the first visit because no one with a suitably high level of English could be found. On the second field visit the park manager was unavailable but his son used instead. Both translators may have had an influence on responses, particularly those pertaining to the use of resources in the national park and peoples perceptions of the park. The data is therefore not likely to provide an accurate reflection of perceptions on matters regarding the park. In the Richtersveld, a translator from the village of Eksteenfontein was used on the first visit, but was unavailable for the second so a translator from outside the area was used. Although the respondents were assured that the study was not connected with SANParks in any way, it is possible that this influenced some responses.

2.4.4 Data collation and analysis

2.4.4.1 Secondary data

Secondary data were collected from a variety of sources and used to provide information on research carried out in the areas in question, as well as other similar studies useful for comparison. Secondary data is also integral to understanding change, by analysing similar research conducted in the past, one is able to better understand how the present situations arose and what changes have occurred. Past studies and surveys were

consulted for triangulation, as well as providing information on past livelihood strategies and resource use.

2.4.4.2 Analysis

This study was conducted at the household level, looking at the change in household livelihood strategies over time. The use of the household as the unit of analysis has been criticised because households are rarely static as a result of the movement in and out of the household (Murray 1981, Murphy 1996, Ginguld *et al.* 1997, Francis 2000). However, the household is a central unit, where complex social and economic interdependencies occur, and consists of core members that live in the house permanently (Ellis 2000, Francis 2000). According to Ardington and Lund (1996), the *de jure* household is the most appropriate unit for the study of rural livelihoods.

The Sustainable Livelihoods Framework (SLF) was used to conceptualise livelihoods. Assets available to households were addressed and discussed individually, i.e. natural, human, social, financial and physical capital. Livelihood strategies were analysed using typologies developed in previous studies (Spiegel 1979, Modiselle 2001). Typologies are a classification and conceptual scheme that group farming households with similar characteristics together according to their practices and strategies (Perret and Kirsten 2000, Patton 2002). The use of typologies has been criticised for failing to deal with the complexity of local circumstances (Ellis 1992 in McCusker 2002). However, groups in typologies should rather be considered as "positions between which households may move, rather than static groups" (Francis 2000: 49). McCusker (2002) notes that avoiding categorization allows for a focus on individual household transitions through time. This study combines these approaches, using typologies to group similar households together, while at the same time examining each individual household and their movement and development over time.

The categorisation developed by Spiegel (1979, 1980) in Lesotho was used for the Sehlabathebe site, and the typology developed by Modiselle (2001) in the Leliefontein Reserve (approximately 400 km south of the Richtersveld) was used for the Richtersveld

site. Households were then placed in categories according to livelihood strategies adopted in the past (1970 or the establishment of the household, if after 1970), and then categorised again for livelihood strategies presently employed. This allowed for an understanding of household development and the change in livelihood strategies over time. The household development cycle was used to conceptualise household change over time. However, it must be taken into account that this provides two snapshots in time, i.e. the past and the present, and therefore may not explain continuous change.

A detailed analysis of present livelihood strategies was then conducted. In the Richtersveld, Modiselle's (2001) categorisation was used to understand the differences between households in terms of assets available and dominant strategies pursued. For the Sehlabathebe site, the categorisation developed by Spiegel (1979, 1980) was used to show the change in household assets and strategies over time, but did not allow for a thorough understanding of present livelihoods. A different categorisation was therefore developed to analyse present livelihoods. In both sites, the livelihood strategies were tabulated, which allowed for an illustration of the various strategies pursued by the different categories of households. However, this did not allow for an indication of the effectiveness of strategies, and therefore subjective scores were allocated to each strategy by the researcher depending on the perceived effectiveness, i.e. a household with 50 cattle would be allocated a score of 3, 15 cattle a score of 2, 3 cattle a score of 1, and no cattle a score of 0 (Appendices 2 and 4). The allocation of scores was clearly subjective, and therefore to test the robustness of the scoring, a sensitivity analysis was conducted. In the sensitivity analysis, different weightings were applied to the various strategies to assess whether this would influence the overall trend. The mean scores allocated to households were then analysed per category. A one way ANOVA was used to test whether there were significant differences between the mean number of strategies, mean total score and mean score per strategy across the different categories.

3 Chapter 3 The vulnerability context and transforming structures and process in Sehlabathebe

3.1 Introduction

Within the sustainable livelihoods framework, the vulnerability context and transforming structures and processes influence a household's access to assets as well as the strategies they adopt. The vulnerability context refers to the external environment in which people exist, over which they have limited or no control, while transforming structures and processes are the institutions, organizations, policies and legislation that shape livelihoods (DFID 1999). Understanding the external environment and factors that affect the asset base, and therefore livelihoods, is integral to a comprehensive appreciation of rural livelihoods. It is essential to gain an understanding of the broad political and economic context in which local livelihoods occur as the macro-level contexts are played out at the micro level via livelihoods. This chapter begins with an outline of the broad political and economic context of Lesotho, outlining the trends that have had an impact on local level livelihoods. This is followed by the trends and shocks that are particularly influential in the vulnerability context in which rural livelihoods in Lesotho occur, including increasing population pressure, retrenchment and joblessness, stock theft, HIV/AIDS and declining natural resource availability. Once the vulnerability context has been addressed, the transforming structures and processes will be discussed. This section assesses the arrangements surrounding land tenure and access to resources, including the laws applicable and the institutions responsible for them, and the key government policies that have influenced local livelihoods.

3.2 The vulnerability context

3.2.1 Economic context

Lesotho was a British protectorate from 1868 until independence in 1966, although it was never settled by the British. Under British rule Lesotho became a migrant labour reserve for the mines in South Africa, in which the British had shares (Ambrogetti 1997). The exodus of male workers from Lesotho was encouraged by several policies and trends: the

British introduction of taxes, population growth, the reduction of land holdings allocated and the resultant inability of most Basotho to earn enough to pay their taxes, and the attraction of the high mine wages in South Africa (Palmer and Poulter 1972, Gill 1993, Ambrogetti 1997, Mochebelele and Winter-Nelson 2000).

The Basotho first responded to pressure to pay taxes by selling agricultural products. In the 19th century, Lesotho was a net exporter of grain to South Africa. The discovery of minerals and the establishment of mines in South Africa led to an increased demand for grain, which Lesotho supplied (Murray 1981, Cobbe 1983, Ferguson 1990, Maloka 2004). The increase in the use of ploughs and the expansion of land under cultivation allowed Basotho farmers to increase production for export, and this saw the beginning of the integration of many Basotho farmers into the colonial economy (Murray 1981, Gill 1993). However, the introduction of import tariffs, the establishment of railways in South Africa and the discovery of cheaper imports from overseas meant that Lesotho's produce could no longer compete, and prices fell dramatically (Gill 1993, Maloka 2004). The stage of intensive production, in conjunction with an escalating population meant that an increasing amount of land was converted to arable land. The result of this was increasing pressure on the land and the associated increase in soil erosion and land degradation (Ferguson 1990, Gill 1993) (see Section 3.2.3.5 for further discussion on soil erosion). In addition, the shortages of land pushed people into the mountains, to areas where the climate is harsher and less suitable for cultivation (Low 1986). The general decline in cultivation in this period can also be attributed to the colonial policies, which together with apartheid policies in South Africa aimed to eliminate independent prosperous black farmers and promote highly subsidised, mechanised white cultivation (Gill 1993). From the 1920's, Lesotho became a net importer of food as those households with fields were generally producing a small surplus, but not enough to feed the ever increasing number of people without land (Murray 1981, Gill 1993). The agricultural situation was made worse by droughts and an economic recession, and in 1933 more than 350 000 tonnes of maize was imported into Lesotho (Murray 1981). Land holdings were increasingly fragmented as the population grew, and land holdings per household

therefore declined (Wellings 1986). Cultivation therefore reached a level of stagnation in the 1930s that is has not managed to escape since.

As agricultural prosperity declined, more and more men migrated to South Africa as a means of compensating for the inadequacy of agricultural income and resources. Food production per capita has continued on its decline throughout the century. The amount of cereal produced per household steadily dropped from an average of over 150 kg/capita in 1974 to just over 50 kg/capita in 1997 (Gay and Hall 2000). In 1974, Lesotho could provide between 50 % and 60 % of its own food requirements, but by 1984 it could only supply 40 % (Mphale *et al*. 2003). The remaining 60 % was provided through imports from South Africa and through food aid. Food aid will be discussed in detail in Section 3.3.2.4. Agriculture now only accounts for just over 10 % of the country's GDP (Letsela *et al*. 2002a). The decline in agricultural productivity is attributed to a variety of factors including population growth, soil erosion, and the increase in Basotho men migrating to South Africa to work, because this meant a decrease in labour availability and an increase in cash income, which led to a decreased reliance on agriculture (Ferguson 1990, Gill 1993). Migrancy and agriculture form a complex cycle. Declining agricultural productivity as well as the need for cash to pay taxes pushed increased numbers of men to seek employment on the ever expanding mines in South Africa, but at the same time, with the majority of men at work on the mines, women became the effective managers of households (Palmer and Poulter 1972, Gordon 1981, Gill 1993, Sweetman 1995, Gay and Hall 2000, Maloka 2004). Ferguson (1990) postulates that although migration and agricultural decline are related, the relationship is much more complex than that stated above. The migration of Basotho men began in the late 1800's, when cultivation in Lesotho was booming. Large numbers of men migrated to earn cash income to purchase guns, blankets and clothing, etc., not necessarily to make up for poor food production (Ashton 1967, Murray 1981, Ferguson 1990). However, the loss of vast quantities of agricultural land to the Dutch in the late 1800s negatively affected agricultural production, but the full impact of this loss of land was felt only later, in the face of population growth, soil erosion and drought (Ferguson 1990). Therefore, in the late 1800s

migration was ‘discretionary’ rather than ‘necessary’, which it increasingly became over time (Murray 1981).

In the absence of men and their labour, many women have had to take over the agricultural tasks that were traditionally the domain of men (Palmer and Poulter 1972, Wallman 1972, Kishindo 1993). Most men sent a portion of their wages home to their families, some of which was often used to hire labour for cultivation (Spiegel 1980, Murray 1981, Ferguson 1990). Although there was a labour shortage in many households, those without labour shortages were able to earn income by working for others.

An increase in mine wages in the 1970s (Van der Wiel 1977) enhanced reliance on wages and decreased commitment to agriculture (Lawry 1988, Mphale *et al.* 2003, Turner 2003a). Remittances provided a more reliable and remunerative source of income than agriculture, which became seen as an alternative source of security rather than a dominant livelihood strategy (Spiegel 1979, Lawry 1988, Sweetman 1995). In addition, the expanding market sector made purchased food more accessible and less expensive, while at the same time, due to population increases and decreasing soil fertility, it became more ‘expensive’ to produce food (Low 1986). Cultivation was therefore seen to be ‘more trouble than it is worth’, i.e. the meagre harvest and low prices did not warrant the time, labour and money invested. Therefore, those households that could sustain themselves from remittance income no longer felt the need to invest resources in cultivation. Yet according to Spiegel (1979), this did not indicate a trend towards the abandonment of cultivation, it was still seen as an alternate source of security, albeit potential rather than realised security (Spiegel 1979, Heap 1989). Many households retained their fields as a precaution (Subramanian 1998), and continued to cultivate, albeit less successfully, in order to retain access to their fields so that they could resume full time cultivation should the need arise (Low 1986) (Section 3.3.1). Those households that continued to cultivate relied heavily on the money remitted to supply inputs such as seed and labour (if necessary) (Spiegel 1979, Wellings 1986), and therefore the decline in remittance income available would affect the ability to cultivate. Other reasons for the low agricultural

productivity include the lack of access markets, credit, inputs such as seed and fertiliser and extension services (Wellings 1986, Mphale *et al.* 2003).

During the 1970's migrant labour formed the backbone of the Lesotho economy. The number of men engaged in migrant labour steadily increased from the late 1960's, reaching a peak in the late 1970's. After this peak, a period of steady decline in employment opportunities began, and in the 1990's, widespread retrenchment almost halved the number of migrant labourers in South Africa. In 1976, approximately 152 188 Basotho were employed in South Africa, almost triple that of 1963 (Van der Wiel 1977), and by 1990 this number had dropped to 127 000 (Gay and Hall 2000). After the first democratic elections in South Africa in 1994, the amount of Basotho employed on the mines began to drop rapidly, and by 1999 there were only approximately 56 000 Basotho employed in South Africa. The drop in employment opportunities is attributed to the drop in gold prices, improved technology which has made mining less labour intensive and increased the demand for permanent skilled workers rather than unskilled migrants, as well as the need to provide jobs to South Africans rather than foreigners (Wellings 1986, Sweetman 1995, Gay and Hall 2000). The decline in remittances affected not only the households of those who had been retrenched, but also the wider community. Remittance income was diffused within the community in a variety of ways, through hiring labour for cultivation, the payments of *bohali* (bridewealth), house building and the purchase of livestock (Spiegel 1979, Ferguson 1990). Sweetman (1995) estimated that up to five households were linked to each mine workers' household in a chain of dependency. In addition to this, remittance income had a multiplier effect as it was spent in local shops, on transport and services, buying goods from informal traders, e.g. women selling beer, etc., and therefore the decline in remittance income has had a widespread effect (Spiegel 1979, Wellings 1986, Sweetman 1995, Gay and Hall 2000). According to Sweetman (1995) mineworker's remittances amounted to M714.7 million in 1988. Gay and Hall (2000) estimated that in 1996, the M627.4 million (M1 = R1) spent by mine workers in Lesotho generated indirect employment for approximately 1 816 people.

It is important to understand the decline in employment opportunities in the 1990's within the context of Lesotho's macro economy. In the late 1980's, Lesotho's economy

entered a stage of average real GDP growth of approximately 6 % per year. This was attributed to the Lesotho Highlands Water Project, increased exports and higher manufacturing production (Standard Bank 2003). By 1998, there was a drastic decline in the GDP due to the increase in mine retrenchment and the riots in Maseru (Section 3.2.2), which destroyed 80 % of commercial infrastructure (Gay and Hall 2000, Standard Bank 2003). Since 1999, the average GDP growth per annum has been 2.8 %. There has been growth around the major centres, particularly Maseru, but the general growth in the economy has not benefited the rural areas, and has not affected the overall levels of poverty in the country. Gay and Hall (2000) propose that the benefits of economic growth are being realised by the middle and upper income groups and are not being distributed to the low income groups.

There has been little growth in the primary economic sector over the past 20 years. There has been growth in the secondary sector, especially the textile industry. However, there has been a decline in the overall availability of jobs in Lesotho, and although new jobs have been created, they are offset by closures in other areas, and therefore there is a shortage of formal sector jobs available (Gay and Hall 2000). Approximately 25 000 people enter the job market annually, whilst only approximately 8 000 jobs are created annually (Turner 2003a). Agriculture contributes an average of 10 % to the GDP of Lesotho (Letsela *et al.* 2002a). The declining contribution of agriculture to the GDP highlights the declining agricultural productivity over time; in 1966 agriculture contributed 60 % to the GDP, 31 % in 1970 and 21 % in 1980 (Chakela 1999). The informal sector provides income for a number of households. In their 1999 Poverty analysis, Gay and Hall (2000), in their countrywide poverty assessment, ascertained that 5.8 % of households were engaged in informal businesses, 19.3 % in the sale of traditional beer (*joala*), 1.5 % hawked goods, 1.1 % sold fruit and vegetables, and 0.7 % sold commercial beer. This amounts to approximately 107 000 households participating in informal activity of some sort, and this kind of activity is the sole source of income for 11.3 % of households (Gay and Hall 2000). Unlike South Africa, Lesotho does not provide state old age or disability grants. Few people obtain pensions or disability grants from previous employment.

Lesotho's economy is closely tied to South Africa's, and Lesotho, along with Namibia, Botswana and Swaziland, is a member of the Common Monetary Area (CMA). The Loti (plural – Maloti) is pegged on par with the Rand, and all monetary matters are controlled by the Central Bank of South Africa (Gay and Hall 2000). The inflation rates in Lesotho are therefore closely linked to those of South Africa. Between 1995 and 1998 inflation steadily declined from 9.9 % to 7.8 %. It rose after 1998 to 8.7 %, then decreased to 6.2 % in 2000, and remained more or less constant until it doubled to 12.1 % in 2002 following the depreciation of the Loti / Rand. It dropped slightly to 10 % in 2002. Food prices have risen significantly recently, a 50 kg bag of maize cost M65 in 2000 and increased to M180 in 2002 (Gay and Hall 2000, Standard Bank 2003). This can be attributed to the removal of government subsidies on basic foodstuffs as a result of structural adjustment (Mphale *et al.* 2003) and the devaluation of the Rand (Abbot 2002).

Therefore in summary, the drastic decline in migrant labour opportunities has meant that many households no longer have a source of cash income, and there are few jobs available in Lesotho to counteract this problem. It had become somewhat of a tradition for males to migrate to South Africa for a period of up to 20 years and send home remittances, which were used mainly in the accumulation of assets such as livestock that were to support the household into old age (Turner 2003). In addition, inflation has led to rising food prices, so those households who are unable to produce enough to feed themselves have to purchase maize at ever increasing prices, with ever decreasing access to cash. The lack of off farm jobs and income earning opportunities, the lack of pensions or any other form of social security grants, means that households in Lesotho need to rely on farming to provide an income. Once again, the situation is complex. Most households have continued to farm on and off, even during times of employment, but as alluded to earlier, agriculture was seen as a source of supplementary income and livelihood contribution, and its success usually relies on injections of cash to purchase inputs. The widespread retrenchments have left many households without access to cash, and this, coupled with the declining size of land holdings and the deteriorating condition of the land, has meant that agricultural potential continues to be limited.

3.2.2 Political context

The political climate in Lesotho has been characterised by general instability. Politics have been dominated by two major political parties who have struggled for power since independence. The Basutholand National Congress (BNP) narrowly won the first elections in 1965, and lost the 1970 elections to the Basutholand Congress Party (BCP), but the BNP declared a state of emergency and annulled the result (Ferguson 1990). The BNP ruled for the following 16 years under Leabua Jonathan, and banned the opposition party leaders, forcing them into exile or into the mountains, where a low key guerrilla war ensued (Gill 1993, Gay and Hall 2000). This period of instability affected livelihoods in some areas as the ruling party took to terrorising villages and those perceived to be supporters of the BCP (Ferguson 1990, Turner 2003a). According to the participants in a workshop in Ha Mavuka, the period after the declaration of the state of emergency was characterised by violence and many of the men fled to South Africa in search of work and to escape being tortured and beaten. The participants perceived poverty to have worsened during this time. The mountain areas were traditionally BNP strongholds, but their support diminished after their failure to live up to the many promises made prior to the 1965 elections, which included better bridle paths and bridges, and increased employment opportunities (Khaketla 1972). As a result of this, the BNP lost its mountain support base, and they voted overwhelmingly for the BCP in the 1970 elections (Ferguson 1990). Matlosa (1999) notes that within this period the constitution was suspended, no regular elections were held and the labour reserve economy showed no signs of significant growth. The elections in 1985 were once again won by the BNP, but only BNP candidates stood for election.

In 1986 a military government, under Major General Lekhanya, was established with the help of South Africa, and remained in power until the first democratic elections since 1970 took place in 1993 (Gil 1993, Gay and Hall 2000). The BCP won a landslide victory and stayed in power until 1999. This period was also characterised by great instability and conflict, both within the ruling party and between the different political parties. In 1997, the BNP party split into the Lesotho Congress for Democracy (LCD), which was led by the Prime Minister, while the remainder stayed as the BCP. The 1998

elections were won by the LCD in an election that was deemed free and fair, but was refuted by the opposition parties, who attempted to nullify the elections through the King and the courts and finally through intervention from South Africa. The South African investigation was unable to prove or disprove that the election was a fraud. In the meantime, the opposition parties had resorted to intimidation and violence, which culminated in the 1998 riots in Maseru. The riots resulted in monumental destruction of both businesses and government property, and were eventually put to an end by South African troops (Gay and Hall 2000, Southall 2003). An Interim Political Authority (IPA) was established consisting of members from all political parties. The IPA continued to run the country, while trying to establish a new electoral model. Elections were eventually held in 2002, after much stalling by those in the IPA, who were enjoying the benefits that were afforded to them (Southall 2003). The LCD won a landslide victory in the internationally monitored elections.

The tumultuous political history of post independent Lesotho has meant an absence of a stable environment for development within the country. Power struggles within and between parties have been commonplace, as have disputes over election results and several coups d'tat (Kadima 1999, Matlosa 2001). Lesotho inherited the Westminster constitution from the colonial era, and therefore the first-past-the-post system has been the electoral system used in elections. The election result disputes have generally been a result of the nature of the system. The election is won by the party that receives the most votes, and this need not be an absolute majority, and in addition, parties that do receive a fairly large proportion of the vote are not proportionally represented in parliament (Matlosa 2001). The above factors have resulted in disputes over every election result with opposition parties not hesitating to refute and challenge the results by any means necessary (Weisfelder 2001). The elections inevitably ended with the losing party claiming that the elections had been rigged, and then aligning itself with the military and the monarchy against the winning party (Mohao 1999). Losing parties therefore tend to resort to allegations of rigging rather than questioning the electoral model itself (Mohao 1999). The lack of faith in the electoral system and the results produced has therefore been a key factor in the political instability in Lesotho (Kadima 1999, Matlosa 2001, Weisfelder 2001). Mohao (1999) suggests that the conflict amongst and between political

parties, the army and civil service is because of the severe competition for the scarce state resources such as ministerial positions, and uses the example of the infighting and resultant split of the BCP in the late 1990s as an example.

In summary, the political history of Lesotho has been a turbulent one, with significant periods of political instability. The increasingly intolerant Jonathan government was replaced by military rule in 1986, which became increasingly unstable (Turner *et al.* 2001). After the 1993 democratic elections, it was assumed that Lesotho was entering a stage of stability and security, conducive to livelihood development, when in actual fact this too was a period of great instability as the political process became increasingly dysfunctional (Turner *et al.* 2001). The turmoil and instability have not created a conducive environment for Lesotho to move forward, and according to Turner (2003), many people feel that political corruption has had a great effect on Lesotho, and the unstable national party politics has lessened the commitment and quality of government services. The lack of focus on the rural areas has meant that there have been little or no improvements in agricultural support. This can be seen in the lack of extension services, access to credit and inputs for agriculture in many of the rural areas.

3.2.3 Trends that have affected local livelihoods

The broader scale macro political and economic trends provide the context in which to further understand the dynamics of the vulnerability context that affect local livelihoods. Population growth, joblessness and retrenchment, stock theft, HIV/AIDS and a declining natural resource base are the dominant trends. These trends are generally interwoven and will be discussed separately with reference to the linkages between them.

3.2.3.1 Population growth

As alluded to earlier, the population of Lesotho has steadily increased over the years. The average annual population growth is 2.6 % per annum and the current population is estimated to be around two million people (NES 2000, Letsela *et al.* 2003a). The population of the country has more than doubled since independence in 1966 (Turner *et al.* 2001). The average population density for Lesotho is 71 people per km^2, but the majority of the population is located in the lowlands to the west of the country, and therefore these areas have higher densities (Bureau of Statistics 2001). Population density

is therefore double that of 1974, when the density for Lesotho as a whole was estimated to be 35 people per km^2 (Monyake 1974). The population density for Qachas Nek district is the third lowest at 34 people per km^2 (Bureau of Statistics 2001). The average population density of arable land for Lesotho has increased from 306 people per km^2 in 1976 to 531 people per km^2 in 2001 (NES 2000, Bureau of Statistics 2001). It must be noted that due to the mountainous terrain and a loss of land as a result of degradation, only 9 % of the country is suitable for arable production (Pule and Thabane 2004). Therefore all cultivation is limited to this area, and increases in population equal an increased pressure on this area. According to the MoA (1995), the amount of land under cultivation declined by 23 % (8 500 ha) between 1950 and 1986, due to reasons such as soil erosion and urbanisation. In the Ratau area in the Maseru district the total land under cultivation rose by 2.3 % during 1950 to 2000, while at the same time the population in the area rose by 164 %, indicating that almost all available land was cultivated by 1950 (Makhanya 2004).

According to a nationwide survey of village populations conducted in 1960, Ha Mavuka had 23 households (Morojele 1960), compared with the current figure of 79 households (Morena Makhaola, pers. com. 2004). The growing population has meant a growing pressure on the land and the resources available, as more people utilise fuel wood and shrubs, medicinal plants, thatch, water, etc. The demand for arable land has meant that increasingly marginal areas have been converted to arable land. Cultivated land has increased in the past decade from 317 900 ha to 406 500 ha (Mphale *et al.* 2003). Cultivation on marginal lands such as steep slopes leads to an increased risk of soil erosion (FAO 1997, Makhanya 2004).

3.2.3.2 Joblessness and retrenchment

Remittances from wage labour in South Africa have been the dominant source of income in rural Lesotho for the majority of the 20th century (van der Wiel 1977, Spiegel 1979, Gill 1993, Gay and Hall 2000). The widespread retrenchment had a variety of repercussions such as an increased reliance on resources freely available around villages, an increase in informal sector activity and a renewed engagement with cultivation, even

though its potential to provide sufficient harvest is limited (Green 2000, Gay and Hall 2000, Letsela *et al.* 2003). According to Sweetman (1995), the loss of remittance income led to diversification in many households who were no longer able to rely primarily on one source of income. The brewing of beer became a common strategy adopted by women as a means to supplement household income (Sweetman 1995).

Coupled with the decrease in employment opportunities in South Africa, is the lack of employment opportunities in Lesotho. Employment opportunities are usually concentrated in the larger towns and urban areas, with limited employment opportunities in the mountain areas. Green (2000) revealed that only 40 % of household members between the ages of 18 and 65 brought in any cash income. Of these, 55 % derived their income from casual labour and informal activity such as the sale of beer or agricultural produce. According to Gay and Hall (2000), only 22 % of households relied on wage work in Lesotho as their primary source of income, 2.8 % worked in formal businesses, and 22 % worked in South Africa. The chances of ex-migrant workers finding employment in Lesotho are limited to construction work or work requiring similar skills to mine work due to generally low levels of formal education (Sweetman 1995).

Agriculture, in the form of the sale of animals, crops, vegetables, wool and mohair, etc., contributes the primary source of income for only 5.8 % of households (Gay and Hall 2000). However, this figure does not show the amount of households that rely on agriculture solely for subsistence use, i.e. do not obtain any income from agriculture, but do obtain food. Letsela *et al.* (2003) found that 50 % of households cited agriculture as an important source of livelihood.

The decline in employment opportunities and the inability of the economy to provide employment within Lesotho has meant that many households no longer have access to regular income. Those households with arable land can rely on cultivation to provide food for at least a portion of the year, although up to 80 % of mountain households do not produce enough to last the year (IFAD 2001). Furthermore, the lack of employment opportunities means that many households do not have capital available to invest in

agricultural inputs, further hampering the ability to produce sufficient harvest. The inability of cultivation to provide sufficient food combined with the lack of available employment opportunities, results in an increase in the number of households relying on natural resources for fuel, food, water, building materials, etc. (Letsela *et al.* 2003). The decline in remittance income has also impacted upon social capital. Households have less income to spend on donations and gifts, while others may have become increasingly vulnerable and rely on donation from others (Sweetman 1995). There has been an increase in 'social evils' such as theft, substance abuse and violence, which have been linked to the lack of employment available (Gay and Hall 2000, Green 2000). Most notable of these social evils is the increase in the incidence of stock theft.

3.2.3.3 Stock theft

Livestock forms an integral part of Basotho culture, and provides a range of benefits to households, such as draught power for ploughing, dung for fuel, manure, milk and meat. Livestock also plays an important role in cultural functions such as rituals and funerals, etc., is a form of savings and can be sold for cash (Lawry 1988, Chakela 1999, Green 2000, Shackleton *et al.* 2001, Letsela *et al.* 2002a). According to Kynock and Ulicki (2000), stock theft has been on the increase since 1990, and the overriding cause is said to be poverty. In their opinion, the epidemic cannot be viewed in isolation from the increase in retrenchment, seeing as many of the people who typically would have become mine workers are now unemployed and resort to theft as a means to obtain an income. In addition, many of the respondents in their study saw jealousy as one of the causes of theft. The household data for Ha Mavuka shows that people in the area perceive stock theft to be a significant problem and a large majority of households have had stock stolen at one time or another (Section 4.2.3). Different households perceived the problem to have started at different times, and this was largely related to when their stock was stolen. Dates ranged from the early 1990's to 1996 and people attributed its increase to poverty and laziness, saying that people were starving and therefore resorted to stealing stock, or that they were too lazy to make a living and instead stole from others. One respondent linked the increase in theft to democracy, saying that since democracy they are no longer permitted to beat thieves, but rather have to report them to the police, who are inefficient,

and therefore the thieves get away. Similarly, Kynock and Ulicki (2000) found that respondents felt that democracy had created a situation in which thieves thrive. The workshop participants highlighted the link between retrenchment and stock theft, saying that stock theft became particularly problematic in 1996 and this is because people no longer had income from wage employment. According to the chief 1998 to 2001 were the worst years for theft, particularly 1998, which he attributes to the political instability and the riots in Maseru. One hundred percent of villages studied by the DAO (2002) ranked stock theft as one the greatest problems faced, along with poor extension services, limited access to inputs, livestock mortality, climate and environmental degradation.

There is a widespread perception that the police, prosecutors and magistrates are ineffective and are unable to apprehend thieves, and as a result, the crisis has worsened. According to the DAO (2002) a total of 295 cattle, 197 sheep, 194 goats, 144 horses and 77 donkeys were reported stolen in the Qachas Nek district in 2000, and 54 cases were reported between January and May 2001. According to Kynock and Ulicki (2000) few reported cases are adequately dealt with and solved. Out of the 359 cases of theft reported in Quthing in 1998 there were seven arrests and four convictions. Similarly, in Qachas Nek in 1994 there were 255 cases of stock theft reported and not one arrest was made. The inability of the authorities to apprehend thieves and recover the stolen stock provides the ideal environment for stock thieves, as the risk of being caught is low.

The increase in stock theft is a general trend that affects livelihoods in a number of ways. However, theft also constitutes a shock to livelihoods. Theft of stock means that a household may lose its primary form of savings, means of draught power for cultivation as well as the potential to earn income from leasing cattle to other households, and its source of fuel (dung). As mentioned above, cattle are regarded as a form of savings, and many households have invested in livestock over many years, building up substantial herds, which can be stolen in one day. The stock theft problem has made livestock ownership a risky endeavour and has become a powerful disincentive to livestock ownership (Turner 2004). According to the participants in a workshop in Ha Mavuka, if

a household does not have livestock and there is a feast or funeral, the household has to purchase the animals required, and a cow can cost up to R1000.

The lack of available fuel has implications for the women's workload in the household as they have to collect dung, wood or shrubs from the rangelands instead of using dung from the kraal (Kynock and Ulicki 2000). The decrease in availability of wood and shrubs for fuel means that women spend between three and six hours a day collecting fuel (Kynock and Ulicki 2000). Theft has also led to diminished intra- and inter- village trust and cohesion, as there is growing suspicion and mistrust among and between villages. Stock theft has affected *mafisa* arrangements because households are less inclined to leave their livestock in someone else's care (Kynock and Ulicki 2000). *Mafisa* involves the loaning of livestock to friends, relatives or neighbours for long periods of time (Spiegel 1980, Ferguson 1990). The receiving household is then responsible for taking care of the livestock until such time as the owner requires them back, and in the mean time has access to the proceeds and profits arising from the livestock, such as wool, milk and some or all of the offspring (Ferguson 1990).

In addition, stock theft has had implications for rangeland management. Livestock owners are no longer willing to send their livestock to distant pastures for grazing, and instead grazing is concentrated close to villages, leading to increased pressure and degradation of the range surrounding villages (Kynock and Ulicki 2000, Gay and Hall 2000). Rangeland management is addressed in Sections 3.2.3.5 and 3.3.2.2.

3.2.3.4 HIV/AIDS

The increasing prevalence of HIV/AIDS in Lesotho has several impacts on livelihood security. According to UNAIDS (2002), approximately 31 % of Basotho aged between 15 and 49 are HIV positive, and Lesotho has the fourth highest HIV/AIDS prevalence in the world. It is estimated that in 1999, 240 000 Basotho were living with HIV/AIDS, and this number is expected to rise to 615 000 in 2015 (UNAIDS 2002). Approximately 25 000 adults and children are thought to have died of HIV/AIDS in 2001 (UNAIDS 2002). The increase in HIV/AIDS related deaths affects households in various ways. The first

impact is the effect on human capital in the form of labour availability. Available labour declines as those that are infected, and therefore are likely to get ill and die, are likely to be of a productive age in terms of both income generating activities and agricultural labour (Abbot 2002, Drimie 2002, Mano *et al.* 2003). HIV/AIDS therefore exacerbates labour shortages, and this naturally has implications for agricultural productivity and therefore household livelihood security. Traditionally, the elderly, when they are no longer able to cultivate, pass their fields on to their children who then provide them with a portion of the harvest. There is growing concern that HIV/AIDS will mean that their children will be unable to provide for them in their old age (Mphale and Rwambili 2003). Affected households often sell assets, such as livestock, farming implements, etc., in order to pay for medical expenses and funeral costs of household members that have died of AIDS (Abbot 2002, Drimie 2002, LNVAC 2002, Mano *et al.* 2003, Mphale and Rwambili 2003, Turner 2003a). The impact of this increase in expenditure on livelihoods is that the scarce financial resources are therefore channelled away from productive activities and poured into medical related expenses, which may impact upon the well being of the entire household (Abbot 2002). The increase in AIDS related deaths has also resulted in more orphans, many of whom go to live with their grandparents, who then have to bear the economic burden (Drimie 2002, Mphale and Rwambili 2003).

The social networks that generally exist among Basotho provide support for HIV/AIDS affected households in terms of sharecropping and donations (Section 4.5). Households that no longer have sufficient labour for cultivation, but have fields, can engage in sharecropping arrangements with households that have labour and /or livestock (Mphale and Rwambili 2003, Turner 2003a). This has the benefit of allowing the household to cultivate, thereby ensuring retention of the field, and also provides the household with food that would otherwise be inaccessible. Mphale and Rwambili (2003) noted that although such sharing mechanisms are prevalent, there is an increasing mistrust of HIV/AIDS affected households because there has been an increase in these households dishonouring their contracts by selling livestock or farm implements to cover medical expenses and not alerting the contractual partners. Households without access to fields are affected by HIV/AIDS as they no longer have labour to offer in work parties therefore

affecting their access to harvests from other households. There has been an increased reliance on garden cultivation in HIV/AIDS affected households that no longer have the labour, assets or capital to cultivate fields, but gardens are said to provide insufficient harvest and when possible, households also try to enter into sharecropping arrangements (Mphale and Rwambili 2003, Turner 2003a).

HIV/AIDS is therefore both a trend and a shock in livelihoods. The general trend is increasing HIV/AIDS cases in Lesotho and therefore an increasing proportion of households will be affected by the constraints that HIV/AIDS places on households. The death of the household head, or indeed any family member, is a shock in that households need to produce capital for the funeral, or when medical expenses need to be covered, as well as the need for the replacement of the labour contribution to the household.

3.2.3.5 Declining natural resource availability

The decline in natural resource availability is linked to many of the factors mentioned above, and reference will be made to these links throughout the following discussion. Population increases have led to increased pressure on fuel sources and other wild products such as thatch grass and medicinal plants (Letsela *et al.* 2003, Workshops, Ha Mavuka 2004). The increasing population has also led to an increasing demand for arable land, which has resulted in marginal areas being converted to arable land leading to increased soil erosion (Murray 1981, Ferguson 1990, FAO 1997, Nthunya 2002). In addition, population pressure has meant that the size of arable land holdings have decreased, the result being continued pressure on the land with little opportunity for fallowing because of limited land holdings. Intensive use of arable land has compounded the problem of soil erosion because the soils are generally thin, unfertile and erodible and this, combined with the steep terrain, has led to increased soil erosion in much of Lesotho (Wellings 1986, Green 2000, Pule and Thabane 2004). Approximately 0.25 % of arable land is lost every year to erosion and by 1996, 32 % of households were landless as a result (Pule and Thabane 2004). The interlinking relationship between population growth, cultivation and erosion therefore forms a self perpetuating cycle, i.e. increased population has meant increased cultivation, which has led to increased erosion, which results in

losses of arable land and therefore the conversion of marginal lands for cultivation resulting in further erosion.

Soil erosion is also exacerbated by the excessive removal of wood and shrubs for fuel (Mphale *et al.* 2003) and by overgrazing of the rangeland (Chakela 1999, Gay and Hall 2000, Green 2002, DAO 2002). In a study of 16 villages, environmental degradation was ranked among the greatest problems faced by farmers in the Qachas Nek district (DAO 2002). Degradation, in the form of various types of erosion has impacted upon rangelands and arable fields, and its increase has been attributed generally to poor range management (DAO 2002). This can be compared with a survey conducted in the lowlands and foothills in two districts by Gay (1984) in 1977, in response to the general perception that Lesotho was heavily eroded. It was found that soil erosion and degradation were not perceived to be significant problems for the farmers interviewed. This suggests one of three things: 1) that soil erosion has worsened over time and is now perceived to be more of a problem than in the past, 2) people have been made more aware of the problems associated with soil erosion, or 3) erosion may not have been regarded as a problem because people relied primarily on remittances, with agriculture being secondary.

Lesotho has been regarded as heavily overstocked for the better half of a century. By the 1970's there was widespread concern, and it was estimated that the country was between 200 % and 300 % overstocked (Chakela 1999, Turner 2004). However, it has since been determined that these estimates did not take crop residues into account, which are a vital source of fodder. The current estimate is that Lesotho is only 17 % overstocked (Turner 2004). As a result of the perceived overstocking and resultant overgrazing, USAID initiated Range Management Projects (RMP) in Lesotho, the pioneer project being in Sehlabathebe (Section 3.3.2.2). The increase in stock theft has been one of the many factors that caused the RMP to collapse. Stock owners are not prepared to send their stock to the distant pastures because of the threat of theft, and as a result, the pastures closer to the villages are put under increasing pressure (Kynock and Ulicki 2000, Workshop, Ha Mavuka 2003). The rise in stock theft is therefore contributing to natural

resource decline in some areas because the increased pressure on the rangelands around the village led to degradation.

Households in Lesotho have traditionally relied on freely available fuel sources such as wood, shrubs and dung, but the availability of natural fuel sources has diminished over time due to increased population pressure and therefore increased demand (Letsela *et al.* 2003, Turner 2003a). The Sehlabathebe area is a grassland area (Section 2.2.3) and trees, although present, have never been abundant and as a result semi-woody species and even grasses are used for fuel (Letsela *et al.* 2003, Matela 2003). Looking at Lesotho as a whole, less than one percent is under forest cover (Chakela 1999). Due to the limited naturally available fuel sources, dung is an important source of fuel for households in Lesotho. The use of dung and crop residue for fuel has implications for the condition of the land because the organic matter is not being returned to the land (Wellings 1986, Chakela 1999, Mphale *et al.* 2003, Turner 2003a). Anyone is permitted to collect dung or crop residue on the fields after the harvest and on the rangeland, and therefore even those without livestock have access to these resources. The shortage of fuel wood available has also meant that not only dry wood is used, branches are cut from live trees and juveniles are also cut down for fuel thereby possibly hampering their growth and regeneration (NES 2000).

Fuel collection is traditionally the domain of women and is also particularly important to poorer households as they have limited cash to spend on purchasing fuel such as paraffin, gas, coal or electricity (Turner 2003a). The scarcity of natural fuel sources therefore has implications for the poor and for women, as they have to spend a large majority of their time in search of fuel (Kynock and Ulicki 2000, Turner 2003a), and therefore have less time to devote to other tasks such as tending to gardens and fields. According to the participants in a workshop in Ha Mavuka, paraffin use has increased over the years, and this use is correlated with a decline in the availability of wood, shrubs and dung (see Table 4.5). According to NES (2000) traditional fuels, i.e. wood, shrubs, dung and crop residue meet 76 % of Lesotho's energy demand.

Forestry initiatives started in the 1930s as a way to address the ever depleting vegetative cover. Tree planting initiatives were intensified in the 1940s, with minimal success, as there was little guidance during planting and no protection of the trees afterwards (Chakela 1999). In addition, the mandatory opening of fields to grazing after the harvest makes it almost impossible for people to grow trees in fields (Habitat 1993). There have been few successful attempts at afforestation and the establishment of woodlots as a means to address the shortage of fuel available, one such venture was the Lesotho Woodlots Project (Richardson 1984, Habitat 1993, Chakela 1999). Many forest programmes have not been successful because of a lack of clarity as to who owns the woodlots, and this is often subject to dispute (Ferguson 1990, Kakonge 2002). Afforestation would not only provide fuel sources, but in addition would serve a function in soil stabilisation and therefore erosion control and provide wood for construction (Chakela 1999, NES 2000, Nthunya 2002). However, according to NES (2000) there has been limited tree planting because it reduces the area available for grazing, and in addition livestock often trample or eat the seedlings. Lack of capacity, knowledge and support, as well as poor availability of seedlings have also been cited as reasons for failed tree planting initiatives (Chakela 1999, NES 2000). Therefore, it is apparent that although there is a dire shortage of fuel, there has been little or no success in afforestation initiatives.

Fire has been used as a rangeland management tool for centuries in Lesotho because it is believed that the areas that have been burned will produce better pastures in following seasons (Letsela *et al.* 2003). Fire is a well documented means of rangeland management (de V. Booysens and Tainton 1984, van Wilgen *et al.* 1997, Gambiza *et al.* 2005). It can be used to suppress natural plant succession and to ensure a high quality water yield by reducing transpiration (Chakela 1999). However, if incorrectly used fires can be detrimental to grasslands, for example, according to Mills and Fey (2004) frequent fires promote crusting of the top layer of soil which can then lead to increased run off and therefore a drier soil climate and sparser vegetation. Fires are often started by livestock owners in an attempt to improve the rangeland, but this is not always successful or correctly managed. In addition, unmanaged fires also affect the availability of other

resources such as thatch grass, medicinal plants, shrubs for fuel, etc. (Mphale and Rwambili 2003). The respondents in both the workshops and household interviews perceived burning as one of the key reasons for the decline in availability of certain resources (Section 4.2.3.2 and 4.2.4.5).

3.3 Transforming structures and processes

Transforming structures and processes are the institutions, organisations, policies and legislation at multiple levels that shape livelihoods (DFID 1999). This section describes these processes and structures, which include the land tenure laws and formal institutions, and the key government policies that have impacted upon rural livelihoods. The informal institutions operating in Ha Mavuka are discussed in the following chapter (Section 4.5). Many of the structures and policies that have affected rural livelihoods in the past 30 years have their roots in Lesotho's colonial past, and indeed before then. An example is the land tenure system and its associated institutions, based on the Laws of Lerotholi, which were developed before colonialism and have played an integral role in shaping rural livelihoods.

3.3.1 Land tenure, laws and intuitional factors

Land tenure in Lesotho is largely communal. According to the customary land tenure laws, known as the Laws of Lerotholi, land belongs to the Basotho nation as a whole, and access to land is the birthright of all Basotho (Green 2000, Letsela *et al.* 2002b, Selebalo 2002). However, land is only allocated to males and women cannot be allocated land. There is no private ownership of land in rural Lesotho, a person is granted individual usufruct rights over a residential site and supposedly sufficient arable land to meet ones subsistence needs. Arable land is used on an exclusive basis by individuals for cultivation, but after the harvest the land reverts to communal land for grazing of the crop residue (Mosaase 1982). Each household has rights to grazing land, which comprises all land that is neither used for cultivation or settlement (Makhanya 2004), and therefore grazing land is a communal resource.

Traditionally, land was held in trust by the King and his powers of allocation were entrusted to the principal chiefs around Lesotho. The chief was traditionally responsible for the allocation of new residential and arable sites, as well as the management of the common property resources such as grazing land, thatch grass, trees, etc. (Matela and Ntlale 2000). The key means of common property management were the creation of *maboella* (singular- *leboella),* which are designated areas that are closed for use, i.e. grazing and/or the collection of resources are prohibited (MoA 1995, Nthunya 2002). Any people or animals caught trespassing in these areas were impounded or fined. Respect for the chief and the law were key to the success of such a system (Green 2000), and the chieftainship and its role is a well entrenched and respected institution (Matela and Ntlale 2000). However, this system of land allocation and management has been critiqued for not being entirely satisfactory because there were concerns about the ever increasing problem of soil erosion and land degradation, and often indiscriminate and biased land allocation by chiefs (Murray 1981, Mosaase 1982, Nthunya 2002, Pule and Thabane 2004). According to the MoA (1995), the traditional system of *maboella* is breaking down due to increased population pressure and loss of respect for traditional authorities.

Gender plays a significant role in tenure arrangements. As the land tenure system is based on customary law, in which women are considered minors, women are not allocated land and can only access land through their husbands or male relatives. Therefore, unmarried women technically have no right to own land.

New community level institutions, Village Development Committees (VDCs) emerged in the late 1960s in an attempt to increase local participation in development initiatives, but were effectively a means to enhance the ruling party's grip on village level governance (Turner 2003b). Several attempts were made to change the land tenure system after independence from Britain in 1966, such as the 1967 Land Procedure Act, the 1969 Land Husbandry Act and the Land Act in 1973. Through these laws the government attempted to gain greater control over the land, and also tried to further democratise the land allocation processes by introducing separate land committees, which were to advise the chief on land allocation (Selebalo 2002, Turner 2003b, Pule and Thabane 2004). This led

to conflict because the chiefs resented the newly formed civil authorities, and because the land committees served a largely advisory function, the chiefs disregarded them and carried on as usual, the result being that none of the new legislation was effectively implemented in the rural areas (Mosaase 1982, Pule and Thabane 2004).

The Land Act of 1979 was introduced as a means to enhance security of tenure with the intention that it would ultimately lead to increased agricultural production. The Laws of Lerotholi still form the underlying principle of the Land Act, i.e. the land belongs to the Basotho people, but it fundamentally changed the means of allocation of land. The provisions of the Land Act include: the entitlement of all adult males to residential and arable land; the recognition of inheritance rights whereby the widow and then the eldest son inherit the households' landholdings; the creation of leasehold tenure whereby landholders could apply for leasehold over their land for a minimum of ten years and could mortgage or use the land to obtain loans; and the establishment of land committees for land allocation (Kishindo 1993, Subramanian 1998). The powers of allocation were delegated to land committees rather than the chiefs, although the chiefs formed part of these committees (Nthunya 2002). The land committees consisted of members elected by the people, and through this it was hoped that a more democratic system of land allocation would emerge (Mosaase 1982). However, according to Subramanian (1998), although the Land Act diluted the power the chiefs have over land allocation, the adoption of the land committee model was not pressed and as a result, the implementation of the Act has not been that widespread. Although the power of the chiefs was theoretically decreased, much of civil society continued to consider the chiefs as the authority in charge of land allocation and management (Nthunya 2002). The role of the chieftainship is highlighted by Nthunya (2002: 138), "the chieftainship forms a strong hierarchical structure with strong social, economic and political influence. Basotho believe in chieftainship, especially the rural population; anything that is not supported by the chiefs is meaningless to them". Conflict between the committees and chiefs continued, and often resulted in natural resource management being sidelined, resulting in an open access system in many parts of the country (Lawry 1989, Letsela *et al.* 2002b).

In 1991 the Development Councils Order was passed and Village Development Councils (VDC) were re-established, and control of land allocation and resources was given to them (Matela and Ntlale 2000). The chief was to serve as chairperson, and then after an amendment was made to the Order in 1994, anyone could be elected chairperson but the chief was still to be part of the committee. It was assumed that the 'democratically' elected VDCs would be more representative of the community interests, but this system led to communities being divided along party lines, as the election of VDC inevitably became politicised (Letsela *et al.* 2002b). The system of local government was altered once again under the Local Government Act of 1997, which created Community Councils in place of the VDCs (Turner 2003b). The implementation of these councils was delayed by national level political instability such as the riots in Maseru in 1998 and the consequent delay in national elections, and the VDCs continued to operate in the interim. Finally, in 2001, the VDCs were abolished and replaced with Interim Local Authorities which consisted of nominated members and whose effectiveness was marginal (Turner 2003b).

The establishment of VDCs has complicated the relationship between the chiefs and government, created conflicts within communities, specifically because of confusion as to where the locus of power lay, and has undermined the capability of traditional leadership (DAO 2002, Letsela *et al.* 2002b). VDCs generally lack the capacity to implement development activities due to a lack of clarity about their role, the low education status of their members, their volunteer status and a general lack of resources (DAO 2002). In Ha Mavuka, the chief is still seen as the 'leader', although the VDC is involved in decision making. The ever changing structure of local government and the locus of authority has meant that not only is it "unclear how that authority is meant to be framed and exerted at the local level, but the external support framework that is vital for successful common property resource management has also become harder to identify" (Turner 2003b: 1561). In summary therefore, the establishment of VDCs led to more conflict than solutions in many places, and was often to the detriment of natural resource management. This provides an example of how policies can link to the vulnerability context and heighten the vulnerability of households.

The provision in the Land Act for inheritance of land served to reinforce the existing system whereby land was not inheritable as such, but was generally re-allocated to the deceased land owner's sons rather than re-allocated to another family. A widow retains lifelong rights to her husband's fields, and the field can only be inherited by the sons once the widow is deceased (Kishindo 1993). This theoretically provides an incentive for families to make permanent or long term improvements to the land, and thereby increase productivity (Mosaase 1982). The Land Act, because it is based on customary law, makes no provision for women to own land

Although the Land Act introduced some fundamental changes to the land tenure system, its impact has not been as widespread as anticipated. The formation of agricultural leases was intended to provide increased security of tenure to those households that wanted to improve their land holdings and invest in means to improve their yields. However, according to Subramanian (1998), by 1996 only three leaseholds had been created and the original customary tenure was still widely used in the rural areas. This suggests one of three things: 1) the implementation of the Act has been poor, 2) rural Basotho do not regard security of tenure as a constraint (FAO 1997), or 3) there is no economic reason to the lease land. Lack of access to credit has been cited as one of the reasons for poor agricultural productivity (IFAD 2001, DAO 2002), and obtaining leases would enable farmers to use the land as collateral for loans. However, the low number of leases taken out suggests that either obtaining credit is not a priority, or people have not been made adequately aware of the potential to obtain loans. This is possible in light of the low priority that has been placed on devolution and rural development in the past and the failure of countless development projects initiated in rural areas (Section 3.3.2.4). In a study conducted in rural Lesotho on whether the low agricultural productivity in Lesotho is a result of insecurity of tenure or other factors, it was found that other factors such as soil erosion, landlessness and lack of capital are the primary reasons for the low agricultural productivity (Green 2000, Pule and Thabane 2004). It therefore appears that other production and market constraints outweigh issues of security. Section 3.1 provides an outline of the factors other than security of tenure that have influenced agricultural productivity.

3.3.2 Key government policies

Policies adopted by the government can influence local livelihoods in many ways, for example, by changing access to resources, or changing the availability of necessities. This section discusses the role that policies such as the establishment of the Sehlabathebe National Park and the Range Management Programme, as well as aid, development and education policies have had on livelihoods.

3.3.2.1 The establishment of Sehlabathebe National Park

The Sehlabathebe National Park (SNP) was established in 1970 by the Government of Lesotho. The establishment of the park was a source of conflict, as 6 600ha of former cattle post land were fenced off without any consultation with the communities concerned (Ivy and Turner 1996, Chakela 1999). The establishment of the park meant complete exclusion from the area, i.e. people were no longer able to utilise the resources, which included grazing land, thatch grass, wood and shrubs for fuel, medicinal plants, etc. (Workshops, Ha Mavuka 2003). This therefore affected livelihoods in the area by denying them access to resources that they had previously relied upon, thereby decreasing the amount of resources available to a growing population. This led to great resentment from the people in the area, as well as people from further afield who utilised the land as cattle posts for summer grazing (Ivy and Turner 1996). In addition, the communities do not directly benefit from any income generated by the park (Chakela 1999). The communities responded to the creation of the park by burning the area annually for several years.

3.3.2.2 The establishment of the Range Management Programme in Sehlabathebe

The Range Management Project was introduced by USAID and the Government of Lesotho (GoL) as a means to address the perceived degradation of the rangelands in Lesotho, and aimed to better coordinate and intensify the management of the rangeland pastures (Lawry 1988). Sehlabathebe was selected as the pioneer site for intensive rangeland development in 1982. External expertise from USAID and the Ministry of Agriculture were sent to the area to establish the project, which was to include ten

villages and 33 000ha of communal rangeland, 20 000ha of which was mountain or cattle post land and the remainder sheltered valley grazing.

The RMP was to be managed by a Grazing Association (GA), which is a community based organisations that is voluntarily open to all members, initially under the guidance of the Division of Range Management (Malephane and Weaver n.d, Lawry 1988). The main premise of the RMP is that the exclusion of outsiders, as well as better controlled grazing and therefore improved livestock production and income, would make people less inclined to accumulate large numbers of stock and instead intensify and focus on quality rather than quantity of livestock (Lawry 1988, Hunter and Weaver 1993, Ivy and Turner 1996, Turner 2004). All livestock owners who wanted to utilise the project area had to pay subscription fees, which were based on the number of Animal Units (AU) owned, where one AU is five sheep or goats, or one cow or horse. The original fees were 1 AU = 1 Maloti (M), for the first 10 AU, after which there was no charge. This was later changed, because it was seen as favouring wealthier livestock owners, and the charge for livestock in excess of 10 was raised to 0.5M per AU (Ivy and Turner 1996). The rangeland was divided into four designated areas, or camps, A, B, C and D. A and C were areas at lower elevations for winter grazing, and B and D, were mountain areas for summer grazing. The camps were split between the 10 villages, six villages used A and B, and four villages used C and D (Lawry 1998, Hunter and Weaver 1996). Rotation of grazing between the seasons was to be central to the project, because before the implementation of the project there was little seasonal rotation, and many livestock owners kept stock in excess of domestic requirements in the village all year round, which had negative implications for the winter grazing areas (Lawry 1988). Membership of the RMP had benefits over and above the improvement of grazing, as the GA provided good quality bulls and rams that could be used as breeding stock, which was especially important for smallholders.

Despite being well planned and effective in theory, the success of the RMP was limited for a variety of reasons. The project became reliant on outside expertise and support, and when this was removed, insufficient capacity had been created for the project to run

effectively (Lawry 1988). This is typical of the top down strategies that have been initiated by the GoL, as little capacity was devolved and therefore the project was unable to function after the removal of external support. Similar problems were experienced in other donor funded Government driven projects such as the Thaba-Bosio Rural Development Project and the Thaba-tseka Mountain Development Project (Wellings 1986, Ferguson 1990). Large herd owners and small herd owners generally have different priorities and this was a complicating factor in the RMP. Small herd ownder often did not join the project, or if they did, did not adhere to the rotations in grazing due to either labour constraints, the cost of paying for labour or fear of theft in the mountain pastures. As a result, many kept their stock around the village all year, and this had implications for the winter grazing areas as they may have had insufficient rest to support the other herds in winter (Hunter and Weaver 1993). This can be seen now, with the increased pressure on the grazing areas around the village as a result of the increase in stock theft. Seventy five percent of all livestock owners joined the project, but this was predominantly made up of middle aged males with fairly large herds, which were built up from money earned working in South Africa (Hunter and Weaver 1993).

The RMP had the potential to be sustainable, but its typically top down technocratic nature and inability to canvass complete co-operation from livestock owners affected its success. In addition the stock theft epidemic played a large part in its failure. Many of the respondents in the workshops and household interviews felt that the project did improve grazing, and provided other benefits such as bulls for breeding, but its failure meant that the rangeland has now reverted to its original form of tenure and management by the VDC and the chief. In a survey conducted by Lawry (1988), 75 respondents were asked how effective village chiefs were in controlling grazing before the establishment of grazing regulations and it was found that just under half (44 %) felt the chiefs were not effective, 29 % said they were, and 27 % were unsure. Range management is further compounded by the stock theft epidemic, stock owners are reluctant to utilise the mountain pastures preferring to concentrate their stock in the areas around the village returning them to the village every night, which has negatively impacted the quality of

the rangeland (Green 2000, Gay and Hall 2000, Workshop, Ha Mavuka 2003, Turner 2004).

3.3.2.3 Education

Lesotho has a fairly high literacy rate, estimates range from 83 % of the population aged 15 years and above being literate (Standard Bank 2003), to 72 % of the population over 15 having completed class 4 and therefore being literate (Gay and Hall 2000). Educational facilities were established by various missionaries around 1830 and grew over time, by the mid 1900s the majority of people had attended school for at least some time, normally around four years, and a few had completed primary school, whilst fewer still had completed secondary school (Williams 1971, Gill 1993). By independence in 1966, Lesotho had one of the highest literacy rates in Africa and most people had basic reading and writing skills in Sesotho, and basic numeric skills (Gill 1993). In the post independence era, the number of schools and learners continued to grow, although the trend of the majority only gaining a few years of primary school persisted. Approximately 50 % of children in Lesotho enrol in Form A, although this figure is lower in the more remote mountain areas (Ansell 2004). The low enrolment can also be attributed to the prohibitively high school fees of secondary schools (Bardill and Cobbe 1985, Ansell 2004). The pass rate in many secondary schools is low and this serves as a disincentive to part with scarce resources to send children to secondary school (Bardill and Cobbe 1985). There are higher numbers of females in schools at all levels, and this is because boys are expected to herd the family's livestock (Williams 1971, Ansell 2004). Gay and Hall (2000) estimate that 60 % of males are literate compared to 83 % of females.

The government has traditionally subsidised education through the payment of salaries, providing administration, etc., thereby decreasing school fees. However, even with subsidies, many households cannot afford school fees, and it is the lower income households that drop out of school the soonest (Gay and Hall 2000). The benefits of subsidised education are therefore mostly felt by wealthier households. In 2000 the government introduced free primary education, starting with Standard 1 in 2000,

Standard 2 in 2001 and so on (Gay and Hall 2000, Lerotholi 2001). This was introduced as a means to allow all Basotho children access to primary education and to try and eliminate inequalities in access to education (Lerotholi 2001). However, there have been problems with the implementation of this system, such as the failure to deliver textbooks and stationary on time for the start of term, and delivering insufficient equipment for the number of pupils (Lerotholi 2001). This highlights that although the government has developed some good policies, the implementation problems can render such policies completely ineffective.

The free primary education has had a profound impact on livelihoods in that those who formerly could not afford to send their children to school, or who had to sell assets and live on the minimum in order to pay school fees, are now able to send their children to school. It also benefits those female headed households who provide for their grandchildren and rarely have a stable source of income. In addition, there could be the added benefit of saving resources that would ordinarily have been spent on primary school fees for use on secondary school fees, thereby allowing children to further their education.

3.3.2.4 Development and aid

Development and aid have been grouped together because they are often interlinked. Many development initiatives have been made possible by foreign aid. Lesotho has relied on foreign aid since the colonial era, and continues to rely heavily on it today. Foreign aid increased dramatically after independence, rising from approximately US $ 10 million in 1965 to US $ 100 million in 1983 (Wellings 1986). Aid was secured after independence though the governments' focus on the small size of the country, its impoverishment and its land locked nature, and that aid would be a temporary measure to start the country off on a growth path (Matlosa 1999). Due to the limited tax base and low domestic savings in Lesotho, the majority of capital investment in development projects is derived from Official Development Assistance (ODA) (Wellings 1986). According to Cobbe (1983), the average annual growth rate of domestic investment was 18.5 % between 1960 and 1970, and this figure rose to 24.4 % during the 1970 to 1979.

However, foreign aid has been on the decline, and Lesotho received the lowest total amount of ODA in 1997 (Gay and Hall 2000). The political climate in Lesotho has played an integral role in the amount of foreign aid provided. The Jonathan government in the 1970s became vocally anti-apartheid, making Lesotho a favourable destination for foreign aid (Ferguson 1990, Gill 1993, Matlosa 1999). Lesotho is no longer as favoured for foreign aid since South Africa became independent and because of the persisting unstable political situation (Matlosa 1999, Turner *et al.* 2001).

The government has initiated many development efforts over time, varying from agricultural development to road and health care facility development. Many of these developments have been driven by donor money and agendas. There has been limited success of many of these projects, but donor funding has allowed for a great deal of physical infrastructure, such as roads, water supply and woodlots, to be established or upgraded (Cobbe 1983). The declining agricultural potential of the land, as well as declining migrant numbers and increasing population, made agricultural development a priority. The general perception among government and donors was that agricultural development would set development of the whole economy in motion, and that large projects would have a trickle down effect and be instrumental in relieving poverty on the ground (Matlosa 1999). These projects were typically top down in nature, being designed and planned by those with limited or no knowledge of the situation on the ground, and were in many cases run by outside technical experts and therefore did not lead to capacity development on the ground (Wellings 1986, Matlosa 1999, Gay *et al.* 1995). As a result of this, as is symptomatic of many such projects, once the outsiders left, the projects collapsed due to a lack of technical and managerial know how (Matlosa 1999).

Bardill and Cobbe (1985) suggest that in the 1970s the growth in foreign aid to Lesotho was due to its geopolitical location rather than needs as such, and therefore aid was extensive. This relative abundance of resources meant that policy makers were not forced to make critical decisions that would have been necessary had there been less aid. In addition, development priorities were usually determined by the donors, often in line

with their agendas, and therefore were not necessarily relevant or effective (Gay *et al.* 1991, Gay *et al.* 1995).

Food aid began in the 1970s as a means to deal with the agricultural decline. Food aid was channelled into the country through the World Food Program and European Community, and was said to be a more effective means of containing rural poverty that other aid interventions (Matlosa 1999). However, there were reports of corruption and abuse of the food aid by the political elite (Matlosa 1999). Other food aid programs include the food-for-work program. Food-for-work programmes involved work on public works programmes such as donga reclamation, dam building, road maintenance, in return for food as a means to provide the poor with access to food (Gay 1984, Ferguson 1990). For 15 days of manual labour, which was predominantly carried out by poor women, labourers received payment of 40 litres of maize meal, two bottles of cooking oil, one small tin of beans and six small tins of fish and M7.50 in cash. The total value was estimated to be M38.5 (Ferguson 1990). These programmes provided a vital source of sustenance for many destitute households unable to provide sufficient food (Gay *et al.* 1991). However, the food-for-work programmes were criticised for several reasons, firstly they drew people away from agriculture thereby affecting their long term food self sufficiency (Bryson 1985, Gay *et al.* 1991). Secondly, they provided a disincentive for people to initiate or partake in environmental initiatives that did not involve receiving food, and therefore would not engage in tree planting or donga reclamation for example without remuneration (Gay 1984, Gay *et al.* 1995). Thirdly, there has been concern that the food-for-work programmes not only targeted the poor, but also the relatively well off (Bryson 1985, Gay *et al.* 1991).

Presently in Ha Mavuka, food aid is being provided to poor households on a monthly basis. Each household receives 50 kilograms of maize meal, 5 kilograms of beans/pulses and 2 litres of cooking oil (Workshop Ha Mavuka 2003). The food aid is distributed by the deputy chairperson of the VDC. According the deputy chairman, Ntate Machea, the amount of aid provided fluctuates, i.e. sometimes there will be enough for 40 households,

and sometimes enough for 20. The poor households were identified by the community during a *pitso* (community meeting), and are prioritised for food aid.

3.4 Conclusions

This chapter has outlined the macro-level factors that influence rural livelihoods in Lesotho. The political history of Lesotho has been a turbulent one, with significant periods of political instability. The turmoil and instability have not created an environment conducive for development, and the unstable national party politics have lessened the commitment and quality of government services. The lack of proper focus on the rural areas has meant that there have been little or no improvements in agricultural support. The changing economic and political climate of the region has had widespread effects. The majority of households have been involved in the formal economy for over and century, and have thus grown increasingly reliant on off farm income. The decline in job opportunities for Basotho in South Africa has not been offset by an increase in employment opportunities in Lesotho, and therefore opportunities for income earning in the formal sector have become increasingly limited. Households have responded to this by diversifying their income earning strategies and relying increasingly on informal sources of off farm income. However, migration to South Africa still remains an important strategy for many households. Cultivation has increasingly proved that it is rarely able to provide an alternative steady source of income. This declining feasibility of cultivation is due to a host of reasons including decreased land holdings and a decreased availability of arable land for newly formed households, lack of ability to obtain inputs, lack of markets and erosion. Population pressure is also a key factor in the declining natural resource base, most notably agricultural land and fuel availability. Other factors that have affected livelihoods include the increase in stock theft, which is related to the increasing unemployment and associated poverty. Stock theft constitutes a shock, as assets are lost and has led to a change in rangeland management as households increasingly utilise grazing land closer to villages and therefore increase the pressure on these rangelands. Retrenchment and the associated increase in poverty are the major driving factors behind stock theft. HIV/AIDS is a growing trend that influences both household labour availability and assets base.

Land tenure in Lesotho is communal, and access is mediated by institutions, traditionally the chiefs. The institutional context has been altered in various ways over time, often along political lines and this has led to conflict between institutions, such as the VDC and the chiefs, and confusion as to who is responsible for what. This has often been to the detriment of natural resource management. Many of the government policies that have been adopted have attempted to improve the livelihoods of rural Basotho, but their delivery, as well as the policies themselves, have been poorly implemented. This is a symptom of both the lack of development under colonial rule, and the unstable post independence climate. The Range Management Project (RMP) provides and example of this. The RMP was good in theory, but lack of capacity on the ground, participation of only certain groups and extenuating circumstances such as stock theft, meant that in practice it was not that effective. Little has been achieved in terms of poverty reduction and improving the livelihoods of the rural Basotho, in spite of poverty eradication strategies, such as Food-For-Work programme. These have been short term, top down strategies, and have had little real effect on livelihoods.

4 Chapter 4 Livelihood assets in Sehlabathebe

4.1 Introduction

The previous chapter introduced the macro-level context in which rural livelihoods in Lesotho exist and showed how these factors have influenced livelihoods. This chapter moves towards the micro level and examines the asset base of households in Sehlabathebe. The asset pentagon within the SLF enables an understanding of the assets that households are able to draw upon in pursuit of various livelihood strategies. The asset pentagon depicts five types of capital: natural, social, physical, financial and human capital, which constitute the building blocks used to construct a livelihood. The five types of capital are not mutually exclusive; certain assets can fall under more than one capital. Livestock is an example of this, livestock itself is natural capital, but the products obtained from livestock and the sale of the livestock themselves provides financial capital, and when used as draught power for ploughing fields they fall under physical capital.

Data from the household interviews and the participatory workshops were combined to provide an understanding of the asset base. Sixteen households were interviewed, with three quarters being female headed and the average household size being 6.3. This chapter outlines the assets, and how their use and availability is perceived to have changed over the past thirty years. Each capital asset is addressed individually, and the changes in availability are discussed within each section. This is followed by a discussion of the linkages that exist between various capital assets.

4.2 Natural capital

Natural capital describes the natural resources that are available livelihoods as well as the services provided by the ecosystem. Households in Ha Mavuka draw heavily upon natural capital in the form of arable fields, gardens, livestock, wild products, grazing land and water. The land tenure system in Lesotho (Section 3.3.1) plays a role in the access that households have to various forms of natural capital. Households have usufruct rights

over arable fields and residential sites, in which gardens are located, and therefore have sole access to these. Grazing land is held communally under the chief, and those living within the village have rights to utilise the rangeland, as well as collect fuel and wild resources such as medicinal plants, thatch grass, etc. Resources are generally perceived to have been abundant in the past and have declined over time, and this was mainly attributed to population increases and the resultant over use as well as declining rainfall.

4.2.1 Arable fields

The majority of households interviewed (13 of the 16 households) have fields, although not all of the fields are located in Ha Mavuka. Three households had moved to Ha Mavuka from surrounding areas such as Matebeng or Mafikilisiu, and still have fields in those areas. Three households do not have access to arable fields at all. Of the 13 households that have fields only four use them every year, four do not use them at all and five use them only when they have sufficient inputs. Bad soil and lack of inputs such as labour, seeds and livestock for ploughing were cited as the main reasons why households did not cultivate their fields, but this can be overcome by entering into sharecropping arrangements with other households that have the necessary inputs and the harvest is then shared. Most households cultivate for purely subsistence purposes, and only two of the nine households that plant regularly produce a surplus, which they then sell locally.

4.2.1.1 Changes in arable fields

To determine the changes in the asset base a matrix was constructed in a workshop using dates selected by the participants on one axis and various attributes of fields on the other axis. Counters were placed on the matrix, with five indicating the highest/ greatest and zero indicating the lowest. Table 4.1 below outlines the outcomes.

Table 4.1 Changes in arable fields

	1981	1993	2003
Quality of soil	5	5	2
Amount harvested	1	5	2
People with fields	2	3	5
People planting their fields	5	4	3
Allocation of fields to boys when married	4	3	1

According to the participants the average field is approximately 72 m x 60 m (4 320 m^2), which is just over one acre (1 acre = 4 049 m^2), and this size has remained constant over time. The quality of the soil remained constant until 1993, after which there was a decline (Table 4.1). According to the participants, the soil started going 'bad' in 1997, it became 'sour', due to over use. The participants perceived rapid changes in weather, wind and rain in 1997, the result of which was the loss of topsoil. According to the participants, the decrease in the quality of the soil has led to declining harvests. However, declining yields could have resulted in the perception that there has been a decline in soil quality. The amount harvested from the fields is closely linked to the weather condition of the year in question. The poor harvest in 1981 (Table 4.1) was attributed to a bad drought in that year which affected the harvests. In 1993 there were good harvests because there were good rains that year. The poor harvests in 2003 are attributed to the decline in the quality of the soil and poor rains.

The number of people with fields has increased over time because of the increased population in the area. There has therefore been an increase in the number and area of fields cultivated, but field size has remained fairly constant, and consequently the total area under cultivation has increased. When the village was established the best areas of land were selected for cultivation, but the increasing population has meant that more marginal areas are being cleared for cultivation and these are often part of the rangeland and are further from the village. The number of people planting has decreased steadily over the years (Table 4.1). According to the participants, almost all those who had a field planted their field in the past, but fewer households cultivate now because of stock theft. Stock theft affects the ability to cultivate because livestock are used for draught power.

Stock theft is said to have became a real problem in the area in 1996, before which the number of households owning livestock was much higher than the present, where only half of the households own livestock. A means to overcome the shortage of draught power is to enter into 'contracts' (sharecropping arrangements), which vary in nature (Section 4.5.1.1), but allow people access to the resources they lack, which may be labour, draught power or inputs. There has been a decrease in the availability of arable fields for young men when they get married (Table 4.1). The participants attributed this to population growth and as a result most of the available field sites are already allocated. The participants mentioned the traditional land tenure laws (the Laws of Lerotholi) saying that if one does not plant one's field for two years the chief can reclaim it and re-allocate it to someone in need of a field. This, like many other laws, is not widely implemented due to poor capacity (DAO 2002). However, according to Spiegel (1980), the threat of having ones land reclaimed was threat enough to force people to plant at least every two years to ensure continued access. In the past, each household was allocated three fields, but since 1965 this has been reduced to one field per household due to land shortages. However, some of the households had more than one field. According to the participants the eldest son in a family inherits his father's fields when both parents have passed away.

4.2.2 Gardens

Garden cultivation is a widespread activity in Ha Mavuka, with all of the households in the sample planting a garden in the homestead plot. All of the households interviewed grow more than one vegetable a year, the mean number of vegetables being 3.8 ± 1.4. Turnip is the most widely planted crop, followed by potatoes and cabbage (Table 4.2). Just under half of the households grow maize, and a third plant spinach and carrots. Few households plant pumpkin, beetroot, fodder and peas. Vegetables are generally grown solely for household use, as only five households in the sample sell vegetables regularly, provided they produce a surplus and depending on the weather conditions that year. Produce is sold within the area on an ad hoc basis. Participants in the workshops said that they had not always planted gardens, they only started planting gardens in their homestead plots in the 1960s and 1970s. Before this they relied on arable land.

Table 4.2 Vegetables grown in gardens in Ha Mavuka

	Number of households (n=16)
Turnip	15
Potatoes	11
Cabbage	11
Maize	7
Spinach	5
Carrots	5
Beetroot	3
Pumpkin	2
Fodder	1
Peas	1

Figure 4.1 A typical garden in Sehlabathebe

4.2.3 Livestock and poultry

Three quarters of the households interviewed do not have any livestock (cattle, sheep, goats, horses or donkeys). Three households have cattle, but all have fewer than six head; and two households have sheep, one has 20 and the other has 71. Two households have horses. Livestock theft in the area was cited as the main reason why most households do not have livestock. Almost all of the households (13) said that they had had livestock at some time; but most (10) no longer had livestock because they had been stolen, two had

sold or slaughtered them, and one had used them for bridewealth payments. According to the chief of the village 18 out of the 79 households (23 %) in Ha Mavuka have livestock, and of those households only 11 (14 %) have cattle (Morena Makhaola pers. comm.).

All but one of the households owned poultry, with the mean number being 8.5 ± 7.8. Three of the households were unable to provide the number of poultry held, therefore the mean number excludes these three households.

4.2.3.1 Uses of livestock

Livestock serve a variety of purposes. Cattle are used for draught power to plough fields, sold in times of need for cash, slaughtered for feasts and funerals, slaughtered for meat, milked, and provide dung for fuel, manure and building. Participants in the workshops said that livestock are important because there are few jobs available and the sale of livestock provides an important source of income. Cattle that are slaughtered for rituals, feasts and funerals are shared with everyone in the village, while those slaughtered for meat are usually only shared with friends and family, although this is said to happen rarely. Rituals and feasts are therefore a mechanism through which households without livestock can benefit and have access to meat. Interestingly, although all households interviewed stated dung as an important source of fuel, none mentioned it as an important use of livestock. This could be due to the fact that very few of the households currently own livestock.

Sheep provide households with valuable income from the sale of wool, and are also slaughtered for meat. Donkeys and horses are primarily used for transport, of both people and goods. Poultry provide eggs for household consumption and for sale, are slaughtered for meat and are sold for cash in times of need.

4.1.1.1 Changes in livestock and grazing

A matrix was constructed to show how livestock ownership and grazing quality and quantity had changed over the past 30 years (Table 4.3). Dates chosen by the participants

were placed as columns, and variables relating to livestock and grazing in rows. Counters were placed on the matrix, with five being the highest and zero the lowest.

Table 4.3 Changes in livestock and grazing

	1964	1970	1983	1987	1996	2003
Number of people with livestock	3	4	5	4	3	2
Number of livestock	3	4	5	4	3	2
Quality of grazing	5	5	5	3	3	3
Quality of animals	3	5	5	3	5	3
Quantity of grazing	5	5	4	3	4	2

Relatively few households had livestock in 1964, and according to the participants, those that did had large herds (Table 4.3). Many animals were killed that year due to heavy snows. In 1970, more people had livestock, and by 1983 most people owned livestock. The number of people with livestock decreased after 1987 because of stock theft, which became particularly problematic in 1996, hence the further drop in livestock numbers until 2003. The decline in quality of grazing (Table 4.3) was attributed to drought and an increase in wild fires. It is interesting to note that the decrease in quality of grazing land in 1983 coincides with the establishment of the Range Management Project (RMP) in Sehlabathebe. The wild fires were said to be often started by people in the area for a variety of reasons: they were not part of the RMP and were therefore jealous and burnt the pasture; they wanted green grass which grows after a fire for the lambing season; and finally, fires set in the park often spread to the grazing land. According to the participants, the quality of animals depended largely on whether there were extreme weather conditions. As can be seen from Table 4.3, the quality of animals fluctuated, with the 1964, 1987 and 2003 being comparatively low. In 1964 there was heavy snow, in 1987 there was heavy rain, and in 2003 a drought. When compared with the changes in quality of grazing (Table 4.3) it can be seen that the changes in the quality of the animals are not perceived to be specifically correlated with the changes in grazing land, and 1996 provides an example of this. In 1996, the quality of grazing was perceived to be fairly poor, yet the quality of animals was perceived to be high.

The quantity of grazing was high until 1983, after which it declined and has remained constant (Table 4.3). The respondents indicated that until 1983 there were many pastures but they decreased after 1983 because the RMP introduced 'start' pastures, which were areas designated for bulls and no other livestock was allowed to graze there. Three of these 'start' pastures, of 2 km x 4 km in size, were set up. The participants did not think that these pastures put more pressure on the other grazing land. After 1996, when stock theft worsened, people did not want to send their animals to the distant pastures in the mountains and preferred to graze their animals closer to the villages. This apparently negatively affected the grazing land around the villages because there were too many animals and not enough land. They said that the RMP is no longer functional, and people no longer use the designated grazing areas set out by the RMP. Four designated pastures were set up under the RMP, two in the mountains (pastures B and D) and two in the lower areas nearer the village (A and C). The pastures were divided between the villages, i.e. half of the villages had access to pastures A and B, and half to C and D (Section 3.3.2.2 for more details on the RMP). The participants noted that the one pasture was especially close to the villages and this is now used far more that the other pastures, and as a result the quality of this pasture has decreased. However, they also said that the increase in stock theft has meant a decrease in the number of animals in the area and this has meant an increase in the availability of grazing land in general, but the pastures close to the villages are under stress. People do, however, still utilise the pastures on the nearby foothills and mountains. Therefore, although there has been a decline in the number of animals in the area, external factors, i.e. stock theft, have meant that certain pastures are under more stress than in the past.

4.2.4 Wild resources

Wild resources that are available on communal land are free for use by all members of the community. A list of resources that are used frequently used was drawn up by the workshop participants (Appendix 1). Species with similar changes in availability were grouped together by the participants. A wide range of resources are used for various purposes.

4.2.4.1 Fuelwood and shrubs

Fuelwood and shrub availability is generally perceived to be on the decline, as most of the species listed had shown drastic decreases since 1970 (Table 4.4).

Table 4.4 Changes in availability of wood and shrubs for fuel

	Species	**Preference**	**1970**	**1980**	**1990**	**2000**	**2004**
Group 1	*Moqhobo-qhobo* *Rapesi*	5	5	5	4	2	1
Group 2	*Sethaba-mutla*	4	5	5	4	3	1
Group 3	*Aster filifolius* *Chrysocoma tenuifolia*	3	5	5	2	1	0

(see Appendix 1 for the remaining Sesotho names)

With regard to species preference for fuel, *moqhobo-qhobo* and *rapesi* (Group 1) are the most preferred species, followed by *sethaba-mutla*, then *Chrysocoma tenuifolia* and *Aster filifolius* (Group 3) (Table 4.4). However, only the species in Group 3 are found in close proximity of the village compared to the other species, which are found further away. They are the least preferred species because they are quick burning. The species in Group 1 are both found near Ha Moshebi, one of the villages in the Sehlabathebe area, approximately 10 kilometres from Ha Mavuka, but they are still available. Their relatively high abundance in 1970 was attributed to low population numbers, and it was said that even though people from other villages such as Mafikilisiu, Mpharane and Ha Moshebi were all using them, their abundance was still high. The decrease by 1990 is attributed to the increase in population in all the villages causing pressure on the resources. By 2000 there was a drastic drop because people moved here from other areas, started to build here, and were therefore also using the resources. The further decrease from 2000 to 2004 is also attributed to population increase and to over use. They said most of the mature specimens have already been used and the existing stock consists mainly of juveniles, and these are still being used. The changes in *sebotha-mutla* (Group 2) follow a similar pattern to those above in that the steady decline in availability is attributed to population growth in both the areas that they are found and in the areas that utilise these stocks of resources. They are located further away than the other species and are therefore harder to obtain, but can be bought from people who live in the area where

they are found. The decline in availability after 1990 is said to be due to the increase in sale of the resource.

The species in Group are more readily available, and are found in and around Ha Mavuka. In 1970 they were abundant, and the time spent collecting them was minimal, approximately five minutes. Growth in the population of the village in the 1980s and therefore an increase in the amount of people utilising them led to a further decline. The decline in availability was more rapid than that of Group 1 (Table 4.4) because of their close proximity to the village, and therefore ease of collection. Collection time at this stage had increased significantly to approximately 30 minutes. The further decline by 1990 was said to be due to the increase in population and the frequent burning of grass, which started in the 1990's. Collection time had tripled to an hour and a half. In 2000 there were very few specimens available and the participants attributed this to the establishment of the park. They said that there was little land available for collecting wood and the park decreased this land. At this stage collection time was up to two hours, and it was no longer available in the same places. No counters were placed under 2004 because they said that it was no longer available around Ha Mavuka and that one has to go to Matebeng (approximately two hours away) to collect them. Until this year small specimens could be found in the area, but not any longer.

A possible reason for the perception that the establishment of the park was responsible for the decline in resources in 2000 is that although the establishment of the park resulted in a loss of land and resources at the time, resources were still relatively plentiful and were available in other areas. Now that there has been a general decline in resource availability, it is possible that the participants resent the park and its comparatively abundant resources. In other words, the loss of resources and land in the park only became a serious problem once the resources in the surrounding area had declined so greatly.

4.2.4.2 Fuel for cooking and heating

Households used both freely available resources such as dung, wood and shrubs, and bought sources such as paraffin. All of the households interviewed use dung for fuel. The four households that have livestock collect dung from their kraals, and the remaining households collect dung from the communal grazing area and fields. Most households (13) use shrubs or bushes for fuel. Reasons given for not utilising shrubs and bushes included old and age and injury. Such households did collect in the past.

During a ranking exercise the different fuel types available were ranked in order of importance. Wood and dung were ranked as most important, followed by shrubs and lastly paraffin. Wood and dung were the preferred fuel type because they are free resources and because they burn for longer.

A matrix was used to show how fuel use has changed over time, with five being the highest and zero the lowest (Table 4.5).

Table 4.5 Changes in fuel type used

Fuel type	**1970**	**1980**	**1990**	**2000**	**2004**
Dung	5	5	4	2	1
Wood	5	5	3	2	1
Shrubs	5	5	4	2	1
Paraffin	2	3	4	4	5

Dung has always been an important source of fuel; the respondents said that dung was used by their parents when they were growing up. In the 1990's the amount of dung available started decreasing because of the increasing stock theft. The further decline in dung availability is said to be due to the concomitant rise in stock theft. The increase in population since the 1990's was also said to be contributing to the decreasing availability, as more people were relying on an already decreasing fuel source. Wood and shrubs were generally found close to the village and were plentiful. Their availability started to decline in the 1990's due to population increases, which meant that more people were using the same amount of resources. The further decline until the present was also said to be due to population increases. Paraffin use has steadily increased over the years. In the

1970's few people used paraffin, and it was mainly used for lighting rather than for cooking. This was because there were sufficient freely available fuel sources. In the 1980's there was an increase in the amount of people using paraffin because it was convenient and easy to use, and relatively inexpensive. The increase in use from the 1990's to the present is mainly attributed to the decrease in the other types of fuel available in the area. The participants said that most people use paraffin occasionally, and had other fuel types not declined so much, the use of paraffin would not be as prevalent. When compared with the perceived amount of fuel available (Table 4.4) it can be seen that the declining use of fuelwood and dung, and the increasing use of paraffin is correlated with the declining availability of fuelwood.

Figure 4.2 A pile of dung 'bricks' to be used for fuel in a homestead in Ha Mavuka

4.2.4.3 Wild vegetables and herbs

Most households (11) use wild vegetables in their diet in the summer months when they are available. Three households do not use them at all, and two do not use them because they are unable to collect them due to old age or injury. According to the participants in the workshops, most wild vegetables and herbs are still readily available today, but there has been a decline in the availability of one species. Species with similar changes in availability were grouped together by the participants.

Table 4.6 Changes in the availability of wild vegetables and herbs

	Species	**1970**	**1980**	**1990**	**2000**	**2004**
Group 1	*Amaranthus paniculatus* *Chenopodium album* *Lepidium capensese* *Senecio geradii* *Sisymbrium thellungii* *Urtila dioica*	5	5	5	5	5
Group 2	*Lehanasoana,* *Mabere botlolo,* *Seshoa bohloko*	2	2	2	2	2
Group 3	*Rorippa nudiscula*	5	4	3	1	0

There has been no change in the availability of the species in Group 1 or Group 2 (Table 4.6), they are still abundant and are found in the gardens and around households. Group 2 consists of species that are very bitter or acidic and therefore have never been widely used. If they are used they are mixed with *papa* (maize meal) to dilute the bitterness. The participants said that they are not plentiful, and never have been; the availability has stayed the same because not many people use them.

Rorippa nudiscula was abundant in 1970, and was found close to the village. In 1980 there was a decrease, which was attributed to a decrease in rainfall because it grows near water, i.e. near rivers or springs, and the decrease in rainfall meant a decrease in water in these sources. The decreases from 1990 to the present were also attributed to a decrease in rainfall. When asked why it is no longer found because although rainfall has decreased, it has not ceased and there is still water in the rivers, the participants said that *Rorippa nudiscula* needs a lot of moisture and due to the decrease in rainfall there is less water in the rivers, and this amount is not sufficient for it to grow (see Section 4.2.5.1 for a discussion of rainfall data).

4.2.4.4 Wild fruit and berries

These are predominantly eaten by children, although adults do eat them occasionally. Their availability is not perceived to have changed, and they are therefore still readily

available around the village. The participants said that the reason that the availability has not changed is because they are found on the bushes that are not used for fuel.

4.2.4.5 Medicinal plants

Seven of the 16 households interviewed use medicinal plants regularly. To determine whether there was a time when more people utilised medicinal plants a matrix was used in the workshops.

Table 4.7 The change in the amount of people using medicinal plants

Date	**1970**	**1980**	**1990**	**2000**	**2004**
Number of people using medicinal plants	5	4	3	2	1

The table shows a clear decline in the use of medicinal plants over time, with less people presently using them. According to the participants, there are two main reasons for the decline in use after 1970, firstly the churches did not sanction the use of traditional medicines, and secondly, clinics were recently established in the area. The participants said that after clinics were set up in 1960/1970, many people thought that medicine from the clinic was better than traditional medicine. The participants were divided on their opinion of clinics versus traditional medicines, with half of the group promoting the use of clinics because "if a small child is sick then you have to go to the clinic because traditional medicines are not good enough". The other half of the group disagreed, saying that traditional medicines were more effective. The decrease from 1990 to 2004 was attributed to the growing popularity of clinics and western medicine, and the declining number of people using traditional medicines. The participants felt that youth of today know little about traditional medicines. They said that their children generally have some knowledge, but their grandchildren do not, they do not want to know, they would rather go to the clinic.

The most widely used species of medicinal plants were decided upon by the participants in the workshop and a matrix constructed to map the changes in availability. Species with similar changes in availability were grouped together by the participants (Table 4.8).

Table 4.8 Changes in the availability of medicinal plants

	Species	**1960**	**1970**	**1980**	**1990**	**2000**	**2004**
Group 1	*Artemisia afra* *Helichrysum odarotissimum*	5	5	5	5	5	5
Group 2	*Boloa* *Kahamakhamane* *Helichrysum caesepitium* *Lehlokoana ba tsela* *Lesoko* *Letapisa* *Mothethebala* *Mohalakhane*	3	4	4	4	5	5
Group 3	*Phela*	5	5	5	4	3	1

The species in Group 1 (Table 4.8) have always been abundant and are found near the village, there has been no change in their availability. There has been an increase in the availability of the species in Group 2. Apparently, these are widely utilised species, but their availability has still increased. *Phela* were abundant until 1980, and were found close to the village. The availability began to decline in the 1990s because people from elsewhere were harvesting in the area. This was also the cause of the further decline by 2000. *Phela* only grows in specific places and the increase in collecting has negatively affected its availability. The large decrease in 2004 was said to be because of an increase in people coming from other areas, as far as Maseru, to collect in this area. It is said to be an important medicine so people are willing to travel long distances to get it. Therefore, overall there has not been a drastic decline in the availability of the medicinal plants listed by the participants, with the exception of one.

4.2.4.6 Thatch grass

Thatch grass provides an important resource to households in the area. Houses traditionally have thatched roofs, but there has been an increase in 'modern' houses with tin roofing. However, thatch grass is still an important resource for those establishing households, and for the maintenance of roofing. The changes in availability of thatch grass were shown on a matrix (Table 4.9), and species with similar changes in availability were grouped together by the participants.

Table 4.9 Changes in the availability of thatch grass

	Species	**1960**	**1970**	**1980**	**1990**	**2000**	**2004**
Group 1	*Hyparrhenia pilosissima* *Hyparrhenia hirta* *Lehlaka*	0	0	0	0	0	0
Group 2	*Eragrostis chloromelas* *Ficinia gracilis* *Miscanthus capensis* *Seteroi*	5	5	5	4	2	2

The species in Group 1 (Table 4.9) are the preferred species for thatching because they grow tall and are long lasting, but are scarce or unavailable in the area and are bought at a high price from elsewhere. The availability of species in Group 2 is perceived to have decreased. Until 1980 they were plentiful and were collected from around the fields, and in the valleys (particularly *Ficinia gracilis*). The decline in 1990 (Table 4.9) was attributed to a decrease in rainfall and the increase of burning. According to the participants, burning affects availability because although the grass will grow back after it is burnt, it is not as vigorous and will not be tall enough to use for thatching. The decrease by 2000 was also said to be due to burning and a decrease in rainfall, as well as due to animals eating these grasses. Presently there is very little available, the participants said that it would take about three years to collect enough grass to thatch a new roof. Many people now patch up their thatch with plastic instead. If one has enough money to buy *Hyparrhenia pilosissima* or *Hyparrhenia hirta* then it would not take as long as three years, this is because the other species are shorter and therefore more has to be used. Thatch grass is only found in winter. They never used the park area to collect thatch grass because there was always enough available around the village.

4.2.4.7 Bushmeat

To determine what role wild animals played in rural livelihoods, participants were asked to list the wild animals that were found in the area and show how their availability had changed over time using a matrix. Those with similar changes in availability were grouped together by the participants (Table 4.10).

Table 4.10 Changes in the availability of bushmeat

	Species	**1960**	**1970**	**1980**	**1990**	**2000**	**2004**
Group 1	Dassie Hare Mountain reedbuck Rabbit Springbok	5	4	3	2	1	0
Group 2	Porcupine Water mongoose	3	2	2	1	1	1
Group 3	Jackal	2	2	2	2	2	2

In the 1960s the species in Group 1 (Table 4.10) were plentiful and were found around the fields and near the river. The participants said that they ate them approximately once a month. Hunting was primarily carried out by men and children. By 1970 there was a decrease and this is attributed to the establishment of the park. People used to hunt both inside and outside the park but after 1970 they were limited to the area outside the park. The further decline by 1980 was attributed to the inaccessibility of animals in the park, and the decreasing number of animals around the village due to their utilisation by people in the village. By 2000 very few wild animals were available and this was attributed to the fact that "the animals had run away because they were scared of the people". Presently there are none or very few available and this is said to be because the animals all moved into the park and they are not permitted to hunt them. When asked whether some people go into the park to hunt illegally, and they said that they do not know. This perception could possibly have been influenced by the fact that an employee of the SNP was acting as the translator for this study.

The species in Group 2, water mongoose and porcupine, are both still available but very hard to find, hence their very low ranking. Their decline over the years is attributed to their utilisation. Jackal were never used by the participants so they were therefore unsure about the change in availability, but perceived them to have remained constant (Table 4.10). It was noted that they are occasionally killed by stock owners because they kill livestock. None of the participants used wild cat and skunk, and said that their availability had declined because they were being hunted so went to the park area. Buffalo and monkey have not been found in the area since the 1960's.

4.2.5 Water

Water is essential for a myriad of activities, as well as providing and maintaining essential ecosystem services. Service provision in the rural areas of Lesotho has generally been poor, especially in the remote mountain areas. As a result, taps have only recently been introduced to the area, before which people relied on rainfall, rivers and springs.

4.2.5.1 Rainfall

The majority of the households interviewed (ten) said that rainfall has decreased over time, one household said that it rained later now than in the past, and five were not sure. In the workshops, the participants were asked whether the quantity of water had changed over time and they said that the amount of water had decreased because there is less rainfall now than in the past. These perceptions were cross-checked with rainfall data from the Lesotho Meteorological Services. There is a weather station within Sehlabathebe National Park, approximately four kilometres from Ha Mavuka, and measurements are taken daily (Figure 4.3).

The mean annual rainfall for the period between 1975 and 2003 is 772 mm (±132 mm). According to the DAO (2002) the mean annual rainfall for the Qachas Nek district for 1995 and 1996 was 640 mm, which is 17 % lower than the Sehlabathebe average of 795 mm for those two years. The annual rainfall figures for Sehlabathebe have fluctuated greatly in the past 30 years (Figure 4.3). The highest rainfall within this period was experienced in 1976 and 2000, with over 1 000 mm in those years (Figure 4.3). There have been several periods of comparatively low rainfall, with 1992 experiencing the lowest annual rainfall of 413 mm, followed by 1994, 1993 and 1990 respectively. Fifteen of the 28 years experienced below average (i.e. 772 mm) rainfall. Of these fifteen years, there were generally consecutive drier years, with the exception of 1988. These drier periods were 1981-1984 and 1990-1994. However, although the rainfall has fluctuated greatly over time, the general trend is not one of decreasing rainfall ($r^2 = 0.04$). There is a clear rainy season in Sehlabathebe as it receives the majority of its rainfall between November and March.

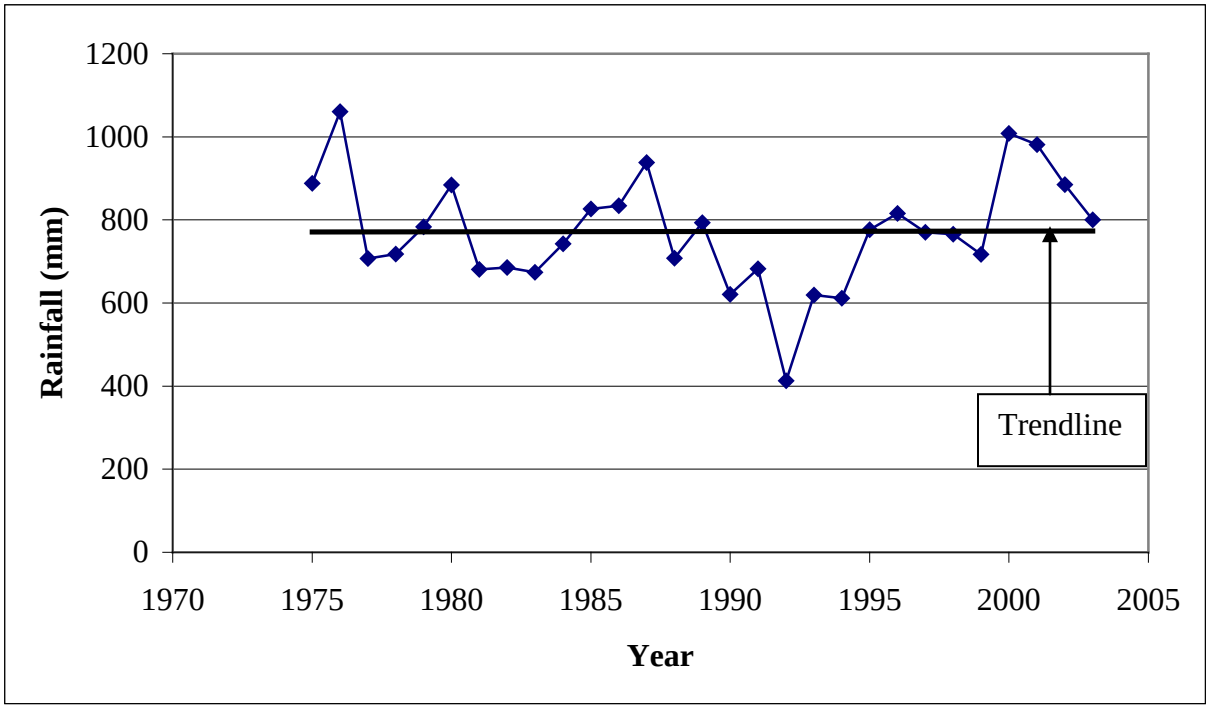

Figure 4.3 Mean annual rainfall figures from Sehlabathebe
(Data adapted from Lesotho Meteorological Services rainfall data for Sehlabathebe 2004)

4.2.5.2 Water sources and uses

The participants in the workshop were asked to detail the sources of water in the area and the uses of water at present and for 30 years ago. This was carried out to establish how the use of water sources has changed and why.

Table 4.11 Present and past water sources and uses

	Source	Cooking	Laundry	Drinking	Animals	Gardens	Building
Present	River		**5**		**5**	**5**	**5**
	Spring	**4**		**4**		**4**	**4**
	Tap	**5**		**5**			
Past (30 years ago)	River		**5**		**5**	**5**	**5**
	Spring	**5**		**5**		**4**	**4**
	Tap						

River water is not used for drinking or cooking (Table 4.11) because it is said to be unclean, and contains germs and diseases. River water is primarily used for laundry, watering gardens and building. Water is collected from the river in drums and hauled by oxen for use in the garden and for building, or bricks are made near the river and then transported to the village once dried. When they are not able to collect water, springs are used for gardens and building. Spring water is cleaner than river water and is therefore preferred for cooking and drinking. Taps have recently been installed in the area and are mostly used for cooking and drinking. There were no taps 30 years ago and therefore only river and springs were used (Table 4.11). As a result people relied more on rivers and springs for cooking and drinking, but otherwise water usage has remained more or less constant. The participants did not think that there had been a significant change in water quality over time, and said that the water in the rivers was still impure 30 years ago. The water quality deteriorates as it passes past or through the villages because people do their washing in the river and because of human and animal waste.

4.3 Financial capital

There was wide variation in the sources of cash income across the households in the sample, with many households stating more than one source. The most common source of income was the brewing and sale of beer (six households), although this was only undertaken by female headed households. The sale of vegetables from gardens or fields accounted for a quarter (four) of households, as did money sent from a family member working in South Africa. The sale of poultry and poultry products provided income for two households, and government grants, the sale of wool, the sale of livestock, crafts and disability grants were each mentioned by one household. Unlike South Africa, there are no government issued pensions or disability grants in Lesotho.

None of the household heads interviewed were presently employed, but this can be expected as all were over 55 years of age. Only one household had a member employed in the area, as a shop attendant. A large majority of the households (13) have at least one child working in South Africa presently. Both of the households that do not have anyone working in South Africa have only daughters who are married in Lesotho. Of the

households that have children in South Africa (13), six said that their children sent money before they got married, but now that they have their own households they no longer send money. Five households said that they receive money from their children intermittently, either when they come home or when they have money available to send, and two households said that their children have never sent money home.

All four of the male household heads had been involved in migrant labour in South Africa at one time, and one female household head had worked in South Africa for a short while. A large majority of households (13) had at least one member working in South Africa at one time. Of the female headed households, most had husbands working in South Africa for a period of time in the past, while of the remaining two households, the first lost her husband shortly after marriage, and the other's husband worked as a teacher in Lesotho. All the households (n=13) that had a member working in South Africa presently received remittances from them. Eight households received money monthly, two received money intermittently, and three households could not remember how often they got money. Remittance income was received by the households through postal orders, direct deposits in bank accounts or brought home personally.

Six of the female headed households are currently involved in the brewing and sale of beer, which provides an important source of income. The amount earned varied between the households, and not all households were able to provide information on the expenditure and total earnings, but all but one household gave an indication of the profit earned. Table 4.12 below shows how much profit is earned by households who brew beer.

Table 4.12 Profits earned from the brewing and sale of beer

Household	**Profit(R)**
1	6-11 per brew
2	15-20 per brew
3	16 per week
4	15 per brew
5	40 per week

The amount spent on ingredients depended on whether the household had the ingredients available, for example, those households that have surplus maize meal will not have to purchase it and their costs will therefore be lower. The profit made from the sale of beer does not appear to be much but nevertheless, when sold weekly, or twice weekly it provides an invaluable source of income that is used to purchase food and pay for school fees. All the households said that the profit earned depended on whether people bought beer on credit or not, as credit sales decreased their immediate profits.

Livestock provide an important source of financial capital for households, although few households in the sample presently own livestock. Those with cattle can sell them in times of need for cash.

> "I used to get about R1 000 for a cow, but sometimes when I really needed the money I would sell for R800. I only sold when I needed to, perhaps once a year." (Household 14).

Sheep, or their wool can be sold for cash. Many households sold poultry and eggs for cash, although poultry is of little value compared to larger livestock, a hen can fetch R50. Although only a quarter of the households in Ha Mavuka presently own large livestock, almost all the households interviewed did own livestock at one time and almost half of the households interviewed stated that their livestock was bought with money earned from wage labour. This indicates that livestock was seen as an investment for wage earnings. Stock theft has meant that livestock are no longer a safe investment.

> "Cattle were the bank, but now not as much because of theft. People use banks now to keep their money." (Household 4).

4.4 Human capital

The average household size over the 16 households in Ha Mavuka was 6.3 ± 3.6, and three quarters of the households interviewed were female headed. All of the female

headed households were widows. Just under half of the households (7) consisted of three generations: the household head, at least one of their children, and some of their grandchildren. Four households consisted of only the household head and grandchildren, and four consisted only of the household head. Only one household was made up of the household head and their children, some of whom were still very young. Most households interviewed are therefore comprised of older household heads and young children.

4.4.1 Ability to labour

Migrant labour on the mines in South Africa has been the primary source of employment in Lesotho for over a century. Fourteen of the households had the household head working in South Africa on the mines at one stage, and at present 13 households have children working in South Africa. Those seeking work in South Africa are generally unskilled or have limited skills, and work as labourers on the mines, in industry, doing domestic work or as farm labourers. Household 1 provides an example of this:

> "My children are working in South Africa, my son works in a factory and my daughter works cleaning houses, but is not permanently employed and only sends money when she has some after paying her rent there." (Household 1).

All of the households sent their children to school for a period of time. Many still support their grandchildren and have to put them through school. This is made easier by the governments free education policy that states that education for children between the ages of 6 and 13 is compulsory, and is free up until Grade 5. This policy was started in 2000 (Gay and Hall 2000, Lerotholi 2001, Section 3.3.2.3).

> "I have three grandchildren at school…one is in high school in Qacha and the other two are in primary school. The government pays for the two in primary school until Grade 5. You have to pay until Grade 7 and for high school. You can appeal to the education department in Qacha to help with books for high

school…my brother helps me pay for the school, he sends money from South Africa, or I have to sell chickens to get money." (Household 9).

In the past, parents had to pay for all of their children's education, which required cash income. Most households had a member working in South Africa sending remittances, but this was often insufficient or unreliable. The excerpts below outline some of the strategies adopted by households to raise enough money for school fees.

> "I worked in peoples houses, sold beer and sold chickens to make money for school fees. My husband sent money from the mine but sometimes it was not enough, and after he died there were still children to go to school….My brother and father also gave me money to help…..some of the children got to Standard 7, some to Form C and one is studying Law and the University of Lesotho and the government is helping to pay for her." (Household 6).

> "I started brewing beer when my husband was working on the mines because the money only came once a month and I needed it more often for food and for school fees." (Household 8).

There are very few employment opportunities in the area, or within Lesotho, especially for unskilled workers. There are temporary jobs available at times, for example, the upgrading and maintenance of roads. At the time this research was undertaken the roads within and National Park were being upgraded and according to the park manager the employment opportunities were spread equally between the villages in the area, offering the same number of jobs to each village at some stage in the programme (Ntate Nkuebe, pers. comm.).

4.4.2 The availability of labour

As the household heads interviewed were all over the age of 55, it is understandable that some are unable to cultivate their own fields any longer. Households can enter into sharecropping arrangements to overcome such shortages. In the past, when most

husbands were in South Africa working, women had to take over duties that were traditionally the domain of men, for example, ploughing and planting, and all activities related to livestock.

> "When my husband was alive he was in charge of the garden and the field. When he was at work I was in charge, I used the money he sent to hire people to plough for me. Now I hire people when I have the money but I cannot always afford to do this." (Household 1).

> "I still ploughed when my husband was not here. I ploughed with the help of my neighbours, we both had cattle and we would help each other out. I still do this, although my cattle have been stolen I have a yoke and a plough." (Household 4).

> "We planted the field every year, and when my husband was in South Africa the children used to help. After the children left, a neighbour helped because they both had livestock and would help each other out." (Household 7).

4.5 Social capital

Social capital describes the "social resources upon which people draw in pursuit of their livelihood objectives" (DFID 1999: 8). In this study this refers to networks and relationships between friends, neighbours and relations, as well within a family, for example a married child that is no longer part of the household. Formal institutions also fall within social capital. Social capital is an important asset in that it allows a household access to resources which it lacks, and provides a safety net in times of crisis.

4.5.1 Intra household arrangements

4.5.1.1 Sharecropping and cultivation arrangements

Sharecropping plays a vital role in many households' ability to cultivate. Few households have all the necessary inputs required, i.e. fields, seeds, labour and livestock,

and sharecropping allows these households access to the resources which they lack (Spiegel 1979). Sharecropping arrangements vary in nature:

- Households with fields but no livestock – these households can enter into a contract with livestock owning households, who may also provide the seed. The harvest is then shared equally between the two parties.
- Households with livestock and no fields – these households will enter in contracts with households that have fields and are unable to utilise them, and will provide the livestock and seed and receive half of the harvest.

The household that owns the field (i.e. but not the livestock) usually also provides food and beer for the people working in the field. The labour does not necessarily have to come from either household, but anyone in the village can participate and receive food and beer as payment. Sharecropping can be beneficial to both parties, and can be especially beneficial to livestock owning households who have a field and enter into contracts after ploughing their own field. According to the chief, there has been an increase in the amount of people having to go into contracts now because there is less livestock in the area. Due to this shortage of livestock in the area, some households have to wait until livestock is available and may therefore plant too late to reap a successful harvest. Livestock can also be hired, whereby the livestock owning household is paid in cash and does not receive a portion of the harvest. Other less formal arrangements exist whereby cattle owning households assist each other with ploughing and preparation of their fields, i.e., they use joint labour and livestock to plough both fields.

> "When we are unable to plough because we have no money to hire livestock, we can help others in their fields and get some of the harvest." (Workshop 1, Ha Mavuka).

4.5.1.2 Bridewealth payments (*bohali)*

When a couple is married, it is customary for the groom's family to provide payment to the bride's family. Payment has traditionally always been in the form of cattle, but there has been a move towards payment in cash. This cultural institution is a key method of asset accumulation for households. Many of the households that have or had livestock at

one time said that they received them as *bohali*. Conversely, some households have far fewer or no livestock due to *bohali* payments made.

4.5.1.3 Sharing and borrowing

Sharing and reciprocity play and integral role within the village. This is evident as many households reported that they borrow cash or food from friends, neighbours and family in times of need. Half of the households mentioned that when they run out of food or money they turn to their friends, family or neighbours.

> "I can borrow maize meal from my neighbours or relatives when I run out and I can repay them with the maize meal that the government gives me." (Household 1).

> "I borrow money from my neighbours if they have some to lend me. I do not borrow maize because I get from the government. If I borrow money I brew beer to make money to pay them back." (Household 15).

> "I grow sorghum in my garden for fodder even though I have no livestock. I sell some and give some to my brothers who have cattle." (Household 12).

Another form of social capital is the sharing of ploughing duties between livestock owning households. As alluded to in the section on sharecropping (Section 4.5.1.1), in some cases, two or more households that have cattle will join forces and plough all the parties fields, effectively sharing labour and saving time. Rituals and feasts provide another mechanism for sharing within the community as the slaughtered animal is shared with the whole community. Slaughtering for food provides a household, and the friends and family of the household with meat, and therefore is a mechanism for sharing the benefits of livestock within the community.

4.5.2 Inter household arrangements

The family provides an extended support base throughout life. Three quarters of the households have some of their adult children resident in the household or look after their grandchildren while their children are working in South Africa. This indicates that one can rely on one's parents well into adulthood and after marriage. Examples of the dependence on the family can be seen from the following comments

> "I have seven children, the first born was born in 1961 and the last born in 1984. My daughters are married and have moved away, my sons left last year to work in South Africa, and they were living at home until then. Their children live here with me, and so does my one son, his wife and his child." (Household 3).

> "There are ten people in my household, myself and nine grandchildren. Their parents are in South Africa but I do not know where or what they are doing, and they do not send money home for the children." (Household 9).

> "Eight people live here, myself and my wife and six grandchildren…I have 5 children, the first was born in 1961 and the last in 1979. My daughter is married in Tsaba Tseka and my other children are working in South Africa, two left four years ago and two left this year. They send money sometimes, or bring money when they come in December." (Household 8).

> "I moved here from Matebeng in 1981…..I did not get my own field, I got my parents field when they died. Before they died I shared the field with them and used to send them some money from my work on the mine." (Household 2).

4.5.3 Social institutions

The role of chiefs has changed over time, and has been increasingly replaced by civic organisations such as the VDC (Section 3.3.1). According to the participants in the workshops, every village has its own VDC committee and the chief is part of the committee but not the head. The committee is chosen by the community at a *pitso* (community meeting). The VDC is responsible for developments in the area such as

arranging grazing land, planting trees and arranging pumps. They said that the VDC was formed in 1995 and before that, the chief performed all the tasks that the committee does now. However, the chief is still considered to be the primary authority.

The Range Management Project and Grazing Association were important institutions in the management of the rangeland. The project was established in 1982 as a means to manage and improve the rangeland in Sehlabathebe. According to the participants, the project is no longer functional. Table 4.13 below outlines the main benefits of the project, the reasons why it failed and the problems that were experienced.

The main benefit of the RMP was perceived to be the control of grazing (Table 4.13), and this was primarily noted by livestock owners who joined the project. The project established designated camps for livestock that were said to be safe, therefore there was no need for herd boys, and this allowed more children to attend school. Other benefits mentioned included the availability of good quality bulls for breeding for those who joined the project, and controlled burning. The project is said to have failed due to the increase in stock theft, which made it risky to send ones livestock to the camps, and the removal of the fencing around the camps, which is said to have been done by people who did not want to join the project. Only four households mentioned any problems that they had with the project, and these were all people who did not join the project. The problems mentioned were the establishment of start pastures for bulls (Section 4.2.3.2) which decreased the amount of grazing land available, and the cost of joining the project, which was thought to be too high.

> "The project made good camps for the livestock but people stole the fences to put around their houses then people started stealing the livestock from the camps. People rejected the project because they did not want to pay to use the camps and so they broke the fences." (Household 6).

Table 4.13 Benefits, problems and reasons for failure of the Range Management Project

	Reason	No livestock (n = 5)	Livestock owners that joined RMP (n=7)	Livestock owners that did not join RMP (n=3)	Total (n=15)
Benefits	Controlled grazing	1	5	0	6
	Children able to go to school	0	2	2	4
	Good bulls available	1	2	0	3
	Controlled burning	1	0	0	1
Failed due to	Increase in theft	0	4	0	4
	Stolen fences	0	2	1	3
Problems	Decreased the size of range	2	0	0	2
	Expensive to join	1	0	1	2

4.6 Physical capital

4.6.1 Transport and communication

Sehlabathebe is accessible by gravel roads of varying condition from all neighbouring areas. The road east to Qachas Nek, the closest large town, is well maintained. This road is well used, as it is the main route into South Africa, and is used by tourists and the many people that go to Matatiele via Qachas Nek to buy groceries for household use or to sell locally. A bus goes to and from Qachas Nek daily, leaving Sehlabathebe early in the morning and returning in the evening at a cost of R40 each way. Therefore, there is relatively easy access to larger markets, although the cost of transport is high. The roads north and west to Matebeng, Sehonghong and further north are generally less well maintained and require four wheel drive. There are 'taxis' that travel to these areas daily. The cost of transport influences the cost of goods in the area, making local stores relatively expensive. The high cost of transport also affects households' ability to obtain inputs for agriculture, as well as the ability to transport goods to market should there be a surplus. Few people in the area have vehicles, and the primary form of transport within the area is on horseback or donkeys. Two of the households interviewed said that they moved to Sehlabathebe because of its road access, and education and health facilities.

Communication in the area is limited to surface mail through the post office in a neighbouring village. The post office was built in 1980. There are no telephone lines or cellular phone signal in the area. The Range Management Project had a two way radio for communicating with Qachas Nek and Maseru, but this is no longer functional. Few households had televisions, and these are run off solar power or car batteries.

4.6.2 Water

There are shared village stand pipes which provide clean potable water to households. The taps were first introduced in 1977, although some areas have only recently had taps put in. Natural springs provide another source of clean water. The Tsoelikane River is found near the village and is easily accessible.

4.6.3 Housing and sanitation

Each household has usufruct rights over their residential plots and build their own homesteads. Houses are generally built out of stone, which is readily available in the area, mud and dung, or bricks. Most houses have thatch roofs, although some of the newer houses have aluminium roofs. Most households have a round rondavel, which serves as the kitchen and one or more square buildings for other purposes. Due to the lack of running water, households do not have flush toilets, but most households have pit latrines on the homestead plot.

4.6.4 Other infrastructure

There is a police station, court, clinic and post office in one of the neighbouring villages, which serve the Sehlabathebe area. In Ha Mavuka, there is a primary school, bottle store/restaurant and three shops. The Range Management Centre is located in the neighbouring village, and serves the 10 villages that were involved in the project, and is only functional in the wool shearing months. The area is not electrified, and people rely on natural sources of energy, such as wood, shrubs and dung for cooking and heating (Section 4.2.4.2).

4.6.5 Production equipment

Livestock are an essential source of physical capital for ploughing fields, and only 14 % of households in Ha Mavuka have cattle. Other households can however access livestock through sharecropping, hiring or borrowing, provided one has the connections or capital, and therefore livestock ownership is preferred but not essential. A concurrent study conducted in three villages in Sehlabathebe found that out of 40 households, only 7.5 % had ploughs, and none had tractors, cars or bakkies (Mhlanga 2003).

4.7 Summary of asset base

This section provides a brief overview of household assets in Ha Mavuka. Natural capital is an important asset to households, providing subsistence, a source of income for some, fuel, medicines and resources for building. The majority of households have access to arable land, but do not have the means (labour and cash for inputs) to cultivate it. Wild resources are generally perceived to have declined over time and population pressure is seen to be the major driving factor in this decline, although some resources such as medicinal plants were not perceived to have declined greatly. The majority of households in Ha Mavuka do not appear to be well endowed with financial capital as there are few employment opportunities and households do not receive regular income in the form of state pensions as in South Africa, and generally rely on intermittent remittances from children working in South Africa, or from the sale of surplus vegetables or beer. Financial capital is an important asset in that it is required for many transactions, such as the purchase of food, fuel (such as paraffin), the payment of school fees, etc. The human capital of most households is fairly low, as many households do not have sufficient labour for cultivation, or to be involved in income earning activities. Levels of skills are also low and this prevents households becoming involved in activities that may result in high returns. Social capital allows for access to additional labour and resources. Social capital plays an important role in livelihoods in Ha Mavuka, and most households are well endowed with social links. Through the use of social capital households are able to access assets that they lack, such as livestock, seeds or labour for ploughing, or cash when in need. Reciprocity and sharing therefore constitute an important asset to households. Sehlabathebe is a remote mountain area, and as a result is underdeveloped in

terms of infrastructure, communications and transport. In comparison to more rural and remote areas in Lesotho, households in Ha Mavuka have relatively good access to physical capital. However, transport to bigger centres is costly, and communication infrastructure is limited. Therefore, it can be said that households in Ha Mavuka have greater access to natural and social capital that to financial, human and physical capital. There are however links between the various assets that allow households access to those assets, which they lack, and this will be explored further in the following section.

4.8 Links between assets

Livelihood strategies involve the combination of various types of assets that are available to a household. However, there are links between the assets, i.e. having one particular asset allows one to accumulate other interlinked assets and increase livelihood security. In addition, certain links are necessary for the accessibility of certain assets.

4.8.1 Links essential for cultivation

A household's access to physical capital affects its ability and relative success in cultivation. Physical capital in this sense refers to implements necessary to cultivate, e.g., livestock for draught, yokes, ploughs, spades, etc., as well as the infrastructure that allows households access to inputs and markets.

The ownership of livestock is integral to arable field cultivation because households that have livestock are able to plough their own fields and do not need to rely on sharecropping arrangements or hire livestock to cultivate. Livestock owning households are able to plough their own fields (provided they have the necessary labour and inputs) and then lease their livestock out for cash or for a share of the harvest.

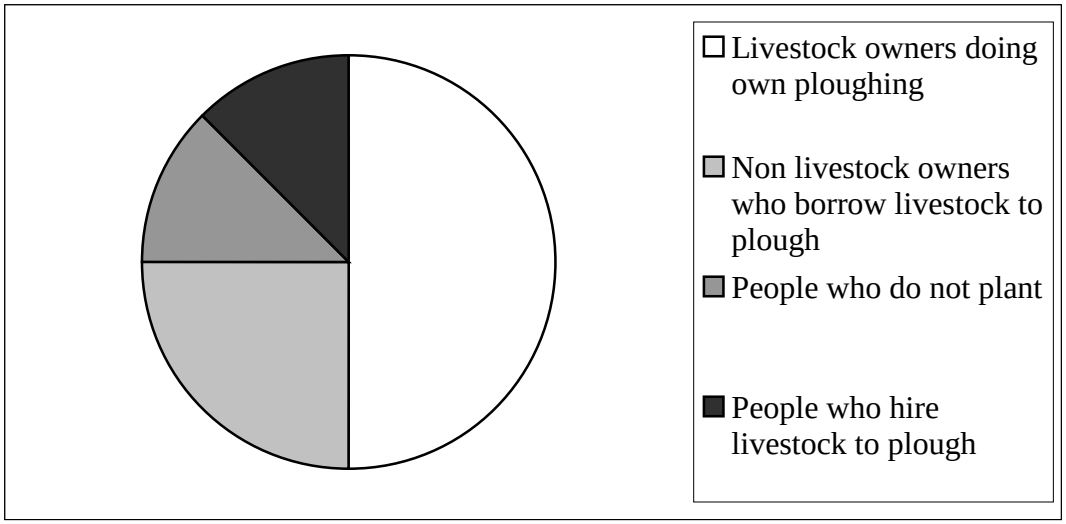

Figure 4.4 Livestock ownership and the ability to cultivate

The workshop participants perceived half of the households in the village to own livestock (Figure 4.4). This can be compared with the data provided by the Chief, which shows that, only a quarter of households have livestock, and only one seventh of households have cattle with which to plough. The availability of production equipment such as ploughs and yokes is essential for cultivation, and although these can be accessed through social capital networks within the community, it is clearly advantageous to own such implements. The IFAD (2001) study assessed ownership of agricultural implements in mountain areas, and found that ploughs and spades are the most widely owned implements (Figure 4.5).

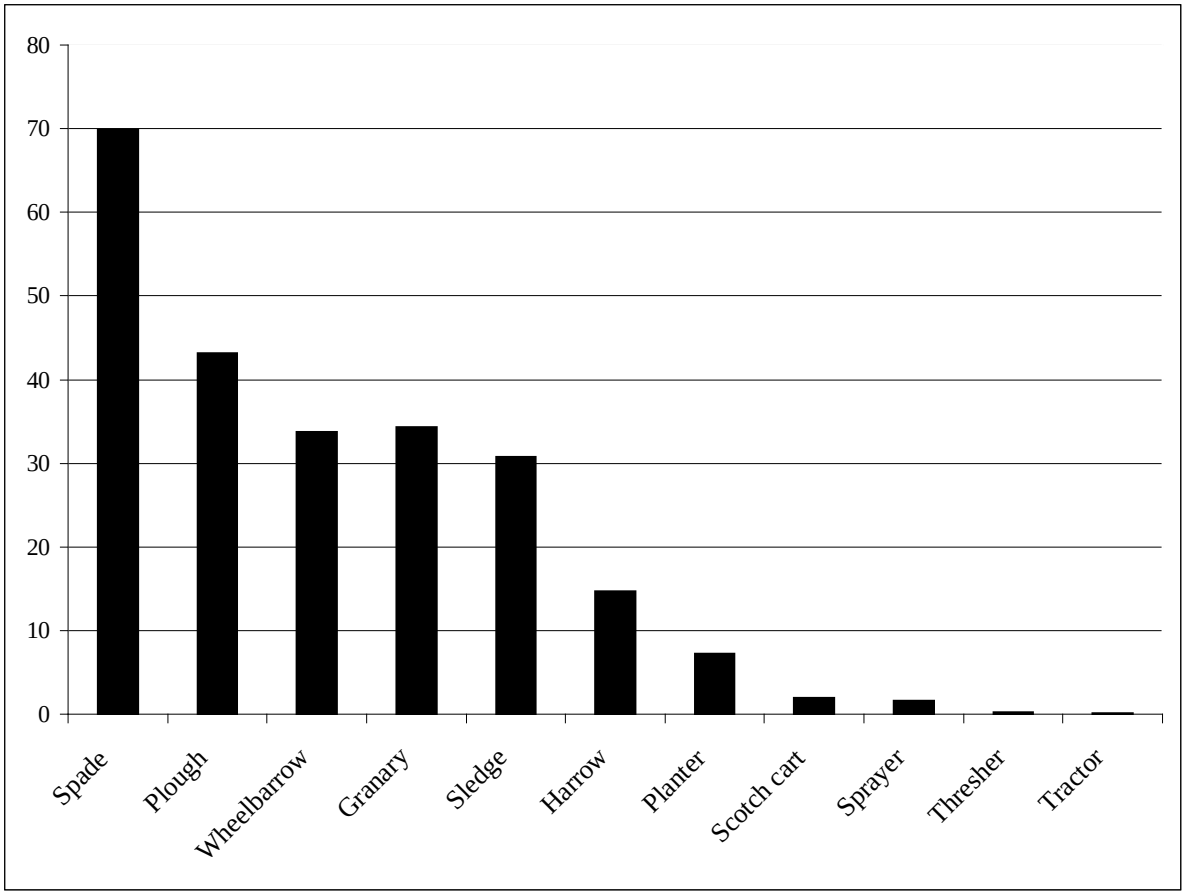

Figure 4.5 Percentage distribution of households with agricultural implement ownership (Adapted from IFAD 2001:11)

Two examples can be drawn from the community as to the importance of agricultural implements. Household 4 highlights that social capital is linked to physical capital in that the formation of social networks can be facilitated by ownership of implements. She no longer has livestock, but still owns a yoke and a plough and has an arrangement with a neighbour giving her access to livestock and therefore draught power (Section 4.5.1.1). Household 6 recently had her plough stolen and as a result was only able to plant two of her three fields.

Access to markets and inputs is integral to the success of cultivation (both arable fields and gardens). The sale of surplus vegetables takes place locally and on an ad hoc basis, so the market is easily accessible. However, access to inputs for agriculture presents a

problem to households in the area (DAO 2002). This is due to the governments' inability to provide suitable access to inputs, the distance from Qachas Nek (the closest town), as well as the lack of cash available to many households to purchase inputs.

The above mentioned linkages are also linked to financial capital. Enhanced cultivation success will lead to an increase in financial capital, in terms of sale of produce, and a decreased need to purchase food. Conversely, a lack of the above physical capital can negatively affect cultivation and therefore financial capital. The important link between social capital and cultivation has been highlighted in Section 4.5.1.1.

4.8.2 Links between financial and natural capital

Financial capital and natural capital are linked in many ways in that natural capital is a source and store of financial capital and financial capital is necessary for realising the potential of some forms of natural capital. Access to financial capital plays a role in the ability to cultivate, because without cash one is unable to purchase implements, or inputs such as seed and fertiliser. Livestock rearing also requires financial inputs, such as herd boy wages, inoculations, etc. Livestock are themselves a store of financial capital, amongst others, and are linked to many other forms of capital. The accumulation of livestock through *bohali* provides an example. *Bohali* is a form of social capital allows for the accumulation of natural capital (livestock), which can then be sold and converted in to financial capital if necessary.

4.8.3 Links between natural capital

Livestock ownership is linked to fuel availability as livestock owning households are able to collect dung from their kraals, whereas non livestock owning households have to spend time in the fields and grazing areas collecting dung. Some households noted that the increase in stock theft and concurrent decline in livestock numbers has resulted in a decline in the availability of dung in and around the village. Rainfall is essential for all forms of natural capital, as drought affects cultivation and grazing and resource availability.

4.9 Conclusion

Households in Ha Mavuka rely on wide range of assets to construct their livelihoods. Natural capital and social capital appear to be the assets that households have the greatest access to. Natural capital constitutes an important part of livelihoods, although its contribution is predominately non monetary. The decline in availability of many resources has implications for livelihoods in that it means that freely available resources have to be purchased using scarce financial capital. Social capital plays an integral role in access to other assets and is therefore constitutes a vital component of livelihoods. Financial, human and physical capital are not abundant and this presents a constraint on households. Human capital is a vital asset in that it allows households with high human capital can pursue a range of activities and thereby increase financial capital. Households have, and continue to, rely on financial capital for a variety of purposes and the general lack of reliable sources of income is therefore a great constraint to livelihoods in the area. The remoteness of the area means that access to markets and inputs is low and this affects the opportunities available to households. The generally low level of human capital also constrains the ability of households engage in productive activities. The various linkages that exist between assets highlights how access to multiple assets is important for livelihoods, and how certain capital are substitutable, i.e. natural/ physical capital (livestock) can be substituted by the use of social capital (sharecropping arrangements).

The role of macro level factors and trends, including population growth, economic change and retrenchments, stock theft and declining natural resource availability, and their influence on household level assets has been highlighted in this chapter. This chapter has provided an overview of the general asset base in the area, but does not allow for an understanding of individual household assets and how this affects the livelihood strategies adopted. This will be discussed in the following chapter on livelihood strategies and their change over time.

5 Chapter 5 Changes in livelihood strategies in Sehlabathebe

5.1 Livelihood strategies

Livelihood strategies describe the range and combination of activities that households undertake to achieve their livelihood goals (DFID 1999). The bundles of assets available to households are combined to form livelihood strategies that best meet the needs of the household at that time. Chapter 4 provided an overview of the general asset base of households in Ha Mavuka. Strategies vary within households over time, and between households within the same area (DFID 1999). Livelihood strategies are determined by the range of assets available, for example, a household of one with limited financial capital will be unable to effectively engage in labour intensive cultivation due to labour constraints and a lack of capital to hire the necessary labour. According to DFID (1999), those households that are "amply endowed with assets are more likely to make positive livelihood outcomes" (DFID 1999:22). Household composition, access to assets and livelihood strategies adopted change over time, and this temporal change can be conceptualised using the household development cycle. This chapter begins by describing the typical development cycle in Lesotho. This is followed by a discussion of the stage in the development cycle of households in Ha Mavuka in the past (1970s), and how they have changed over time. This is followed by further discussion of present household assets and livelihood strategies in Ha Mavuka.

5.2 The household development cycle

The development cycle describes the typical stages of progression of a household over time. The typical stages of the household development cycle have been outlined in Section 1.3.2. Murray (1981), from his work conducted in Lesotho, highlighted that there are certain conditions peculiar to the typical labour reserve (Section 3.2), which influence the household development cycle. Firstly, earning power is concentrated in the middle age ranges of able bodied individuals, especially men. Secondly, certain demographic features were associated with the migrant labour system, such as a high absenteeism of men between 18 and 45, high numbers of widows and female headed households, and a

resident population consisting mainly of women, children and the elderly. Thirdly, there was a general absence of State mechanisms such as unemployment benefits, effective taxation and the use of taxes for 'development' (Murray 1981).

Migrant labour formed an essential part of the development cycle in Lesotho. In a young household, the man would typically migrate to South Africa to earn money to remit home for the upkeep of the household, and for investing in cultivation if the household had arable land, and to earn enough money to pay *bohali* (bridewealth) (Spiegel 1979). At this stage his wife would be in their new household, or would be in his parents' household until such time as they could afford to build and move into their own home (Murray 1981). As time passed and savings were accumulated, the new household was established and improved upon, arable land was allocated to the household, and assets, such as livestock and implements, were built up. As the children of the household matured they provided a source of labour for the arable land. The next phase is reached when the children leave the household and send remittances, while the household head either still works in South Africa or has moved home permanently and can tend to the fields. This is described as the zenith stage, when a household has labour to work the fields, and a steady source of income in the form of remittances sent by the children. The next stage is reached when the children then establish their own households and no longer send remittances. Arable land is particularly important at this stage, and through the hiring out of one's draught power or labour, one can gain access to other households' remittance income (Spiegel 1980). As the household heads age and enter the stage of decline, fields play a vital role in providing sustenance, and assets such as labour, draught power or implements become vital avenues through which to access wage income from other households (Spiegel 1980). As households progress into further decline they are unable to effectively plough and may engage in petty trading, such as beer brewing or craft trading to gain income, and may enter into sharecropping arrangements to plough, thereby losing access to half of the harvest (Spiegel 1980). The above paints a picture of a typical development cycle of a household in Lesotho. However, not all households fit into this typical cycle, for example, older men who maintain employment in South Africa do not move to the next phase, and young men may not be able to enter the work force,

and therefore must follow a different path (Ferguson 1990). Households can also jump phases, for example, the death of the breadwinner at a young age may result in the household bypassing the zenith stage (Spiegel 1980, Ferguson 1990).

5.2.1 Stage of households in the development cycle in the past (1970)

The above description of the development cycle has set the stage for the following discussion on how households in Ha Mavuka have developed over time. This section explores the stage of the household development cycle that households in Ha Mavuka were in in the past (1970s). This is followed by a discussion of the households' present stage in the development cycle and the changes that have occurred in the interim. Following Spiegel's (1979; 1980) work conducted in Lesotho, households have been placed in broad categories according to the assets available and livelihood strategies adopted. There are three main groups of households: Land-holding, wage-dependent households; Landless, wage-dependent households; and Land-holding households without access to wages. These will each be discussed individually. Within each category there is variation in the combination of strategies adopted as well as access to the assets in question.

5.2.1.1 Land-holding, wage dependent households (8)

The eight households that fell into this category all had access to arable land and remittance income, however, access to and use of the arable land varies. One household did not utilise its arable land. The field was cultivated for a period of time, but poor soil quality meant poor harvests and it was perceived to not be worth the investment. One household was not allocated a field of their own, but shared a field with the household head's parents, who received a portion of their wages in return. The remaining six households all had access to remittance income and cultivated their own fields. The importance of remittance income in successful cultivation has been stressed by Spiegel (1979) and Murray (1981). Four of the eight households owned livestock, acquired using wage income. This highlights how livestock was seen as a store of wealth for wage earnings (Ferguson 1990, Hunter and Weaver 1993, IFAD 2002), as well as providing essential draft power for cultivation. All households in this category also had other

income earning strategies. Four households brewed beer regularly as a supplement to remittance income, and the remaining four were livestock owners who sold wool, and occasionally livestock if necessary for income. These households can be said to have been relatively well off because they had access to wages, which in turn provided them with the means to cultivate successfully, and all had alternative income generating activities.

5.2.1.2 Landless, wage-dependent households (4)

Four households fell into this category; all had access to remittance income but had not yet been allocated arable land. This is typical of young households who have to wait to be allocated arable land. Two households were allocated fields at a later stage (Section 5.3.2.4). Three of these households had livestock, which were bought with wage earnings and provide income from the sale of wool.

5.2.1.3 Land-holding households without access to wages (3)

The current heads of the remaining three households were all widowed at a young age. Two of the households relied on their parents to provide for them following the death of their husbands, and had access to their parent's fields. The remaining household retained access to her field and planted it when she had access to the necessary resources. One household had livestock, which she had received as *bohali*. Two of the households brewed beer regularly as a means to earn income. The sale of beer is an important mechanism for the redistribution of wage earnings, and provides non wage earning households an opportunity to access them (Spiegel 1979, Ferguson 1990, Sweetman 1995). These are the poorest households, with limited access to resources. These households provide an example of how households slip out of the typical development cycle as the death of their husbands resulted in their loss of access to wage income, and for those that had not yet been allocated arable land, it meant that they would never be allocated land.

5.2.2 The change over time

In the 1970s, twelve of the fifteen households were male headed and had access to regular remittance income. Of these, eight had access to fields and remittances, four had no arable land but received remittances and the remaining three households had neither fields nor remittances. Eight households had livestock. In 2004 twelve of the households were female headed and only three male headed. Thirteen households had arable land, but only five utilised their fields regularly. This shows that livelihoods have changed over time. The most notable difference is that households no longer receive regular remittances, but rather more sporadic remittances sent or brought home by their children. Therefore, households are no longer wage-dependent as such, but have access to wage income through their children. The same broad categories as above will be used, and new categories have been developed to address the changes (Table 5.1).

Table 5.1 Movement of households between categories over time

Hh	**Past category**	**Present category**
1	Land-holding, wage-dependent	Landless, irregular wage-dependent
2	Land-holding, wage-dependent	Land-holding, irregular wage-dependent
3	Land-holding, wage-dependent	Land-holding, irregular wage-dependent
6	Land-holding, wage-dependent	Land-holding, irregular wage-dependent
8	Land-holding, wage-dependent	Land-holding, without access to wages
4	Land-holding, wage-dependent	Land-holding, without access to wages
7	Land-holding, wage-dependent	Landless marginal
11	Land-holding, wage-dependent	Landless marginal
5	Landless wage-dependent	Land-holding, irregular wage-dependent
10	Landless wage-dependent	Land-holding, irregular wage-dependent
12	Landless wage-dependent	Landless- gardens/livestock
13	Landless wage-dependent	Landless- gardens/livestock
9	Land-holding, without wages	Land-holding, irregular wage-dependent
15	Land-holding, without wages	Land-holding, irregular wage-dependent
14	Land-holding, without wages	Landless, irregular wage-dependent

All households have moved into a different category over time (Table 5.1). Almost half of the households (7) fit into the Land-holding, irregular wage-dependent category, while the remainder of the households are spread evenly over the other categories. The following section will discuss the movement between categories and allow for an understanding of how each household has developed over time.

5.2.3 Movement of households over time

5.2.3.1 Land-holding, wage-dependent → Land-holding, irregular wage-dependent

Three households fit into this category. The main change over time has been the change from receiving regular remittances from the household head working in South Africa, to receiving remittances intermittently from children.

> "I moved here from Matebeng in 1981 because the schools are closer to the villages here. I was still working in South Africa then, I stopped in 2001 because I am sick. My wife has now gone to look for work there and sends money as often as she can. I have a field, but it is in Matebeng. I shared the field with my parents until they died, I used to send them some money from work. I now have a contract with my niece, she uses the field and I get some of the harvest, I have to go to Matebeng to fetch it. I had some sheep, but they were stolen before we moved here. The money from my wife is important, we can buy food with it, or take the children to the clinic." (Household 2).

> "I moved here when I got married, my husband was working in South Africa then, but he came back in 1974 and worked here in Lesotho as a clerk. He is dead now, I cannot remember exactly when he died though. I have a field, but I cannot use it anymore because I have no livestock and I cannot get contracts. I always used it though, there was money to hire people to help. After my husband died I had to enter into contracts. I got some livestock for *bohali* but they were used in funerals and feasts and sold. I started brewing beer long ago, before my husband died, I

needed money for fees. My children in South Africa send me money sometimes, but not that often." (Household 3).

"I moved here when I was married, my husband was working on the mines then, until 1980 when he got sick and then died. We got the fields when we got married, and I still use them. I now have to hire people to plough though. I have a few stock, only two, but three were stolen this year, and my plough. I brew beer every week, I have been doing this for many years. I started after my husband died because I needed money for school fees and for clothes, so I started brewing beer and doing piece jobs. My father and brother also helped me by sending some money. The children in South Africa now send some money sometimes." (Household 6).

The above quotes highlight the changes in household strategies after the death or retrenchment of the bread winner, as well as the importance of financial capital. All three households have adapted to cope with this, by relying on intermittent wages from other household members, or by entering into alternative income generating activities such as brewing beer or piece jobs. These households can be said to have followed a typical development cycle in that they relied on both wage income and cultivation, and as the household has aged income has become more irregular and they exhibit declining agricultural ability.

5.2.3.2 Land-holding, wage-dependent → Land-holding, without wages

Two households have moved from the Land-holding, wage-dependent category to the Land-holding without access to wages category (Table 5.1). In the past both households had access to wages from their husbands working in South Africa. In the interim, both households have been subject to various shocks that have affected their access to assets:

"My husband worked there on the mines from 1949 to 1973, when he got sick. He used to send money every month, and come home about every three months. He died soon after he came back here, in 1973. We bought livestock in 1969 with the

money from the mines, and also got some for *bohali*, and we sold the wool, milk and sometimes some animals and this money went to the bank. There were 250 sheep, 28 goats, 73 cattle and 6 horses. When my husband was working and after he died I ploughed my field with the help of my neighbours, we both had livestock so we used to help each other out. All my livestock are gone now, they were all stolen, starting in 1996. I had some money in the bank, but now that is all gone. My neighbours still help me plough because even though I have no cattle, I still have the yoke and plough. I still get a good harvest from my field, and can sell vegetables from my garden. I also sell clay pots, which I have been doing for many years now and it helps bring in some money." (Household 4).

"My husband worked on the mines before we were married and stopped in 1983, he went into retirement but did not get a pension. He sent money most months, but sometimes only every two months. When he was working I went into contracts to plough because we did not have livestock. I started brewing beer even when he was working, I needed money for school fees and also to buy food. Some of my children were working in South Africa when my husband stopped working, and they used to send money, but now they are married and have their own families. We had three cows and an ox, which we bought with the money from work, but they were stolen in 1999. Even when we had the cattle I could not always plough, I had no help and my husband was sick when he came back. Also sometimes we had to eat the seeds because there was no food and this meant there were no seeds for the next year. Now I can only plough when I can find a contract, last time was in 2002. The only money we have is from the beer." (Household 8).

The above quotes highlight the typical stages of household development over time. The 'retirement' and subsequent death of the wage earners in both households affected their access to cash income, but both households have adopted additional strategies to secure access to cash (sale of vegetables and clay pots, and sale of beer). Household 4 provides an example of a household that relied on extensive livestock holdings as a livelihood

strategy, but the theft of the stock provided a loss of income and savings and therefore a major shock. The household is able to cope because of its access to arable and garden cultivation, and social and physical capital, which allow the household to continue with cultivation even without livestock. This highlights the importance of access to a range of livelihood assets. This household is in a stage of decline, in that cultivation provides an important source of sustenance (Spiegel 1980). The second household provides an example of a less resilient household. Even with regular access to cash income the household often lacked the resources (cash and labour) to utilise their field yearly. This household is in the typical stage of advanced decline, where the ability to cultivate is diminished and there is an increased reliance on petty trading (Spiegel 1980). These two examples highlights how class influences the household development cycle, with the first household being better off and therefore more resilient than the second household.

5.2.3.3 Land-holding, wage dependent → Landless marginal

Two households have moved from Land-holding, wage-dependent households to Landless marginal households over time. In the past, both households had access to remittance income and arable land. Both households no longer receive remittances, can no longer utilise their arable land, and do not have a steady form of income.

> "My husband worked in South Africa for about 40 years. I cannot remember when he died, but it was a year after he came back. He sent money often. When he was working the children helped in the fields, and I also worked together with the neighbours because we both had livestock and could help each other. We had many many livestock, sheep and cattle, and got money from the wool. They were stolen, I can't remember what year, but all the money that was saved is now finished. After he died I did piece jobs, made beer and sold some livestock, but now they are all gone and I am too old to work or plough the fields. None of my children are here, and they do not send me money. I now sell eggs or chickens when I can, and get food or money from the government." (Household 7).

> "I am from Matebeng, I came here in about 1975. My husband worked on the railways in South Africa, and he was still young when he got sick and then died, it was before I moved here. I moved here because it is closer to transport. I had fields there, and I used to use them every year. Here I have no field. The livestock we had were stolen. My daughter who is married has been helping me for many years, she sends me money maybe four times a year. My daughter who still lives here and I also do piece jobs when we can get them. We also sometimes go to South Africa to buy goods like glycerine and creams and sell them here, but we do not make much money from this." (Household 11).

Both of the above households are in the advanced decline stage. They can no longer cultivate, and rely primarily on petty trading or donations for income. The first example (Household 7) highlights how households often resort to petty trading once they no longer have access to remittance income, and also shows the importance of livestock as a store of wealth. The shock of losing this form of savings further affected the household's access to income and pushed it further into decline. Livestock theft can therefore be said to be a factor driving household decline. Household 11 provides an example of a household that has made a conscious choice to substitute access to one asset, i.e. arable land, for another, physical capital. This highlights that not all households are 'victim' to shocks, but some make conscious choices which determine their asset base and therefore the livelihood strategies open to them.

5.2.3.4 Land-holding, wage-dependent → Landless irregular wage-dependent

One household head no longer uses her arable land, and can therefore be classified as landless. As with many other households, this household no longer has access to regular wage income and now relies on occasional remittances from children working in South Africa.

> "We moved here from Mokhotlong many years ago in 1969. We lived with my husband's parents until 1972 when we started our own house. My husband worked in Durban doing construction, but he stopped work about 20 years ago.

> He got a pension, but he died last year and now there is no more pension. I have a field, but have not used it for many years, the soil is not good and I cannot grow anything there. We never had any livestock. I brew beer to sell, I have been doing this for many years, even when my husband was working because I needed the money for necessities. He sent money back when he was working, but only sometimes, when he felt like it. It is now hard for me to even plant my garden, I am injured and I cannot hoe, so I need to hire people to help now that my husband is dead, and there is not always the money for this." (Household 1).

This household is clearly in the advanced decline phase. The household has relied on income from the sale of beer for many years, even when the household head was employed. This household highlights the importance of access to financial capital and that not all households had secure access to remittance income and had to find alternative means of income generation.

5.2.3.5 Landless wage-dependent → Land-holding, irregular wage-dependent

Two households have moved from the Landless wage-dependent category to the Land-holding, wage-dependent category. Both households had not been allocated fields in 1970 and relied primarily on wages. Over time they have both been allocated arable land and still have access to wages, although now in the form of occasional remittances from their children.

> "I moved here in 1960 when I got married. My husband was working in South Africa before we got married and carried on working until 1980 when he got sick. He stayed at home until he died in 1990. We got a field in 1984 and have planted it every year. When my husband was working I had help from the children and from friends. Now that the children have gone to South Africa to look for work I will probably have to go into contracts. We had livestock, they were bought with the money from work and we also got some for *bohali*. They were stolen in 1981. Since then I have had to get people to help me or hire people to plough my fields. I stared doing piece jobs and making beer in 1986, I needed money for school

fees. There is very little money now, the children send some money sometimes." (Household 5).

"I came here as a young boy from Sehonghong and was married in 1958. I worked on the mines from 1954 until 1997 and stopped because I was injured. Now I get a disability grant. I used to send money home often. I only got a field in 2001 because I was working when they were allocating them. Before that my wife would go into contracts, she would bring the seeds and the livestock and get half of the harvest. She did this when she had seed, otherwise she would help people with the harvesting and the threshing and get some of the harvest. I bought livestock, and they grew to 40 sheep and one cow, but now I only have one horse and one cow, the rest went to pay for *bohali*. We use the cow in the field, I make contracts with other people, the cow is added to the other stock and then we all plough the field and then plough the other people's fields." (Household 10).

Both of the above households were allocated arable land relatively late. The first example (Household 5) highlights the importance of beer brewing as an income generating activity for many female headed households. This household is likely to enter a stage of further decline and diminished agricultural potential now that there is less labour available for cultivation. The second example (Household 10) is an example of a household that has not followed the typical development cycle in that land was only allocated at a late stage and therefore the household relied primarily on remittances, garden cultivation and access to the harvests of other households. This also highlights how sharecropping arrangements provide an avenue for other households to access cash income from remittance earning households. This household is in the early stages of decline. They are able to cultivate effectively, and have a source of income (disability grant).

5.2.3.6 Landless wage-dependent → Landless- gardens/livestock

Two categories have moved from relying primarily on wages to relying on income from either gardens or livestock. Neither of the households were allocated arable land and have therefore never relied on arable cultivation as a livelihood strategy.

> "I worked in South Africa from 1955 to 1971 and then I came back here. I sent money home every month when I was working, and bought some livestock with the money from working. I started with 20 sheep but they grew to 90 sheep and two cows. They were all stolen in 2001 and now I have none. I used to get money from selling wool and livestock, and also from selling vegetables from the garden. I still do this now, I sell often but there are often not enough people who want to buy them. I was born here, but I was never allocated a field by the chief. We have a good garden. Now that there is no stock I have only the money from selling vegetables, and this is not very much. I also get food from the government every month and try to do piece jobs like working on the roads when I can. Both my daughters are married here in Lesotho, they cannot send us money." (Household 12).

> "I moved here in 1977, although I was married in 1954, I stayed in South Africa with my husband while he was working. He worked until 1992 and after that he got a pension, but he died in 1998 and now there is no more pension. Both my daughters are married in Mokhotlong. I have no field, only a garden. I did fill out the forms but I never got one. We bought sheep with money from work and also got some from *bohali*, we started with 25 cattle and two sheep. There are now 71 sheep. I sold the cattle recently. I sell the wool from the sheep to get money. I have had some sheep stolen, but I still have some." (Household 13).

These households highlight that although arable fields are an important asset, gardens and livestock are important income generating activities. Both households appear to be in decline. Household 12 provides an example of the effect of stock theft on the well being of a household, and has pushed the household into further decline. Household 13, although having lost access to wage income, is still able to obtain income from livestock.

5.2.3.7 Land-holding without wages → Land-holding irregular wage-dependent

Two households have moved from the Land-holding without wages category to a category of Land-holding with irregular access to wages. Both households are headed by elderly women and have not followed the typical household development cycle. One household head was never married, and the other was widowed after only a few years of marriage and therefore neither household had access to regular wage income, but had access to arable land.

> "I am from Matebeng. I cannot remember when came here. I have no field here, but I have one there in Matebeng, I was given a field by my parents before they died. I used it for five years there before coming here, I moved here because there is better transport. Before that I used to live with my parents, they used to help me. I have contracts on the field still, and I can go and collect a portion of the harvest. I started brewing beer to get some money, but I stopped because I could not afford the ingredients. Now I sell chickens sometimes to get money. My brother helps me too, he is working in South Africa and he sends money sometimes." (Household 9).

> "My husband died after only a few years of marriage. I have a field and have always used it, but I have always had contracts because I have needed help. I had some livestock, I got them for *bohali*, but they were stolen after a few years. Some of my children are in South Africa, they send money sometimes, but now they are married it's not so often. I make beer sometimes when I have the money for ingredients. I have always done this." (Household 15).

Both of the above households entered the typical stage of decline at an early age, bypassing the zenith stage. They have relied on petty trading as their dominant source of income for many years.

5.2.3.8 Land-holding without wages → Landless irregular wage-dependent

One household has moved from the Land-holding without wages category to the Landless irregular wage-dependent category. This household presents another example of a household that has not followed the typical household development cycle.

> "I am from Mafikilisiu, which is not too far away. I moved here in the 1990s, I am not sure exactly when. My husband died in around 1970, he was a teacher in Qacha. After he died my father helped me a lot. I had a field there, but I have given it away now. When I lived there I planted every year, I had contracts, but the field was not very good, it was rocky, but it was important because it meant I did not have to buy food. I moved here to be closer to the clinics and shops. I had livestock from *bohali* and they were used for ploughing and for selling, but they were all stolen. The last were stolen in 1999. I started brewing beer after they were all stolen. My daughter sends me money when she has a job." (Household 14).

This household lost its main source of income at an early age, and highlights the importance of social capital and reliance on family for support in times of crisis. It also highlights the trade offs that households make: the move from Mafikilisiu to Ha Mavuka was at the expense of the households' arable land. This example once again highlights the shock that stock theft presents on a household, and that the household started brewing beer as a coping mechanism. This household is clearly in a stage of advanced decline, and like the households in the previous section, bypassed the zenith stage.

5.2.4 Summary

All households have moved to a different category over time, as their access to assets has changed due to either the natural progression of the household (i.e. change from regular remittances from household head to irregular remittances from children) or due to shocks such as death of the breadwinner or stock theft. Although death of a breadwinner can be considered part of the natural progression of the household, it still constitutes a shock to the household. Such shocks are an important driving factor of the change in household

assets and therefore livelihood strategies. Many households have developed mechanisms, such as the brewing of beer, as a means of coping with such shocks. In some cases, such as Household 15, shocks result in the household falling out of the typical development cycle.

5.3 Present livelihoods in Ha Mavuka

The above sections on the development cycle have provided an overview of how households' access to assets and livelihood strategies change over time. The categories developed by Spiegel (1980) were used to conceptualise the differences that exist between households and how they move between categories as the household develops according to the household development cycle. However, these categories did not allow for a thorough understanding of the present differences in household access to assets and the consequent livelihood strategies adopted. To overcome this, and therefore provide a clear picture of present livelihoods in Ha Mavuka, new categories have been developed: robust, coping and poor. The following section outlines how these categories were developed.

5.3.1 Livelihood categories

The broad livelihood categories were determined by relative wealth. All the households in the villages were ranked according to relative wealth during a *pitso* (community meeting) as a means to determine which households get access to the limited food aid. The households that were interviewed were then ranked according to this list, thus, the household ranked poorest is not necessarily the poorest in the village, but is the poorest in the study sample. Three broad wealth categories have been used: robust, coping and poor. Each household was assessed on the basis of the amount and types of livelihood strategies adopted (Table 5.3). It is important to state from the outset that there is inherent variability in livelihood strategies adopted and therefore not all households in the designated categories have identical livelihood strategies, but rather have similar characteristics. The main livelihood strategies pursued include garden cultivation; poultry rearing; livestock ownership; steady income from the sale of produce, goods or from other sources such as a disability grant; arable cultivation; reliance on remittances from

absent household members; the brewing and sale of beer; the use and collection of wild resources, particularly wild foods, medicinal plants and fuelwood; reliance on government issued food aid; and reliance on donations for food or money from family, friends or neighbours (Tables 5.2 and 5.3).

5.3.2 Categories and wealth

The categories were then established using the criteria of a minimum of four households per category. Households in general adopt multiple strategies, and a diverse range of strategies (Table 5.2). Pursuing multiple strategies can be said to be a strategy in itself, but for the analysis in this study, each strategy was examined individually. Households in the robust category are more focused on agricultural activities and have access to a steady income. Households in the coping category generally adopt a wider range of strategies (Table 5.4). Coping and poor households rely more heavily on wild resources, donations and government food rather than livestock and arable land. However, looking solely at the number of strategies adopted did not allow for a realistic analysis of livelihoods because although, for example, all households cultivate a garden, some households cultivate more efficiently and produce a surplus, while others only produce enough for subsistence use. To account for the differences in effectiveness of each strategy they were ranked and then households were given a score depending on their effectiveness. For example, households that produce a surplus from their gardens were given a score of three, while those who produce enough for subsistence scored two, and those who were unable to plant effectively but still attempted to were given a score of one (see Appendix 2 for scores). Table 5.3 details the scores allocated to each strategy. The scores were then tallied and compared with the number of livelihood strategies adopted and labour availability for each category (Table 5.4 below).

Table 5.2 Livelihood strategies adopted by households in Ha Mavuka

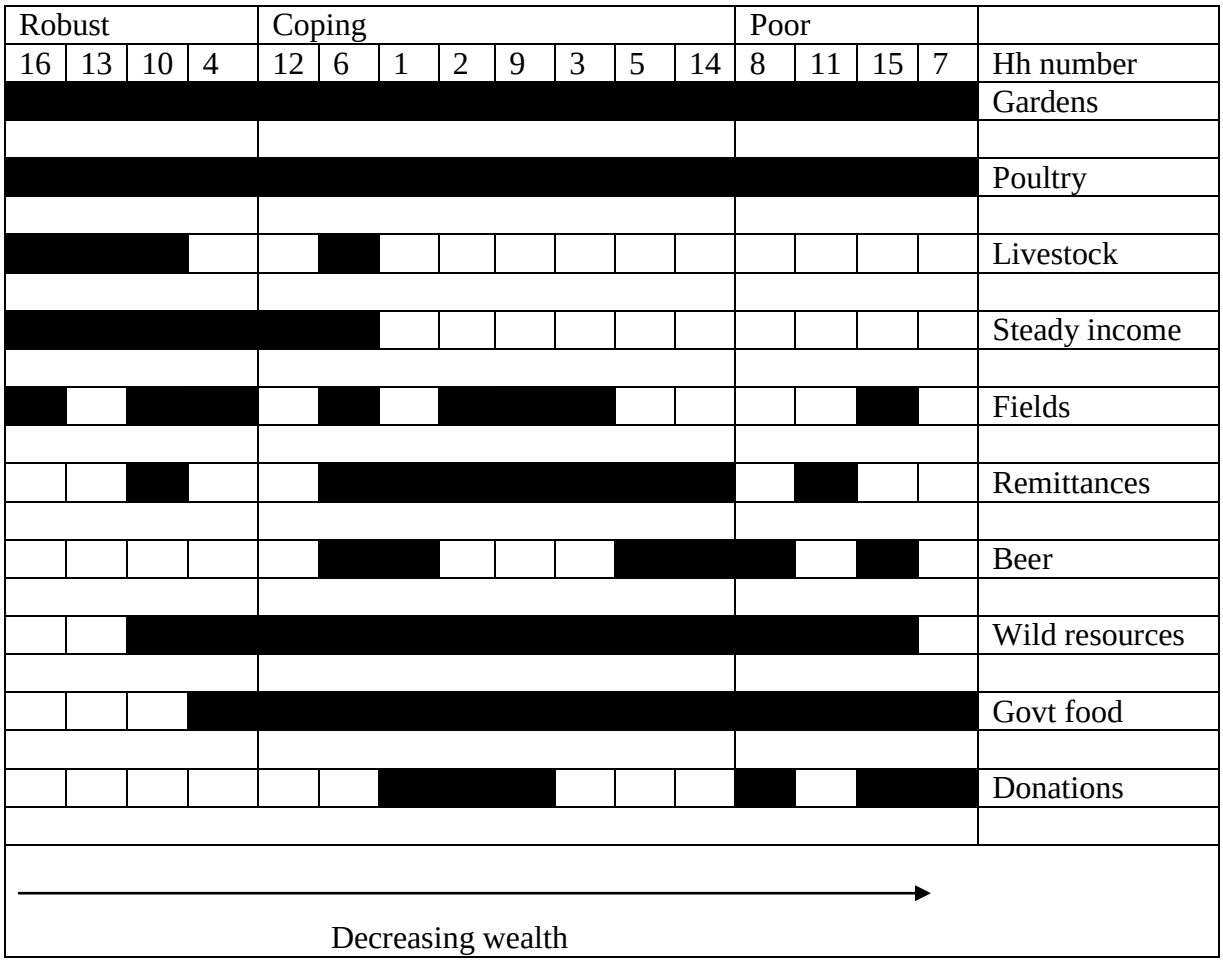

Table 5.3 Scores allocated to each household

Category	**Robust**				**Coping**								**Poor**			
Hh number	16	13	10	4	1	12	6	2	5	9	3	14	8	11	7	15
Gardens	3	3	3	3	3	2	3	3	2	2	2	2	2	2	1	1
Livestock	3	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Poultry	3	2	1	3	1	3	2	1	3	1	1	1	1	1	1	1
Steady income	2	2	3	1	0	1	1	0	0	0	0	0	0	0	0	0
Fields	3	0	2	2	0	0	2	1	1	1	0	0	0	0	0	1
Remittances	0	0	1	0	1	0	3	3	2	1	1	1	0	1	0	0
Beer	0	0	0	0	2	0	2	0	0	0	2	2	2	0	0	1
Wild resources	0	0	2	2	1	1	2	2	2	2	0	2	2	2	0	2
Govt food	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Donations	0	0	0	0	2	0	0	1	0	2	2	0	1	0	1	2
Total points	14	10	13	11	11	8	17	12	11	10	9	9	9	7	4	9
No. of strategies	5	4	7	6	7	5	9	7	6	7	6	6	6	5	4	7
Hh size	12	2	8	5	4	2	10	11	10	10	7	6	4	5	1	1
Adults	7	2	2	1	1	2	5	2	7	1	3	2	2	2	1	1
Children	5	0	6	4	3	0	5	9	3	9	4	4	2	3	0	0

Table 5.4 Summary attributes per category

	Robust (n=4)	**Coping (n=8)**	**Poor (n=4)**
Mean total score	12.3 ± 1.5	10.9 ± 2.6	7.3 ± 2
Mean number of strategies	5.5 ± 1.1	6.6 ± 1.1	5.5 ± 1
Mean score per strategy	2.3 ± 1.2	1.6 ± 0.2	1.3 ± 0.2
Mean household size	6.8 ± 3.7	7.5 ± 3.1	2.8 ± 1.8
Mean number of adults	3.0 ± 2.3	2.9 ± 2	1.5 ± 0.6
Mean number of children	3.8 ± 1.1	4.6 ± 2.9	1.3 ± 1.5

A one way ANOVA revealed that there was no significant difference between the number of strategies pursued across the different categories ($p = 0.2$). There was a significant difference in the mean score per strategy ($F = 14.84$, $p = 0.0004$). A pairwise comparison revealed that robust households had a significantly higher mean score per strategy than the coping and poor categories, but there was no significant difference between the coping and poor categories. This indicates that although all households pursue a similar number of strategies, robust households are more effective at the strategies that they pursue. There was a significant difference in the total score per strategy ($F = 4.45$, $p = 0.03$). A pairwise comparison showed that there was no significant

difference between the robust and coping categories, but that the poor category had a significantly lower total score per strategy. Households in the poor category therefore appear to have an equally diversified portfolio of activities as the other categories, thereby spreading risk across a range of activities, but receive low returns from all strategies. The coping households appear to be marginally more effective than the poor households. They too have a diversified portfolio of activities but are not as effective at each strategy as the robust households. Household size differed between the categories, and although there was no significant difference, the low household numbers in poor households suggests that they may potentially be constrained by labour availability.

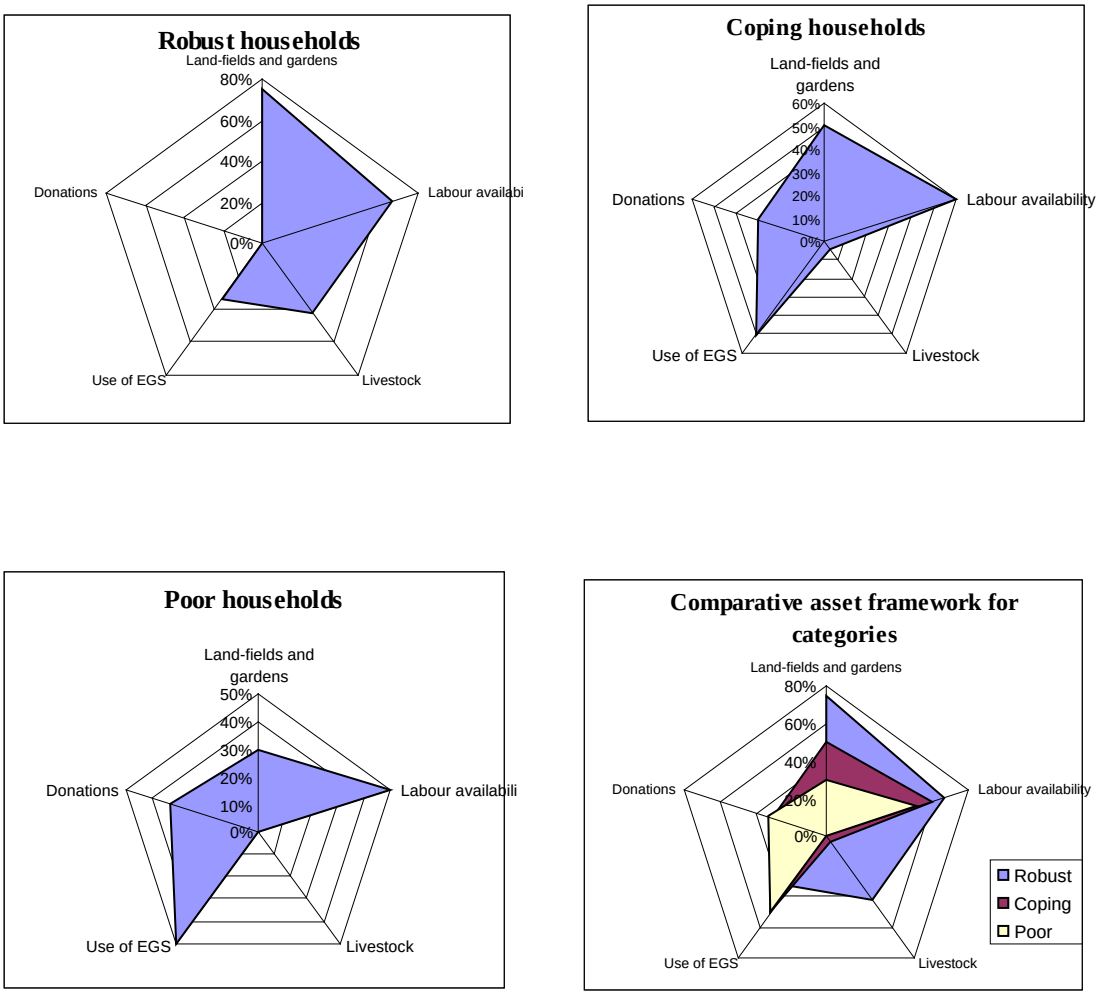

Figure 5.1 Comparative asset frameworks

The differences between the categories can be visualised through the use of the asset pentagon from the SLF, using selected assets (Figure 5.1). The assets selected were land, encompassing both fields and gardens; labour availability; livestock ownership; use of wild resources; and donations. The mean score was calculated for each asset per category, and then calculated as a percentage of the total possible score.

5.3.3 Sensitivity analysis

The results on scores per category (Table 5.3 and 5.4) are based on the premise that all strategies are of equal importance to participating households. A sensitivity analysis was conducted to test whether allocating a proportionally greater significance to certain strategies would alter the trend of declining scores with declining wealth. In the first sensitivity test, livestock were given a weighting of two, gardens and fields a weighting of 1.5, and the rest remained at one. The weightings were based on the results from one of the workshops where it was ascertained that livestock were ranked most important, followed by fields and then gardens. In addition, the various benefits of livestock were taken into account, i.e., their use as draft power for cultivation, dung provision and therefore time saved collecting fuel, and their potential as a source of cash should they be sold. In the second sensitivity test livestock and steady income were allocated a weighting of two, gardens 1.5 and the rest one. In the third test fields were allocated a weighting of two, livestock and steady income 1.5, and the rest one. Table 5.5 below outlines the results of the sensitivity analysis.

The sensitivity analysis indicated clearly that the various weightings alter the scores slightly, but not the dominant trend. The weightings generally increased the differential between the robust and the other two categories, but had little impact on the differential between the coping and poor. This indicates that those activities that were given proportionally higher weightings are predominantly carried out by the wealthier households, and that they are more successful at the strategies that are adopted by a wide range of households.

Table 5.5 Sensitivity analysis of strategy weightings at Ha Mavuka

	Mean score per category			**Differential between categories**			**Mean score per strategy**		
	Robust	**Coping**	**Poor**	**Robust and coping**	**Coping and poor**	**Robust and poor**	**Robust**	**Coping**	**Poor**
Initial analysis	12.3	10.9	7.3	13 %	49 %	68 %	2.3	1.6	1.3
Analysis 1: Livestock=2, fields and gardens = 1.5, rest =1	16.4	11.4	8.1	43 %	40 %	102 %	3.1	1.9	1.5
Analysis 2: Livestock=2, steady income=2, gardens=1.5, rest=1	17.5	11.2	8	56 %	40 %	118 %	3.3	1.8	1.4
Analysis 3: steady income=2, gardens=1.5, rest=1	15.8	11.1	8	42 %	39 %	98 %	2.9	1.8	1.4

5.3.4 Characteristics of each category

5.3.4.1 Robust households

All four households in this category have productive gardens and all but one household produce a surplus from their gardens, which is then sold and provides a steady income source. The two wealthiest households have relatively large number of livestock, which provide several benefits, including income from the sale of wool. One household has fewer than five cattle. All households have a source of income, either selling surplus vegetables, selling wool, disability grants, or selling clay pots. Those households that have fields are successful, but rarely produce enough surplus to sell, the harvest is kept for subsistence use. A possible reason for the relative success in cultivation, both arable and garden, of these households could be because investment, in terms of seeds, fertiliser, labour, etc., is needed for successful cultivation (Murray 1981, McAllister 1999, Green 2000, Twyman *et al.* 2004). Households in this category are therefore more in a position to invest in cultivation, and as a result reap better harvests. Only one household receives government food, and this is only when a large quantity of food aid is provided. None of the households rely on donations, none brew beer as a means to bring income, and only

one relies on intermittent remittances. The wealthiest households do not rely on collecting wild resources.

> "There are only two of us here, me and the herdboy, he looks after the stock, I have 71 sheep and goats and nine chickens. The wool is sold to the project every year, and sometimes I slaughter a sheep or goat to eat. I sold my cattle in 2001, they were kept in Mokhotlong and were being looked after by my daughter but it was easier to sell them. I plant my garden every year, and sell vegetables every year. I have no field, I have no one to help me so I have never had one. I go to the clinic when I am sick, I do not know the traditional medicines so I go to the clinic. I don't go and collect wood or food because I am afraid to go and collect on my own. I rely on dung from the animals and paraffin for fuel. There is enough food for me from my garden, but I buy things I need with the money from the wool and selling vegetables." (Household 13).

5.3.4.2 Coping households

The coping households make up the largest group (eight) and are the most diverse group in terms of strategies adopted and total scores (Table 5.3). Nearly all households have a diversified portfolio of strategies and adopt more than six strategies. All households cultivate gardens, and only three produce a surplus most years, which they then sell. The remainder of the households produce significant amounts that contribute to their subsistence. Half of the households cultivate arable fields, but only one obtains sufficient harvest for subsistence purposes. The scores for arable cultivation are much lower than the robust category (Table 5.3), showing that households in this category are less successful at cultivation. Only one household has livestock, and only has two head of cattle. Two households receive a steady income from vegetable production. All the households in this category rely on government food aid, and all but one rely on wild resources to some extent. Half the households rely on donations, and all except one receive remittances, but only two receive them regularly. Four households brew beer weekly as a means to obtain extra cash. The excerpts below highlight the differences in the range of activities carried out within this category.

“There are 10 people that live here, one of my children has a job at Ma China (supermarket in Ha Mavuka), one is studying at the National University of Lesotho and two are working in South Africa. They send money home when they can, about every two months. I have two cattle, a few months ago I had more but three cattle and a horse were stolen. I cannot sell them now; I did when there were many. I do not hire them to people to plough; they are used only in my field. I have three fields, but my plough has been stolen so I could only plant two. If I have a good harvest I sell some, but this year was not a good one so I did not sell. I also sell from my garden when there is a good yield. I sold some cabbages this year, for between M5 and M7 (M1 = R1) depending on the size. I collect and use wild vegetables every day in summer, and medicines when someone is sick. I can use dung from my kraal, but have to go far to collect wood and shrubs for fire. I brew beer at least once a week, sometimes more to get money because there is little other money coming in. If I really need money then my children in South Africa must send some to me. The government gives us food every month, and it can last the whole month.” (Household 6).

“There are 10 people here in the house and no one has a job. The children are my grandchildren, their parents are in South Africa and they send money home once in a while. I have 10 chickens, I keep the eggs so that they can reproduce, and eat one about every three months. I have two fields where I plant wheat and beans, but I have no livestock to plough it and it is a problem to get seeds so I do not plant every year, but I did plant this year and I got a poor harvest. When I want to plant I have to hire livestock from someone else and the reason I had a poor harvest now was because there were no livestock available so I planted late. I also have a garden where I grow potatoes, turnip, spinach and carrots but I do not produce enough to sell any, it is just for the house. I go and collect wild vegetables every day in summer and collects dung and shrubs for fuel, but you have to look hard to find them now. The government food does not last the whole

month, and if I need money I have to sell a chicken or I can borrow from my neighbours or friends." (Household 5).

5.3.4.3 Poor households

The four households in the poor category are all female headed households, and they often adopt a range of strategies to achieve a certain level of livelihood security. All four households plant a garden, but two of the households are unable to plant them effectively because they are too old and have no labour available to assist them. All four households have a low number of poultry, and often sell either the poultry or eggs to raise income for the household. All four households rely on government food, and all but one rely on donations. One household has a field, but is unable cultivate effectively due to a lack of inputs and therefore receives little or no harvest from the field. Two households brew beer, one only when cash is needed to repay loans, and the other more regularly to provide a regular source of income. Three out of the four households rely on wild resources, the other household has no labour available and the head of the household is too old to collect wild resources herself.

Households in this category therefore tend to engage in strategies that require little financial input, such as collecting wild resources, relying on government food and donations, rearing poultry and planting gardens, and in return reap limited rewards. These households provide an example of how diversification of livelihood strategies does not necessarily equal increased well being.

"There is just me in the household. I have only one chicken at the moment, and I keep the eggs so that it can reproduce and there can be many. I have three fields, but I cannot plough them so I have given them to other people and I get a small share of the harvest. I plant maize and turnip in my garden, but I am old and have no power to hoe and weed so it is not very successful, there is just enough for me. I collect medicines, wild vegetables and fuel often. The government gives me food every month, so I do not need to buy maize meal. There is no money coming in, I borrow from my neighbours if they have cash, I have maize meal so I do not

need that. I must then brew beer to make some money to pay back the neighbours, but I only make beer for this." (Household 15).

5.3.5 Seasonal calendar of livelihood strategies

The participants in the workshops were asked to rank the importance of the livelihood strategies that they perceived to be most important, which were livestock, fields, gardens and finally jobs. A seasonal calendar was then constructed to ascertain whether certain strategies are more important at certain times of the year (Table 5.6).

Table 5.6 Seasonal calendar for livelihood strategies

Livelihood strategy	**Spring**	**Summer**	**Autumn**	**Winter**
Livestock	Important all year round			
Fields	Plant crops		Reap	Reap
Gardens	Plant vegetables	Plant	Reap	Reap
Jobs	Important all year round			

Livestock is equally important all year round, as are jobs when they are available. Fields are planted in the spring and harvested in the autumn and winter. Gardens are planted in spring and summer and reaped in autumn. This means that households that cultivate can rely on their fields and gardens to provide for the winter months, and as a result they perceived fields and gardens to be most important during this time.

5.4 Conclusions

This chapter has provided an outline of changes in livelihood assets and strategies over time. The development cycle allows for an understanding of the role of temporal scale in livelihood analysis. Looking at how households have developed over time allows for a greater understanding of livelihood strategies in the present. Looking at households individually over time allows for the appreciation of the shocks and trends that have influenced household livelihood strategies. Retrenchment, death of the bread winner and stock theft appear to constitute the greatest shocks to households, and can alter the fortune of a household. This highlights how macro level political and economic factors, i.e. stock theft and retrenchments, influence livelihoods at the micro level.

Households in Ha Mavuka generally appear to follow the description of household development outlined by Spiegel (1980). However, certain households have experienced shocks that have altered the path of the household, and such shocks make it difficult to predict exactly how households will develop over time. Looking in more depth at current livelihood strategies showed that the numbers and types of strategies adopted differed between the categories, with the robust households being more effective at the few strategies they adopted, the coping households being the most diversified category, although this did not guarantee success, and finally the poor households being the least successful in the few strategies they adopted, which tended to be those with minimal capital requirements.

6 Chapter 6 The vulnerability context and transforming structures and processes in the Richtersveld

6.1 Introduction

The vulnerability context is an important factor in the Sustainable Livelihoods Framework, and outlines the externalities that influence rural livelihoods and asset availability and use (Section 3.1). Households have limited or no control over this external environment (DFID 1999). This chapter examines the externalities in the Richtersveld by firstly looking at the macro-level socio-political and economic history of the region, which together have shaped rural livelihoods over time. This is followed by an outline of the general trends that affect rural livelihoods including declining off farm employment, climate and seasonality and rangeland deterioration. The subsequent section describes the transforming structures and processes that have influenced livelihoods in the Richtersveld, and includes the establishment of the Richtersveld National Park, local institutions and laws and policies, such as land tenure reform.

6.2 The vulnerability context

6.2.1 Socio-political history

The Richtersveld is one of six coloured reserves in Namaqualand established under apartheid rule. The reserves were created as a result of a complex history of colonial dispossession (Wisborg 2002). The area was traditionally inhabited by Khoi Khoi and San people, who lived a nomadic hunter-gatherer existence, covering large distances in search of water and grazing (Archer and Meer 1997). The Nama that inhabit the area today are descendants of these original inhabitants. Europeans first entered the area in the late 18th century, the first being the *trekboere* (semi-nomadic colonial pastoralists) who placed increasing pressure on the Nama, pushing them further north (Archer *et al.* 1994, January 2002). The semi-nomadic *trekboere* moved seasonally across the rangelands, as did the Nama, but the *trekboere* had the advantage of superior military strength and successfully expropriated the means of production of most of the indigenous

inhabitants by the end of the nineteenth century (Hoffman *et al.* 1999). Private property became dominant and the descendants of the Khoi Khoi and their pastoral practices were increasingly restricted to areas surrounding the mission stations (Hoffman *et al.* 1999).

Missionaries entered the area in the early 1800s establishing mission stations in bigger settlements such as Steinkopf (approximately 180 km from the RNP park gate) (Carstens 1966). The missionaries played an integral role in the lives of the Nama, and indigenous people in all the reserves, by encouraging them to limit their nomadic lifestyle, establish settlements and cultivate crops (Archer and Meer 1997, Hoffman *et al.* 1999). However, while the missionaries' influence resulted in significant sedentarisation in other reserves in Namaqualand, it did little to impact on the social organisation of the people in the Richtersveld (Boonzaier 1987, Hendricks 1997). In 1847, the whole of "little Namaqualand" (the area that currently forms the Namaqualand magisterial district) was appropriated by the Cape Province and became subject to British rule (Sharp and West 1984, Plaice 2001). With the expansion of colonialism into Namaqualand came the resultant threat to the Nama from the ever encroaching white farmers. In addition, the discovery of minerals, copper then diamonds, in Namaqualand had a profound impact on livelihoods over the past 150 years. Copper was first discovered by the settlers in the 1850s. These mineral rich areas were privatized, and the first copper mine was opened in 1853 (Archer and Meer 1997, Hendricks 1997).

The mission stations provided a base around which the formal reserves were established. "Tickets of occupation" were issued by the colonial government guaranteeing the Nama protection from the *trekboere*. Under this system, the land surrounding the mission stations was held in trust on behalf of the Nama, and they were allowed access to occupation and grazing, but not minerals (Archer and Meer 1997). This was the start of the reserve system, which was formalised under the Mission Stations and Communal Reserves Act in 1909. Under this legislation, formal "Tickets of Occupation" were granted to the indigenous people in the reserves, where the tax paying Nama were allowed to live, cultivate and graze their cattle, but ensured that the ownership of the mineral rich areas were removed from the Nama (Robins 1996, Archer and Meer 1997,

Hendricks 1997, January 2002). The formally demarcated reserve areas were smaller in size than the land that they had previously utilised and had access to (Boonzaier 1987, Hendricks 1997, Plaice 2001). The Act also served the purpose of formalising the local councils (*raad*), which had been developed in the mission stations. The councils had formerly consisted of community members and were chaired by the missionaries. The Act effectively removed the church from its role in the council and established a level of local government, whereby the councils were managed initially by the district magistrate and later by the Department of Coloured Affairs (Boonzaier 1987).

According to Hendricks (1997), the Act and the resultant establishment of formal reserves served the primary purpose of providing a steady supply of wage labourers for the mines and white farms in the area, as well as gaining control of the mineral wealth (Hendricks 1997, Marinus 1998). A combination of factors including: 1) drought, 2) the decreased amount of land available in the reserves and 3) the introduction of tax undermined peoples' ability to secure a rural livelihood and forced the Nama to partake in migrant labour (Sharp and West 1984, Hendricks 1997). The reserves were more or less left to govern themselves, with little social or infrastructural development taking place. The traditional range management practices and institutions still functioned, but the changing economic and development policies meant an increased integration into the formal economy in the form of dependence on wage labour, and the Richtersveld, like the other Bantustans in South Africa, became a labour reserve (Archer *et al.* 1994).

The discovery of diamonds in the 1920s resulted in further tracts of land being appropriated by mining companies, the profits of which went to wealthy developers rather than to the communities. Few benefits, other than employment opportunities, were felt in the area (Isaacs *et al.* 2000). Large tracts of land along the west coast were fenced off for diamond mining and entry into these areas was forbidden (Archer and Meer 1997, Plaice 2001). This is still the case today, although the Richtersveld community has been involved in land claims to restore this land to the community (Section 6.3.3.2).

The exclusion of the indigenous people from access to land and minerals continued under the apartheid regime. Some Nama speaking families lived on white owned farms as labourers until the 1940s, after which they were moved off into the already over populated reserves (Archer and Meer 1997). The Group Areas Act of 1950 formally confined farming by indigenous groups to within the reserves, and in doing so, the apartheid government implemented its plan of separate geographical areas for people of different races. As with the other coloured reserves and bantustans, little or no social and infrastructural development took place in the Richtersveld under apartheid. In 1949, a group of stock owning, landless people named the Bosluisbasters from further south in the Cape Province were granted permission to move into the area, and settled in the southern Richtersveld, primarily in Eksteenfontein (Boonzaier 1984, 1987, Archer *et al.* 1994, Joseph and Parris 2000). This influx of people resulted in increased pressure on the land in the reserve, as well as a polarisation in the community, between the traditional inhabitants of the reserve (*boorlinge*) and the new arrivals (*inkommers*). This was manifested in the patterns of the settlements in the reserve, with the northern Richtersveld being primarily inhabited by traditional inhabitants, and the southern Richtersveld primarily by the Bosluisbasters (Boonzaier 1984).

In 1963, the Rural Coloured Areas Act was passed which transferred control of the reserves to the newly established Department of Coloured Affairs (Hendricks 1997). Under this legislation, the Minister of Coloured Affairs made provisions for the reform of the existing system of communal tenure by dividing the land into residential and agricultural zones. The agricultural zones would be altered by the introduction of 'economic units', which were units of individual tenure for 'bona fide' farmers, and it was thought that this change would arrest the perceived increase in degradation (Boonzaier 1987, Khrone and Steyn 1991, Rohde *et al.* 1999). However, this was not carried out until the 1980s. This will be discussed further in Section 6.2.2.1.

The colonial and apartheid policies resulted in the indigenous inhabitants of the area being dispossessed of the majority of their land, and the abundant minerals and marine resources along the coast (IDP 2002, Oppel 2002). The effects of these policies are still

seen today, as the most productive and valuable land is held by mining companies. The communal areas make up 25 % of Namaqualand, and contain over 70 % of the population (Anon. 1998). The former 'coloured reserves', as with many other communal areas in South Africa, are still characterised by high unemployment, heavy grazing and a skewed demographic structure (Anon. 1998). There have been efforts to address these inequalities since independence in 1994, but only marginal progress has been made.

6.2.2 Economic context

The introduction of the inhabitants of the area to the formal cash economy played a significant role in the livelihoods of the people. According to Hendricks (1997), by the time the Mission Stations and Communal Reserves Act was passed in 1909, the proletarianisation of the inhabitants of the reserves was well under way. The discovery of minerals played an integral role in this, as more land was expropriated thus reducing the size of land available and therefore the potential to subsist on farming alone, combined with the introduction of taxes on all adult males living in the reserves (Sharp and West 1984, Rohde *et al.* 1999). The traditional way of life, which consisted of livestock farming and reliance on the land for a variety of purposes, was steadily eroded as more resource rich land was lost to the mines. This had the added impact of disturbing traditional pasture routes (Archer and Meer 1997). The overall impact was an increasing reliance on migrant labour opportunities on the mines for livelihood security.

Nationally, Namaqualand is the second richest region in terms of mineral wealth, after Gauteng, but is one of the least developed regions in the country (Khrone and Steyn 1991, Modiselle 2001). Although minerals were first discovered in Namaqualand, growth was orientated around existing centres such as the former Pretoria-Witwatersrand-Vereniging (PWV, now Gauteng) areas as opposed to peripheral areas like Namaqualand (Khrone and Steyn 1991). The region is characterised by poverty and underdevelopment, as indicated by the Human Development Index (HDI). An optimum HDI score is 1, South Africa as a whole scores 0.677, the Northern Cape 0.698, Namaqualand 0.428, and the coloured population of Namaqualand a low 0.340 (Rohde *et al.* 2000). The mines have had a positive impact on the region in terms of infrastructure provision, such as well

maintained gravel roads, electricity and health care, but this is limited to areas around and between the mines and little infrastructural development has taken place in the towns and settlements themselves (Isaacs *et al.* 2000, IDP 2002, Oppel 2002).

Employment on the mines has fluctuated over time with changes in supply and demand for minerals. Migrant labour opportunities on the mines were therefore characterised by insecurity, with several periods of mass retrenchment resulting from changes in market forces (Boonzaier 1987, Khrone and Steyn 1991). The fluctuations in employment on the copper mines in Namaqualand provide an example of this. After early successes in the late 1800s the copper industry was effectively brought to a standstill by the First World War in the early 1900s due to import regulations and the lack of available inputs (Sharp and West 1984). This resulted in the closure of operations and therefore widespread loss of employment. After 1939, employment opportunities once again grew, as a result of renewed investment in copper and the increase in diamond mining, as well as increases in ocean fishing. This boom period lasted until the late 1970s when migrant labour opportunities in copper mining were drastically reduced (from 2300 to 600 in O'Kiep mine near Springbok) (Sharp and West 1984). The above highlights the past fluctuations in mine employment and shows the inherent uncertainty associated with such employment.

In 2001, mining accounted for 21.5 % of the regional Gross Geographic Product (GGP) and provided employment for 10 % of the active population (Dept. of Labour 2001). Agriculture (which included forestry, fisheries, subsistence agriculture, capital intensive production and extensive livestock production) contributed 9.6 % to the regional GGP, and provides employment for 32 921 people, compared with the 23 941 employed in mining (Dept. of Labour 2001). Therefore, agriculture, although providing more jobs, contributes substantially less to the GGP.

The current South African government inherited a multitude of problems from the apartheid era, including poorly serviced rural areas and skewed access to resources, as well as a legacy of distrust, dispossession and forced removals (Isaacs *et al.* 2000). The

Richtersveld Local Municipality was formed under the Local Government Municipal Structures Act No 117 of 1998 and was an amalgamation of the former Richtersveld Transitional Council and the Port Nolloth Transitional Council (IDP 2002). The municipal restructuring has meant that the local municipalities now have a greater area to service. Infrastructure is still limited in the area (Section 7.6), but there have been several recent improvements such as electricity and water provision. However, a stakeholder analysis revealed that there were several problems with service provision in the Richtersveld Municipality (IDP 2002), and infrastructure and service provision in the area is still relatively poor.

6.2.2.1 The privatisation of the commons

As alluded to earlier, the reserves were more or less left to manage themselves. However, the government did intervene in the early 1980s with an attempt to privatise the commons in the reserves. The intervention, in the form of proposed 'economic units', was designed to address the perceived degradation in the area, which was seen as a direct result of the uncontrolled access perceived to be associated with communal farming. Livestock farming in the reserves has always been semi-nomadic, as farmers adapt to the arid, water scarce conditions by moving regularly. A stock post is established and livestock return to this base every night. When there is no longer sufficient water or grazing in the vicinity of the stock post it is dismantled and moved to another location. Farmers therefore covered great distances in search of water and grazing, moving into different vegetation and rainfall zones seasonally. The economic unit system sought to change this to a western system by providing farmers with a set area of land on which to farm.

Although economic units were initiated in Namaqualand in the 1980s, provision had been made for such developments in the Rural Coloured Areas Act of 1963. Economic units came into effect subsequent to the formation of the tricameral parliament, which allowed Indians and Coloureds a voice in parliament for the first time. Leading figures in the coloured House of Representatives, which controlled the administration of the Richtersveld, sought to promote elite interests in the reserve areas through the economic unit system. Under this system certain individuals would gain exclusive access to large

tracts of land, which would increase their productivity (Archer *et al.* 1994, Rohde *et al.* 1999).

The official motivation for the implementation of economic units was to change the existing system of communal tenure to one of individual tenure. Communal tenure was perceived to inevitably result in a 'tragedy of the commons' scenario, where each farmer would try and maximise gains, at the expense of the rangeland (Hardin 1968, Boonzaier *et al.* 1990). It was assumed that privatisation would make individual stock farmers take more responsibility for the environment over which they had tenure, thereby putting a stop to the perceived overgrazing and resultant degradation, while at the same time increasing productivity (Boonzaier 1987, Khrone and Steyn 1991, Hendricks 1997, Rohde *et al.* 2002). The existing Richtersveld Reserve was divided up into 44 economic units, which varied in size from 5 360 ha to 11 240 ha and were open for application, at a cost of R250 per annum, provided one was a 'bona fide' farmer, and had over 200 head of stock, or assets to the value of R3 000 (Khrone and Steyn 1991). The term 'bona fide' itself was problematic because many farmers were part time farmers, who were employed on the mines or on white farms, but nonetheless relied heavily on stock farming (Boonzaier 1987, Hendricks 1997). The occupants of the Northern Richtersveld (around the towns of Kuboes and Sanddrift) unanimously rejected the scheme, saying that they would not pay for land that was traditionally theirs (Boonzaier 1987). In the southern Richtersveld (surrounding Lekkersing and Eksteenfontein) on the other hand, most of the 37 economic units were allocated and leased to applicants.

Many problems arose as a result of the system in several of the Namaqualand reserves. The reserve of Leliefontein (approximately 400 km south east of the Richtersveld National Park gate) provides an example of the inequalities in distribution of land that arose out of the economic unit system. Leliefontein was divided into 47 units, of which 30 were hired out to individuals or small groups of individuals, and the remaining 17 units were shared by the rest of the farmers. In total, 74 farmers utilised the 30 allocated units, and had access to an average of 1 304 ha per farmer, compared to the 203 remaining farmers who had access to an average of 280 ha each (Khrone and Steyn 1991,

Rohde *et al.* 1999). The communal farms were therefore under immense pressure and became overgrazed (Marinus 1998). In the southern Richtersveld, a total of 44 units were demarcated, 29 of which were allocated for a total of 300 farmers (Khrone and Steyn 1991). Those farmers that did not apply for, or were not granted, economic units had to share a small portion of commonage, which included the unallocated units (Hendricks 1997). This stresses the increased pressure that the system exerted on certain areas of the rangeland.

The economic unit system impacted on other aspects of livestock farming as well, including the traditional migratory nature of farming and herd sizes (Marinus 1998). Farmers have always moved regularly in search of water and the best grazing, and often move to completely different areas in summer and winter, covering great distances (Boonzaier 1987, Khrone and Steyn 1991). Many farmers had to decrease their herd size substantially so as not to exceed the carrying capacity of their units, and other farmers, especially those who were not allocated units experienced large losses of stock due to lack of available grazing and water (Boonzaier *et al.* 1990, Khrone and Steyn 1991).

The economic unit system is an example of the imposition of external institutions upon a community, and a functional land management system. This was typical of the apartheid government and its top down style of governance and development. Communal tenure was seen by outsiders as the root cause of degradation and poverty, and that left unaddressed, a situation similar to Hardin's tragedy of the commons would inevitably occur (Boonzaier *et al.* 1990, Rohde *et al.* 1999). However, there was little or no evidence to substantiate this view that the communal management system was responsible for degradation (Archer *et al.* 1989). In addition, factors such as the existence of informal institutions and management strategies which regulate the use of resources, or land shortages playing a role in degradation were not considered (Boonzaier *et al.* 1990, Rohde *et al.* 1999). Therefore, the communal areas were viewed as overgrazed and in need of a new western management system, which was applied without taking cognisance of the local conditions, such as seasonal availability of grazing and water, and local practices, such as migration in search of grazing, as well as ignoring the role

colonial and apartheid induced land losses. According to Marinus (1998: 139), "communal tenure is best for such an area, it allows for opportunistic resource use and management strategies which embody the dynamics of informal resources use and management practices (such as migration between ecological zones, key resource use, etc.) in response to an environment which varies spatially, temporally and seasonally". Khrone and Steyn (1991) highlight that the economic units were not economically viable, limited mobility and therefore access to water and grazing, and provided a limited number of people with sufficient to sustain a living, thereby concentrating the benefits in the hands of a few, at the expense of the community as a whole (Boonzaier 1987, Hendricks 1997). The economic unit initiative was therefore responsible for further marginalising most stock farmers (Rohde *et al.* 1999).

In 1989, after a series of court cases, those opposed to the system were successful and the economic units were discontinued and the land returned to commonage (Archer *at al.* 1994). As a consequence of the disagreements between the North and the South, the Richtersveld was divided into two administrative districts, and separate management boards were established in 1986 (Archer *et al.* 1994).

6.2.3 Trends that affect local livelihoods

6.2.3.1 Declining off-farm employment opportunities

The circumstances that led to the incorporation of the original inhabitants of the area into the formal cash economy have been outlined above (Section 6.2.2). The increased exposure to and reliance on the formal economy has affected the traditional way of life in Namaqualand, where farming was the dominant source of livelihood. Since then, more and more people have become involved in the formal economy as labourers on white owned farms, as migrant labourers on the mines in the area, in the fishing industry, or by migrating to other areas such as the Western Cape.

Diamond mining is conducted by three main companies in the area, Alexcor in Alexander Bay; Transhex with three mines, Baken (near Sandrift), Bloedrif and Reuning (in Sendelingsdrif), and De Beers in Oranjemond. People from the area are also employed on

the irrigated commercial farms along the Gariep River that are owned by Alexcor. Mining is the biggest employer in the area, and in Namaqualand, where it provides 72 % of formal sector jobs (Anon. 1998). Due to the finite nature of mineral resources, it was inevitable that the mines would have a definite life span, and with the decrease in availability of minerals would come increasing loss of employment, and with that an increase in the number of households without access to wage income (Odendaal n.d). The example of declining employment on the copper mines was presented earlier to show how fluctuations in supply and market driven demand can affect job security. According to the IDP (2002), Baken is the only mine that is not in the process of downscaling. It is estimated that the downscaling of the mines in Namaqualand will result in a projected 45 % loss to the economy of the district (Anon. 1998).

Employment and stock farming are inextricably linked. The introduction of mining and therefore employment has altered the traditional way of life, where subsistence stock farming was generally the dominant activity (Archer and Meer 1997). The introduction of taxes forced most able bodied adults into employment, which eventually became an alternative or supplement to farming (Boonzaier 1987). However, the insecure nature of employment has meant that although employment provided an alternative or additional source of income, many people retained some or all of their stock while being employed. On the other hand, farming does not always provide sufficient income to support most families in the long term, and therefore wage income remains important. Many farmers are part time farmers and use income derived from employment to purchase stock, which is often kept with another herd, or is tended by a herder (January 2002, Hendricks 2003). Wage income is also used for investment in livestock as a means of insurance, as well as an important source of security in drought periods when stock losses are common (Boonzaier 1987, Smith 1991).

The declining number of jobs available therefore has repercussions for local livelihoods, as farming itself in most cases is unable to provide a sustainable livelihood. Therefore without income from employment many households will be unable to cope. Households that rely solely on employment for income and do not have stock farming to fall back on

are in a more vulnerable position. There is a high unemployment rate in the area, the IDP (2002) estimates the rate to be between 30 % and 40 %. The problems associated with the high unemployment include social ills such as theft, alcohol abuse, violence and abuse (January 2002).

Tourism has been said to have the potential to provide employment opportunities and therefore decrease the negative effect of the mining downscaling (Odendaal n.d, Anon. 1998, Joseph and Parris 2000). However, thus far, few jobs have been provided through tourism. Only 16 people from the area are employed in the Richtersveld National Park, and a few more in guest houses and tourism initiatives in the towns, and thus tourism is yet to show that it can feasibly provide extensive employment in the area (Boonzaier 1996, Joseph and Parris 2000). According to Reid and Turner (2004), local employment on the mines and migrant labour remain the mainstays of the economy, not tourism, and the opportunities provided by eco-tourism thus far have only contributed marginally to livelihoods.

The Government has established Poverty Relief Projects as a mechanism to relieve poverty in some of the poorest communities in South Africa. The Richtersveld is one of the areas that receive Poverty Relief funding, which is administered through the Department of Environmental Affairs and Tourism (DEAT). Poverty relief projects are focused on the development of tourism, and the infrastructure necessary to increase tourism, as well as protecting and conserving the environment (DEAT 2003). Such projects have strict stipulations regarding training and capacity building, the use of local labour, gender equality and the promotion of small, medium and micro enterprises (SMMEs) (Odendaal n.d., DEAT 2003). Work conducted in the Richtersveld includes the establishment of a guest house in Kuboes, road construction and maintenance in and around the National Park, and currently tourist facilities are being constructed in the park. The Richtersveld National Park itself has been allocated R27 million from DEAT, and this is largely being used for upgrading the park's infrastructure, and provides residents from the area with short tem employment (January 2002).

6.2.3.2 Climate and seasonality

The Richtersveld is an arid area. Rainfall is unpredictable, and is highly spatially variable having both summer and winter rainfall areas, as well as being temporally variable from season to season and from year to year (Smith 1991, Archer *et al.* 1994) (Section 2.3.2 and Figure 2.3). The variability of rainfall is illustrated by the coefficient of variation (cv) of mean annual rainfall, which is 45 % for the RNP (Desmet and Cowling 1999b, Hendricks 2003). This variability of rainfall affects the availability of forage for stock, and stock farmers have adapted to this by adopting a semi-nomadic lifestyle where they move their stock posts in search of water and/or grazing whenever necessary. However, if there are prolonged periods of low rainfall the rangeland will not be able to support the stock and this may lead to stock mortality. The Richtersveld is a non-equilibrium system, typical of arid regions with rainfall of less than 300 mm and an inter-annual variability of over 30 % (Behnke and Scoones 1993, Ho 2001). Vegetation changes in non-equilibrium systems are event driven and usually associated with periodic and often stochastic climatic events (Westoby *et al.* 1989, Briske *et al.* 2003). Therefore, in such systems, climate, rather than biomass production is the ultimate factor influencing stock numbers (Ho 2001). In Paulshoek, a livestock census revealed that rainfall has significant influence on herd production (Rohde *et al.* 2000). Severe drought in 1998 and 1999 resulted in the decreased reproduction (lambing or kidding) and a number of drought related stock deaths (Rohde *et al.* 2000). There does not appear to be an overall trend of rainfall decline or increase, but the inherent changes/fluctuations in rainfall can be a cause of vulnerability to stock owners.

6.2.3.3 Rangeland deterioration

There appear to be conflicting views and perceptions regarding the presence and extent of degradation in the Richtersveld. Communal grazing is still widely perceived as being detrimental to the environment and is perceived as one of the biggest threats to biodiversity in the region (Boonzaier *et al.* 1990, Hilton-Taylor 1994, Todd and Hoffman 1999). Fence line contrasts and other vegetation studies have been conducted in Paulshoek, which is situated in the Leliefontein communal area in Namaqualand, approximately 400 km from the Richtersveld (from the entrance to the RNP at

Sendelingsdrif) (Allsop 1999, Todd and Hoffman 1999). Leliefontein is comparable to the Richtersveld in that it is a semi arid area in the Succulent Karoo biome, but has slightly higher rainfall than the Richtersveld (between 150 and 250 mm), which allows for cultivation. This, along with small stock rearing, are the main agricultural activities in Leliefontein (Allsop 1999). A fence line contrast between communal land and commercial farming showed that livestock grazing impacted on the vegetation in several ways. There had been no overall reduction of species richness on the communal land, but grazing had led to the reduced dominance of perennials in favour of annuals, and had led to the significant increase of one species in particular, *Galenia africana*, or kraalbos, which is unpalatable and poisonous (Todd and Hoffman 1999). The study concluded that if heavy grazing continues, the communal rangelands are likely to become dominated by annuals and *G. africana.* In a study on the effects of grazing on soil patterns and processes it was found that small stock rearing has no immediately obvious effects on soil properties (Allsop 1999). However, the amount of bare ground has increased as a result of grazing thereby increasing the potential for erosion and nutrient loss. In addition, the spread of *G. africana*, which although undesirable, plays an important role in maintaining soil functions and the general productivity of the environment (Allsop 1999). Hoffman *et al.* (2000) reiterated the change in vegetation towards one dominated by annuals, which was in line with the perceptions of the communities in the area. The communities perceived the changes in vegetation to be a result of changing rainfall patterns and not due to the influence of livestock, although this was not substantiated by rainfall data (Hoffman *et al.* 2000) (Section 7.2.5).

The veld in the Richtersveld is generally perceived to be in good condition, but signs of overgrazing are evident, particularly around disturbed areas such as the towns, mines and stock watering points, and disturbance in some cases extends for up to four kilometres (Archer *et al.* 1994, IDP 2002, Oppel 2002). Khrone and Steyn (1991) cite two main reasons for deterioration of the veld in Namaqualand: natural conditions, such as changes in climate and extended periods of low rainfall; and secondly, distribution of livestock, as livestock is concentrated in certain areas, such as around watering points.

The RNP has a set limit of 6 600 small stock units, which was somewhat arbitrarily decided upon (Hendricks *et al.* 2004). According to Boonzaier (1996), the park farmers challenged the view that there was overgrazing in the park and therefore did not agree with the stipulation of a static carrying capacity and limit to amounts of stock. The farmers feel that a dynamic assessment is needed to decide upon the carrying capacity, which takes into account the changes in rainfall and movement. Ho (2001) notes that in non-equilibrium systems it is important to differentiate between vegetation change due to grazing pressure, and change resulting from erratic rainfall. Rangelands in the area do not appear to be overgrazed or in poor condition, but are rather influenced by climatic conditions.

6.3 Transforming structures and processes

Transforming structures and processes are the institutions, policies, organisations and legislation that influence and shape livelihoods (DFID 1999). They operate at multiple levels, from the household level to the national level. This section outlines the transforming structures and processes that have influenced the Richtersveld area. Firstly, the establishment of the RNP and its impacts on various aspects of local livelihoods and the area as a whole will be discussed. This is followed by a discussion of the formal institutions operating in the area, the informal institutions will be discussed in the following chapter (Section 7.5). Finally this section provides an outline of the laws and policies that have been implemented, particularly regarding land tenure.

6.3.1 The establishment of the Richtersveld National Park

In the 1970's the Richtersveld area was earmarked for conservation because of its rich biological diversity and the lack of representation of the mountain desert biome in the national protected area network (Isaacs *et al.* 2000, January 2002, Reid and Turner 2004). In 1973 the National Parks Act was amended to include contractual parks, where mining and prospecting could take place within a National Park. Negotiations concerning the establishment of the park were limited to discussions between the National Parks Board (NPB), the Department of Local Government and other government agencies. There was no direct consultation with the community. The

community was ‘represented’ by the Richtersveld Management Board (RMB), which was neither democratically elected nor representative of the Richtersveld community (Glavovic 1996). In 1988, a contractual agreement was reached between the various state parties and the RMB for the establishment of a park of 162 000 hectares, which was justified on moral and aesthetic grounds, without any direct consultation with the community. The contract involved the removal and relocation of stock farmers from the national park area to a smaller area, and the cessation of stock farming in the park (Table 6.1). There was great opposition from the entire Richtersveld community, who were not necessarily against the park, but against the lack of meaningful community consultation and involvement in the process and the terms of the contract (Table 6.1). As a result of this, a community representative went to Cape Town to obtain a court interdict to stop the signing on the grounds that the RMB was not representative of the community. The interdict was granted, and after two years of negotiations the new contractual agreement was completed, and the Richtersveld National Park was established in 1991. According to Boonzaier (1996), the community perceived links between the establishment of the national park and the system of economic units, seeing as both were imposed upon them by outsiders, involved encroachment onto their land and culminated in a court case.

The central grievance was the relocation of people and the exclusion from accessing resources in the area. The land being offered in compensation was much smaller that the original area, and had less access to water. During the negotiation period the NPB was persuaded to conduct research into the effect of communal stock farming on the environment and it was shown that the park area was not overgrazed and that current grazing practices were not an environmental hazard (Archer *et al.* 1994, Glavovic 1996). As a result, those farmers with historical links to the land were allowed to continue grazing in the area, but stock numbers in the park were to be limited to 6 600 small stock units (SSU) at any one time. In addition, SANParks would also provide two additional farms to be included into the communal area to compensate for the loss of grazing as a result of the formation of the park (Isaacs *et al.* 2000).

Table 6.1 A comparison between the original and revised Richtersveld National Park contracts.

	Pre 1988 contract	**1991 contract**
Lease	99 years	24 years, with six years written notice
Lease payment	R0.5/hectare/annum to be paid by NPB to the RMB for one section of the park	R0.5/hectare/annum for the entire area to be paid into a trust fund each year. This amount is to be adjusted every five years for inflation
Management body	NPB	Richtersveld Joint Management committee (RGBK)
Access to resources	Stock farming and collection of resources to be phased out, other land to be made available for compensation	Stock farmers with historical links to be allowed to remain in park, maximum of 6 600 small stock units allowed, resource collection permitted

(Archer *et al.* 1994, Glavovic 1996, Robinson 1998, January 2002)

The funds from the lease payment were used to start the Richtersveld Community Trust, which is managed by independent outsiders who reside in Cape Town. The lease payment is R92 000 per year, which is paid into the trust and used primarily for educational purposes such as bursaries and transport to schools for children in the area, and social upliftment (Archer *et al.* 1994, Isaacs *et al.* 2000, Krog 2000).

A joint management committee was established to decide on the terms of the amended contract and to develop a management plan for the National Park. The joint management committee (known by its Afrikaans acronym RGBK - *Richtersveld gesaamentlike bestuusrkomitee*) consists of one representative from each of the four Richtersveld towns, one stock farmer representative and four SANParks representatives. The management plan was finally drafted in 2002.

6.3.1.1 Social issues and conflict surrounding the national park

The establishment of the national park has had various influences on the area. In particular it has resulted in changes in social capital. The Richtersveld 'community', as with other communities, is often perceived as being a homogenous, cohesive unit. This is problematic in that it ignores the complexity and different interest groups that exist within communities (Mearns *et al.* 1998, Koch 2004). In reality complex relationships exist in the Richtersveld, with differences and tensions between individuals and between groups, that have been exacerbated by the formation of the park in some cases, and resolved in others.

There has been a history of tension between the residents of the northern (Kuboes and Sanddrift) and the southern Richtersveld (Lekkersing and Eksteenfontein), which originates from the movement of the Bosluisbasters into the southern Richtersveld (Section 6.2.1). As a result of this influx, the Richtersveld became polarised along ethnic lines (Archer *et al.* 1994, Boonzaier 1996). According to Archer *et al.* (1994), this antagonism has been exacerbated by the south's perception that Kuboes has the greatest share of political power and economic benefits, whereas the northerners view those in the south as less politically advanced and are guilty of participating in regressive policies such as that of economic units. The Bosluisbasters were seen as being more civilised, and more 'European' than the traditional Nama, who in turn were seen as backward and primitive. The Basters in this context refers to people of mixed descent, i.e. traditional inhabitants of the area and colonialists or trekboere, who were therefore perceived by apartheid authorities as being more civilised, trustworthy and sober for racial reasons, because they were at least part white (Boonzaier 1984, 1994). The Basters also effectively gained control over the *raad* for the same reasons (Boonzaier 1987). Nama culture and language has been marginalised since the colonial era and this manifested itself in greater opportunities for Basters, the suppression of Nama in schools as children were not permitted to speak Nama and were taught in Afrikaans, and the eventual abandonment of Nama customs in an effort to gain acceptance (Boonzaier 1994, Joseph and Parris 2000).

The establishment of the national park fostered improved relations between the north and the south, even if only temporarily around the time when the interdict was granted. In other words, the community of the Richtersveld is occasionally united in the face of external threats (Reid and Turner 2004), but tensions and differences still exist between the communities and between individuals. The entire Richtersveld community, north and south, benefits equally from the park in theory. Some differences may occur in benefit sharing, in that the towns in the north are closer to the park gate and therefore may receive a greater proportion of tourists to the towns. In addition, all the park farmers are from the north, as these were the farmers that used the area and were therefore granted rights to continue grazing there. The provision for farming within the park has led to tensions between the park farmers and non-park farmers. Park farmers are perceived as being in an advantageous position because they have access to the park area as well as the communal areas outside the park. Therefore, during dry years they can move out of the park if there is insufficient grazing, while non-park farmers are not permitted to graze their stock within the park and therefore only have access to the communal land (Archer *et al.* 1994, January 2002). The area that is now the national park was traditionally a vital source of grazing during drought, which non-park farmers can no longer access, and this may lead to increased tensions if there is a severe drought in the future (Boonzaier 1996).

The establishment of the park and the associated potential for cultural tourism has led to a resurgence of Nama culture (Isaacs *et al.* 2000). This was encouraged by SANParks' initiation of a cultural heritage programme, which improved relations between the Nama and the Basters (Joseph and Parris 2000, Reid *et al.* 2004). According to Robinson (1998), the establishment of the park has encouraged a sense of place and pride within the Richtersveld society, as well as enhancing security of tenure, empowerment and capacity building. The establishment of the park, and its process, has also brought about the formation of certain community level institutions such as the RGBK. The RGBK was set up to negotiate the management plan for the newly established national park. This will be discussed further in Section 6.3.2.2.

The politicisation of the park formation process plus delivery of some, albeit limited, benefits had raised expectations and the park is often seen as the panacea for the problems of poverty, unemployment and under development. Tourism has been presented as an alternative for the area, and the answer to poverty, and this has led to increased perceptions of the park being a development agency (January 2002). So far the park has resulted in marginal improvements in the livelihoods of people in the area and few tangible benefits. According to Isaacs *et al.* (2000), 5 000 tourists visited the Richtersveld National Park in 1999 and the community received few benefits from this. Very few permanent jobs have been created and tourist numbers are limited by the remoteness of the area (Boonzaier 1996, Reid and Turner 2004). Developments in the area through the poverty relief programme have provided temporary employment opportunities and improvements in infrastructure, but at the same time affect tourism. The areas' remoteness, ruggedness and lack of facilities are part of its attraction, and therefore development in the park may be seen as a deterrent to some, but at the same time, may make the area more attractive and accessible to others.

6.3.2 Institutions

There are several formal institutions operating in the Richtersveld area, varying from national level institutions such as SANParks, to community level Common Property Associations. This section deals only with the formal institutions; informal institutions will be addressed in Section 7.5.

6.3.2.1 The Richtersveld National Park/ SANParks

The establishment of the RNP has been an important development in the area, and has led to the formation of additional institutions such as the RGBK and the Richtersveld Community Trust. The park authorities and employees play a role in the lives of the park farmers, in the form of assistance provided such as pump maintenance, stock retrieval and water provision (Household interviews, Section 7.2.7.2, Isaacs *et al.* 2000). SANParks is effectively in charge in the management of the RNP, although in theory the park is co-managed by the community and SANParks. The relationship between the park and the community has been affected by the changing management of the park. There

have been five different park managers and this has influenced the park/community relationship as each new manager is different and has to form a new relationship with the community (Isaacs *et al.* 2000, January 2002).

6.3.2.2 The Joint Management Board (RGBK)/ Management Plan Committee

Before the Joint Management Board could come into effect, a management plan needed to be developed, and this was carried out by the Management Plan Committee or *Bestuursplankomittee* (BPK). The BPK in essence became the RGBK, and therefore was made up of the same representatives. The BPKs function was to devise a management plan for the RNP and detail the different roles that would be played by SANParks and the community in the park's management (January 2002), as well as provide sound management guidelines with regard to the tenuous relationship between conservation, mining and stock farming (Isaacs *et al.* 2000). The management plan was eventually signed and implemented in 2002, after over ten years of attempts, misunderstandings and conflict. Several versions of the management plan were put forward by either SANParks or the community, and rejected by the other party, even when the grounds for disagreement were minor (January 2002). The frequent changes in park managers did not help this process, as it became difficult to build the rapport required for the functioning of the BPK (Isaacs *et al.* 2000). Outside pressures, namely the imminent signing of the Richtersveld –Ais Ais Transfrontier Conservation Area, and the DEAT's Poverty Relief Programme eventually forced the two parties to put aside their differences regarding the management plan (January 2002).

The BPK highlights several pertinent issues in the Richtersveld. Firstly, it highlights the unstable relationship between the community and SANParks, which resulted in several versions of the management plan, none of which were acceptable to both parties. Even though the points of disagreement were minor, a compromise could not, or would not, be met until external factors forced them to do so. The impact of the frequently changing park managers is also highlighted here, in that it affects the relationship and breeds mistrust. It also highlights the lack of organisational capacity in the community, and SANParks unwillingness to accept this and make efforts to address this.

6.3.2.3 The Richtersveld Community Trust

The Richtersveld Community Trust was established to manage the money paid by SANParks to lease the land from the community, amounting to approximately R80 000 per annum (Table 6.1) (Archer *et al.* 1994, Boonzaier 1996, Robinson 1998, Joseph and Parris 2000, January 2002). The trust is managed by trustees from outside the community, who are based in Cape Town. The main function of the trust is to provide funds for community development, and has thus far primarily been used for education and social upliftment (Archer *et al.* 1994, Isaacs *et al.* 2000, January 2002). The main criterion for allocation is that the money benefits as many people as possible, and investment in education is seen as a sustainable investment (January 2002). Applications can be made for funding by groups or individuals, provided that certain particulars are included, including two reference letters and a bank account in order to be considered (January 2002). This process is aimed at building capacity in the area, but is prohibitive at the same time as many potential applicants are not able to meet these standards. This highlights the low levels of human capital (Section 7.4) in the area, which means that people are not able to maximise benefits from new institutions. The trust has been criticised by the Richtersvelders, who claim that they do not see the benefits on the ground, and that it does not support entrepreneurs and small businesses. In addition, they want the trust managed in the Richtersveld, but there are concerns that there is insufficient capacity on the ground and that petty politics may become an issue in the trust (January 2002).

6.3.2.4 The Communal Property Association (CPA)

The Communal Property Association was formed as part of the process of resolving the land claim against Alexcor (Section 6.3.3.2). CPAs consist of all members of the community over the age of 18 (Isaacs *et al.* 2000). Legislation (Section 6.3.3.1) has provided for the transfer of communal land, either to the Municipality or to the CPA. According to SPP (2004) the Richtersveld CPA is a flourishing institution with a functional office and facilities, and has secured funding amounting to R300 000 from the UNDP to further some of their poverty alleviation programmes.

6.3.3 Laws and policies

6.3.3.1 Land tenure and its reform

This section explores the laws and policies pertinent to land tenure reform in the Richtersveld, and how these have changed and progressed since the first democratic elections in 1994. This forms a basis for the discussion that follows on the land claims that the Richtersveld community has been involved in and how these have affected the community.

Land in the Richtersveld is held under communal tenure and therefore all residents of the area have rights to utilise the land for grazing and the collection of resources. Limited cultivation takes place due to the low and variable rainfall, and therefore arable land allocation and inheritance is not a major factor in the Richtersveld. Cultivation does occur along the Gariep river outside Sanddrift and those on this land have permission to occupy the land but it is still communal land.

Certain laws and policies pertaining to land tenure (Sections 6.2.1 and 6.2.2) resulted in communities being dispossessed of their land throughout South Africa on racial grounds, and settled in overcrowded Bantustans. These homeland or reserve areas constitute 13 % of land in South Africa, and are home to approximately 16 million people, or 30 % of the population (Hall 2004). These homeland areas were characterised by poverty, landlessness, privatisation policies, vulnerability, a lack of basic services, and degradation due to overcrowding and poverty (Lahiff 2003, Hall 2004). The ANC government set out to reverse this situation by focussing on land redistribution, restitution and land tenure reform. However, although various legislation has been passed to address this situation, transformation has been slow and ineffective. Only three percent of land had been transferred to black ownership through the land reform programme in the first nine years of democracy (Walker 2003, Hall 2004). It is estimated that 13 million people in the former homelands and coloured reserves await legislative changes to secure their land rights (Wisborg and Rohde 2003).

The first major piece of land reform legislation passed was the Restitution of Land Rights Act, Number 22 of 1994. This provided the opportunity for all those dispossessed of land through forced removals after 1913 to apply for restitution before the cut off date of March 1999 (Adams and Howell 2001). The Communal Property Association Act of 1996 was the first legislation to deal with improving the security of tenure in communal areas as well allowing for the formation of new institutions for the transfer of land. It made provisions for communities to establish group ownership of the land through the formation of a Common Property Association, which would hold and manage the land (Cousins 2000). This act was followed by the Transformation of Certain Rural Area Act 94 of 1998 (TRANCRAA), which deals with the 23 former 'coloured reserves', and aims to transfer the communal land in these areas to accountable local institutions (SPP 2000, Wisborg and Rohde 2003). TRANCRAA provides for the transfer of certain communal areas to one of three institutions: a Communal Property Association (CPA), the Municipality or another body or person approved by the minister (Wisborg and Rohde 2003). According to the IDP (2002), the four Richtersveld towns fall under the Richtersveld Local Municipality but the surrounding communal land is held in trust by the Minister of Land Affairs for a transition period of a maximum of two years. During the transformation process the community is to decide what entity is to manage the land (IDP 2002). The people of the Richtersveld have voted that the land go to the CPA, which was already established to deal with the on going land claims.

Wisborg and Rohde (2003) highlight several important aspects to be considered when looking at land tenure reform, and the TRANCRAA in particular. They stress the need for land tenure reform to occur within the broader process of social change and this "only contributes to restructuring the patterns of property and opportunity if people can substantially enhance existing livelihood practices, enter new ones or expand into other economic sectors" (Wisborg and Rohde 2003:3). It is stressed that in order for transformation to occur, tenure reform should occur in conjunction with improvements in human entitlements such as education, market conditions, technology and public support (Wisborg and Rohde 2003). Therefore, although tenure reform is an important

development in the area, the general weakness of institutions may mean that the reforms will not lead to improvements in the community.

6.3.3.2 Land claims

The Richtersveld community has been involved in several land claims, which are still in the process of being resolved. The Richtersveld community filed against Alexcor Ltd., claiming rights to 85 000 hectares of diamond rich land along the west coast as well as approximately R2.5 billion compensation, for diamonds extracted and rehabilitation. The land in question stretches 120 km from the Gariep River in the north to Port Nolloth in the south. The Land Claims Court dismissed the case on the grounds that any rights that the communities' forebears may have had were extinguished when the entire Richtersveld was annexed in 1847 and became part of the Cape Colony and Crown Land (Vivier 2003). The community appealed, and the Supreme Court ruled that community did have a valid claim. Alexcor appealed against this decision, and the court ruled that under the Restitution of Land rights Act 22 of 1994 to community is entitled to "exclusive beneficial occupation and use akin to that held under common law ownership, of the subject land (including its minerals and precious stones)" (Vivier 2003:96). The Richtersveld case had two important outcomes, the recognition of aboriginal title and the inclusion of mineral rights in the Restitution act (Hall 2004). Although the Richtersveld community has been granted rights to restitutions, the nature of that restitution is yet to be decided.

The land claim process has affected the broader community in various ways. The claim led to increased cohesion within the Richtersveld community and played a part in the resurgence of the Nama identity, as well as to the formation of the CPA. The land claim, when finally settled, will play an integral role in redressing the unequal access to resources so clearly evident in the Richtersveld, and may lead to the improvement of livelihoods and opportunities in the region. However, the land should not only be viewed as an asset, it also represents a sense of security, history and identity (James 2001). In addition, obtaining legal ownership of the land will increase the proprietorship of the

community and could enable them to play a more effective role in its management (Isaacs *et al.* 2000).

6.4 Conclusions

The community in the Richtersveld has suffered a history of dispossession, of both land and resources under both colonial and apartheid governance. This has meant that despite the rich resources in the area, the majority of the community are poor and rely on wage labour on the mines and subsistence stock farming. The lack of development in the area has meant that it has remained marginal and peripheral, with few livelihood alternatives to stock rearing and employment on the mines. The extensive mining in the area has provided an important source of employment, as well as some infrastructural development, but the downscaling of several mines and their eventual closure will severely impact livelihoods in the area. Tourism has been touted as the panacea to this problem, but has so far only provided marginal tangible benefits to the area. The Richtersveld community has been subject to several top down policies, such as the economic unit system and the formation of the RNP, but has successfully taken a stand against both. The recent victory regarding the land claim has empowered the community and has the potential to make a positive difference to peoples' livelihoods, but also has the potential to lead to conflict if not correctly managed. Capacity constraints evident in the area have the potential to undermine the ability of maximise benefits of new resources and institutions, and therefore need to be addressed.

7 Chapter 7 Livelihood assets in the Richtersveld

7.1 Introduction

The Sustainable Livelihoods Framework has once again been used to conceptualise livelihoods in the Richtersveld. Following a similar format to the Sehlabathebe site, each capital will be discussed individually to highlight the assets that households have available to them with which to establish a livelihood. Conditions in the Richtersveld are vastly different to those of Sehlabathebe (Chapter2, Chapter 6), and therefore access to, and use of, assets differ. The harsh arid environment does not allow for arable or garden cultivation, unless it is along the river and can be irrigated. The pastoralists in the Richtersveld are semi nomadic, they have stock posts in the veld, which are moved regularly in search of grazing and water, but also generally have a house in one of the nearby towns. Farmers do not necessarily stay out at the stock post, most have a herder who stays at the stock post with the animals while the owner lives in one of the nearby towns, and in many cases has a permanent job. Twenty six farmers have rights to graze their stock in the Richtersveld National Park; however, only 20 have exercised this right. Many of the permanent farmers have affiliate farmers, whose stock is kept with their herd and play a role in its management. The farmers outside the park utilise the communal land around the towns for grazing. Twenty eight interviews were conducted, seventeen with park farmers and eleven with non-park farmers.

Data from the national census conducted in 2001 was used for information on financial capital factors such as annual income, physical capital factors such as water, housing and sanitation, and human capital for factors including school attendance and employment status. Two categories of census data are used: 1) data for the Richtersveld rural area, which includes the towns of Kuboes, Sanddrift, Lekkersing and Eksteenfontien, as well as the areas that do not fall under a particular town; and 2) the Richtersveld municipality data, which includes data for the larger towns of Port Nolloth and Alexander Bay. Census data can be unreliable (Cleland 1996), and the slight difference in total population

and household numbers bears testimony to this (Tables 7.4 and 7.9). However, the data are useful in providing an overall picture of access to assets in the area.

7.2 Natural capital

7.2.1 Arable fields

Due to the low and unpredictable rainfall in the area, the potential for cultivation is limited to areas along the Gariep River. Unlike Sehlabathebe, there are no designated arable lands surrounding the towns, and 26 of the 28 households do not cultivate anything. The remaining two households have 'farms' along the river outside Sanddrift, to which they have permission to occupy, but do not have ownership (Niewoudt 2004 pers. comm.). Four households from Sanddrift have access to arable land along the river, two of which were interviewed. Ten more plots have been made available, but have not yet been allocated. The soil along the river however, is highly saline, and needs to be flushed before it can be planted (Niewoudt 2004 pers. comm.). It is indeed possible to cultivate in the area, an example being the private irrigated farms along the Gariep River which are owned by Alexcor, where lucerne, winter wheat, maize, citrus and dairy herds are farmed (Williamson 2000). However, according to Odendaal (n.d), these are poorly managed and run at a loss, and therefore contribute little more than providing approximately 130 jobs.

Two households with arable land were interviewed. The first household was female headed, and lives on her own on the 'farm', her husband passed away the previous year. She did not plant her field this year due to a lack of labour, and because the farms pump is broken. Until last year, they planted lucerne for the stock, and vegetables, which they sold on an ad hoc basis. The second household was male headed, and planted carrots, beets, pumpkin and cabbage in their garden for household use, but did not use their field. The last used the field in 1984, but a flood ruined the field and they have not restored it. When they did plant, they sold vegetables on an ad hoc basis to passers by. One other household in Sanddrift planted a garden, and planted bananas, apricots, sweet potato and pomegranate for household use. The garden was seen as more of a hobby than a means of subsistence as they do not reap much from the garden.

7.2.2 Livestock and poultry

Although only livestock owning households were interviewed, four herders were also interviewed and therefore not all households own livestock. The herders tend to the livestock belonging to another household and therefore play a role in their management but do not necessarily own any. Therefore, only 24 of the interviewed households had livestock. Almost all households (23 out of 24) have herds consisting of sheep, goats or both, while the remaining household had cattle in addition to sheep and goats. The table below excludes cattle.

Table 7.1 Herd (sheep and/or goats) size in the Richtersveld

Hh number	Herd size	Hh number	Herd size	Hh number	Herd size
2	190	**13**	164	**21**	150
3	436	**14**	120	**22**	154
7	277	**15**	50	**23**	250
8	94	**16**	170	**24**	300
9	523	**17**	90	**25**	49
10	283	**18**	43	**26**	210
11	802	**19**	100	**27**	70
12	310	**20**	233	**28**	110

Herd sizes vary greatly across households, the minimum being 43 and the maximum 802 (Table 7.1). The average herd size among the stock owning households was 216 ± 170. With regard to the distribution of herd sizes, ten households have above average herd sizes (i.e. above 216 stock), while the remaining 14 households had below average herd sizes.

7.2.3 Uses of livestock

Livestock serve a range of purposes to households, both for subsistence and income provision. Goats and sheep are slaughtered for food, sold for cash, provide milk, and are a form of savings. The four herder interviews are not included in the following results. Twenty one of the 24 (87 %) farmers sell livestock regularly, depending on the condition, demand and the size of their herd, and this provided an important source of income. This

highlights the importance of stock as a form of savings, which can be accessed through their sale. All of the farmers slaughtered stock for food, but the amount and frequency differed from household to household. Three households mentioned that getting meat from stock is important because it means that they do not have to buy meat and therefore save money. Four farmers cited the love of farming as one of the most important factors. Two farmers mentioned the importance of milk provision from the stock.

> "We sell stock once in a while when we need money, and slaughter often. The stock is important because it provides us with milk and meat and we do not have to go and buy these from the shops." (Household 10).

Figure 7.1 A herd of goats in the Richtersveld

7.2.4 Livestock management

7.2.4.1 Herd management

The amount of time invested in stock farming differs between households. It is common for farmers to have herders who live at the stock post and take care of the day to day management of the herd, and the farmer goes out from time to time (the frequency differs between households, Table 7.2). According to the respondents, herders are paid R250 per month and their food and necessary clothing are provided by the farmer. Four herders were interviewed, all in the park. Nineteen of the 28 households (68 %) have herders, and when divided into park and non-park farmers, it was found that more park farmers have herders than non-park farmers. The frequency of farmer's visits to the stock post differs

from household to household; some farmers go to their stock post up to three times a week, while others only go twice a month (Table 7.2). The four herders that were interviewed did not provide information on how regularly the farmers came to the post, so Table 7.2 below does not include these households.

The frequency of visits by the owner to the stock post varied widely from household to household. Most households visited their stock posts regularly or stayed there permanently, and only five households visited once a week or less frequently. This indicates that people invest significant time into stock farming, some more than others. A higher proportion of park farmers live at the stock post permanently, or spend most of their time at the post than non-park farmers (Table 7.2). An equal number of park farmers and non-park farmers (two) go to their stock post regularly. Nearly one third of non-park farmers go out two or three times a week. This will be discussed further in Section 8.3.2 with regard to livelihood strategies and their influence on herd management.

Table 7.2 Frequency of farmers' visits to stock posts

Frequency of trips to stock post	**Park farmers (n=13)**		**Non-park farmers (n=11)**	
	%	Number	%	Number
Someone lives at post permanently	30 %	4	27 %	3
Spend most of time at post (but also spend time in town)	23 %	3	18 %	2
Go to post regularly (+ 3x a week)	15 %	2	18 %	2
Go to post two - three times a week			27 %	3
Go to post every weekend/ once a week	7.5 %	1	9 %	1
Go to post twice a month	7.5 %	1		
Go to post every third weekend	7.5 %	1		
Once in a while	7.5 %	1		

7.2.4.2 Mobility

Mobility plays an integral role in the lives of farmers in the Richtersveld. As a result of the harsh arid climate, water is scarce, especially in the summer, and as a result, pastoralists move their stock post from time to time in search of grazing and water. Movements vary from farmer to farmer, but generally farmers move their stock post

when the grazing around their present stock post is no longer sufficient, or more importantly when there is insufficient water available for the stock. Stock post location is dependent on the seasons. In summer, when it is hot and dry, stock need to be watered every day or second day, compared with winter, when it is cooler and there is higher moisture content in the vegetation and thus the stock need water less frequently. Water is the deciding factor for movement in summer, whereas forage availability is the primary motivation for movement in winter (Hendricks *et al.* 2005). In the park, most farmers move to areas along the Gariep River where the stock feed on riparian vegetation and vegetation within walking distance from the river. Hendricks *et al.* (2005) found that stock farmers in the park moved six times a year on average, with some moving as many as 14 times and some only once. Movement is therefore a factor of both forage and water availability, as well as the individual farmers' management style.

> "We move the stock post when we need water. I cannot say how often this is, it depends. When it is very dry we move to the river, but sometimes there is enough water and grazing inland so we don't have to. In winter we stay inland." (Household 7-park farmer).

> "We move to find water more than grazing land." (Household 5- herder).

Figure 7.2 Vegetation along the Gariep River

The non-park farmers also utilise the river, but according to participants in the group discussion, there is very little grazing for sheep along the river, and many non-park farmers have herds that consist predominantly of sheep. Therefore, although water may be the primary deciding factor for movement, it is also important that there is sufficient grazing around water sources.

> "There is no grazing for the sheep along the river, only for the goats. There are many areas where there is very good grazing, there is plenty available, but there are no pumps there, or if there are they do not work." (Group discussion).

Movement is also dependent on the seasons, because within the park there are both summer and winter rainfall areas and therefore farmers can move between these areas.

> "When there is a drought everyone goes down to the river, it is very important to us. From 2001 until now there has been very little rain. My post here is in the winter rainfall area, so there is no rain in summer, but if you go towards Grasdrif there is summer rain there. We are very lucky to live here; there is a winter rainfall area, a summer rainfall area and the river, so we have three options." (Household 7- park farmer).

Figure 7.3 A winter rainfall area

Hendricks *et al.* (2005) illustrate the mobility of pastoralists in the park (Figure 7.4), and concluded that they are largely opportunistic and vary from farmer to farmer.

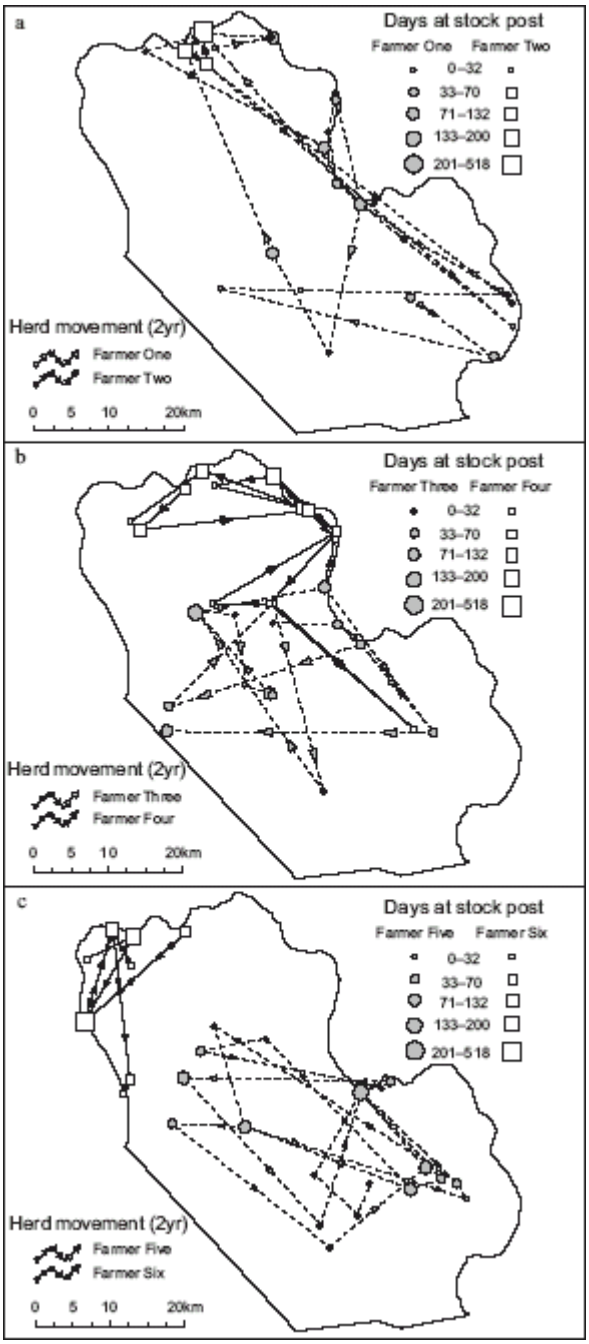

Figure 7.4 Seasonal movement patterns of six pastoralists in the Richtersveld National Park (Hendricks *et al.* 2005).

Movement outside the park is due to the same factors, i.e. the stock post is moved when better access to water or grazing is needed. Water availability appears to be a problem for

non-park farmers (Section 7.2.7). Mobility is an important adaptive strategy adopted by both park and non-park farmers as a means to overcome water and grazing shortages.

7.2.4.3 Relations between park and non-park farmers

The formation of the park has lead to the perception that it is advantageous to be a park farmer, as they are able to utilise the park area and as well as the communal grazing land outside the park, whereas non-park farmers are not allowed to enter the park to graze. Under the contractual agreement, park farmers are allowed to move outside the park for periods of up to 6 months. If they stay out of the park for longer than this they forfeit their rights to graze inside the park. Not all farmers (park and non-park) perceived there to be conflict between park and non-park farmers. Ten of the 17 park farmers commented on differences between inside and outside. Half of these mentioned possible conflict between the park and non-park farmers:

> "The people outside the park think it is unfair that we are able to graze inside the park and outside too. I can see that this is unfair, but at the same time, we have a limit on the amount of stock we can keep in the park, and they can keep as many as they want." (Household 14- park farmer).

> "We have access to the river and our pumps work more than outside the park, so it is better for us inside the park." (Household 16- park farmer).

Three farmers explained the differences between inside and outside the park in terms of the adaption of stock to the vegetation, and therefore do not go outside the park.

> "The veld is very different here, outside people have more sheep, here it is more mountainous and so we have more goats." (Household 12- park farmer).

Smith (1991) notes that there is a tendency for more goats to be herded in the mountain areas and sheep are more often found on the foothills and sandy plains. The reason given for this was that the fog that blows in from the Atlantic causes the shrubs to form a blue

waxy coating which is highly unpalatable to goats (Smith 1991). The park area has both mountainous areas and flat plains, whereas the area outside the park, particularly around Sanddrift, is largely *sandveld* or flat (Section 2.3).

Two farmers did not perceive there to be any difference or conflict between inside and outside the park.

> "The people of the Richtersveld have no problem with us farming in the park, because we are all part of the community. The quality of land is the same inside and outside the park." (Household 7- park farmer).

Of the eleven non-park farmers, six said they had never used the park area, and therefore it had no impact on them. Four perceived the park farmers to be in a better position because they have better access to water, and are able to graze both inside and outside the park. The remaining non-park farmer felt it was better outside the park because there are no rules, stock limits and areas where they are not allowed to graze. This farmer was in fact one of the 26 farmers that have rights to the park, but has never exercised them.

Perceptions regarding these issues are therefore mixed, but half of the park and half of the non-park respondents do perceive there to be an issue. Park farmers are perceived to be in a better position more because of their perceived better access to water and support, and choice of movement, rather than superior rangeland. Hendricks *et al.* (2005) point out that the restrictions placed on park farmers have constrained their transhumant movements over long distances. Park farmers are therefore limited in terms of the amount of stock they can keep and the amount of time they can spend outside the park, but do have access to both the park and the surrounding communal area.

7.2.5 Changes in livestock and grazing

The condition of the veld and therefore grazing availability are perceived to be inextricably linked to rainfall. When asked whether the condition of the veld had changed over time 22 of the 28 (78 %) respondents linked the changes in grazing with the amount

of rainfall, saying that the amount of grazing present was determined by the rainfall that year.

> "Not enough rain means bad grazing, and we cope with this by going to the river in summer and the mountains in winter. Changes in the veld are linked to changes in the rain." (Household 11- park farmer).

> "There is enough grazing here in the park, but the rain plays a big role because if there is not enough rainfall then there will not be enough grazing. In the summer we move down to the river to be near the water, but when the first summer rains come I move back in land." (Household 7-park farmer).

Fifteen households perceived the quality and quantity of grazing to have declined, and this was attributed mainly to declining rainfall over time.

> "The grazing has declined, there is not enough now because the rain is not enough, so I have to stay by the river." (Household 13- park farmer).

Four respondents (13 %) perceived a decline in grazing caused by anthropogenic factors. They thought that grazing had declined due to the high populations of stock in the area, especially around the water points, which leads to trampling of the vegetation. All four farmers were non-park farmers from Sanddrift.

The overall perception was therefore not one of environmental decline, but rather of rainfall driven fluctuations in the availability of grazing. Park farmers did not perceive any changes to grazing other than those caused by rainfall differences. In contrast, several non-park farmers mentioned human induced rangeland decline. This suggests that conditions outside the park are less favourable and more susceptible to overuse. It could also mean that there are fewer water points available for use by non-park farmers, and therefore existing ones are heavily utilised resulting in high pressure on the vegetation around them.

The link between rainfall and grazing was further highlighted by the perceived relationship between drought and stock loss. Half of the respondents said they had lost stock over the years as a result of drought. Drought was said to affect the availability of grazing and therefore the condition of stock, which in turn affects their ability to sell animals.

> "I do not sell often these days, we have had a drought for three years now and the condition of my stock is not good so there is no demand for them." (Household 7 – park farmer).

> "We have about 150 stock now, we lost around 50 over the past three months because of the drought. When they die from the drought there is no part of the animal that we can use, not even the skin." (Household 21-non-park farmer).

> "Last year was very bad, we lost many many stock. The drought also affects the lambing, because it was so dry we only got 80 lambs from 600 sheep." (Household 24- non-park farmer).

Losses from drought were more prevalent among non-park farmers than park farmers. Five of the seventeen park farmers (29 %) reported that drought affected their herd, especially with regard to the condition of the animals and ability to sell them, rather than detailing stock deaths. Nine of the eleven (82 %) non-park farmers reported losses from drought. This supports the perceptions that park farmers are in a better position than non-park farmers.

The above results indicate that differences do exist between park and non-park farmers. Park farmers appear to have access to a greater diversity of ecological areas, i.e. mountainous areas, flat plains, the river, and both winter and summer rainfall areas. The non-park area is largely flat, although there are mountainous areas, particularly surrounding Kuboes. Non-park farmers have the advantage of being able to move over greater distances as they are able to utilise the entire Richtersveld communal area but not

the park area. Park farmers on the other hand, have greater variation within the park, but their movements outside the park are monitored and cannot exceed 6 months consecutively. Both areas therefore have pros and cons, but the results indicate that the park farmers are in an advantageous position.

7.2.6 Wild resources

The respondents were asked about what natural resources they utilise regularly (Appendix 3 for species list, and Archer 1994). All of the respondents (herders included) utilised fuelwood regularly, and this was usually collected nearby. Most houses in the towns were electrified and therefore people living in the towns did not utilise as much fuelwood as in the past:

> "In the past we used to use much more wood, we used to bring it back from the veld for cooking, but now that we have electricity here this has decreased. Also there were no shops close by, we used to go there but it was very far. In those days we were more reliant on the veld." (Household 28-non-park farmer from Kuboes).

This example highlights how infrastructural developments have altered the use of wild resources over time.

Eighteen of the 28 respondents reported that they used medicinal plants, five said they did not use them and five did not respond. One respondent noted the decline in use, saying

> "In the past the old people used to use them regularly, but these days we go to the clinic when we are sick." (Household 25- non- park farmer from Sanddrift).

Fifteen of the respondents used wild foods regularly, three said they did not use them at all, two used them occasionally, and eight did not respond. One of the respondents who did not use them said that he used them in the past, but due to old age and the fact that he

has a ‘farm’ and produces vegetables, he no longer collects them. Availability of medicinal plants and wild foods is determined by the seasons, many of the respondents mentioned that wild foods are predominantly available during the rainy season. The declining use in some cases appears to be as a result of the increased accessibility to western medicine, and a resulting preference for western medicine, as well as a result of old age/illness, rather than as result of declined availability.

The use of natural resources appears to depend upon whether one is at the stock post or in town. At the stock post, fuelwood is needed daily for cooking and lighting, whereas in town, houses have electricity and there is therefore less need for fuelwood (although, the fact that houses are electrified does not mean that fuelwood is no longer used). Use also appears to vary with position of the stock post. Different resources are available in the different areas, and therefore, location of the stock post affects the accessibility of certain natural resources.

> “There are plenty of medicines available in the veld, but especially in the mountains. Also wild animals, there are plenty in the mountains, although you still have to walk far to find them.” (Household 11-park farmer).

> “The plants for eating and for medicines are mainly found in the mountains, especially after it has rained. Around here it is too dry and there are fewer plants. Sometimes I have to ask some of the farmers from the park to get me medicines from the mountains there as I cannot go and collect there.” (Household 18, non-park farmer from Sanddrift).

> “I usually eat wild foods when I come across them but there are no wild food plants around where my stock post is now.” (Household 25- non-park farmer).

Natural resources are also used for building. Most houses in the towns are brick houses, but many have a traditional *matjieshuis* attached to it, which is used as the cooking shelter. A *matjieshuis* is the traditional dome shaped Nama structure made from poles and

reed mats. The poles are bent while still green, and then inserted into the ground to make the frame, which is then covered with reed mats (Figures 7.5 and 7.6). Other materials such as plastic are now used in addition to reed mats to cover the frame of the *matjiehuis* (Figure 7.6). Shelters at the stock post are generally still the traditional *matjieshuise*, although materials such as plastic or sheet metal are used in addition to the traditional poles, reed mats and branches.

Figure 7.5 The building of a matjieshuis for a funeral ceremony

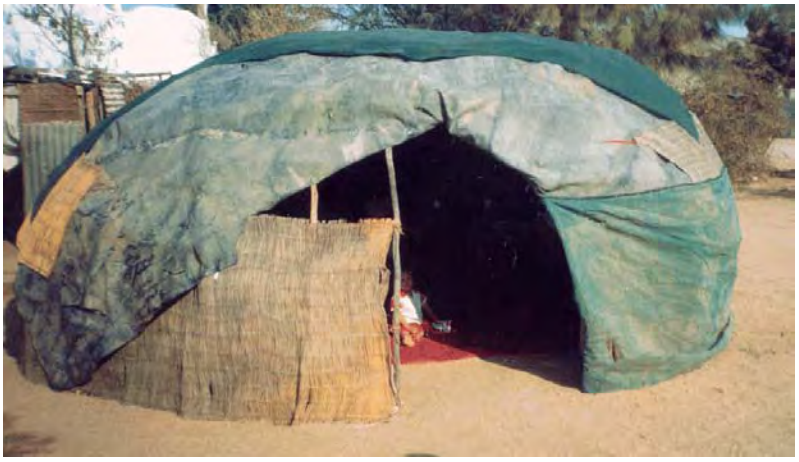

Figure 7.6 Completed *matjieshuis*. Plastic sheeting has been used instead of reed mats to cover the structure.

7.2.7 Water availability and use

7.2.7.1 Rainfall

There was a general perception amongst respondents that rainfall in the area had decreased over time. Twenty one (75 %) of the respondents noted that rainfall had decreased over time, and that there was less rainfall at present than in the past. Two of these respondents said that it now rained later than in the past. One respondent said that there were fluctuations in the rainfall, that they had good years and bad years, but overall it has remained more or less constant. The remaining six respondents did not comment on the amount of rainfall.

Data from weather stations in the Richtersveld show how annual rainfall varies from year to year (Figure 7.7). Archer *et al.* (1994) stress the risks of using mean rainfall data in an area with such high variability. They stress that the assessment of rainfall data is likely to be of less value than areas with relatively homogenous rainfall. Long term rainfall (1970 to 2002) was available for two sites, Lekkersing and Vioolsdrif, both some distance from the study area, but close enough to provide a general picture of rainfall variation. Short term data were available for the study area, including Kuboes, Sendelingsdrif and Hellskloof (on the western border of the RNP). The mean annual rainfall was derived by calculating the mean from all sites for all years in the short term and extrapolated to the long term (Hendricks 2003).

Rainfall fluctuates greatly from year to year, and from site to site. The long term rainfall data (Lekkersing and Vioolsdrif) show that highly variable rainfall is the norm, and consecutive years of similar rainfall are the exception. The geographic variability in rainfall can clearly be seen when comparing Hellskloof and Sendelingsdrif. Hellskloof is approximately 20 km south of Sendelingsdrif, yet there are great differences in rainfall. The years 2000 to 2002 provide an example of this variation, where Hellskloof received markedly higher rainfall than Sendelingsdrif, 69 mm more in 2000, 101 mm more in 2001 and 54 mm more in 2002. Sendelingsdrif also provides an example of yearly

fluctuations, with a low of 43 mm in 1999, a high of 103 mm in 2000 followed by a low 18 mm in 2001.

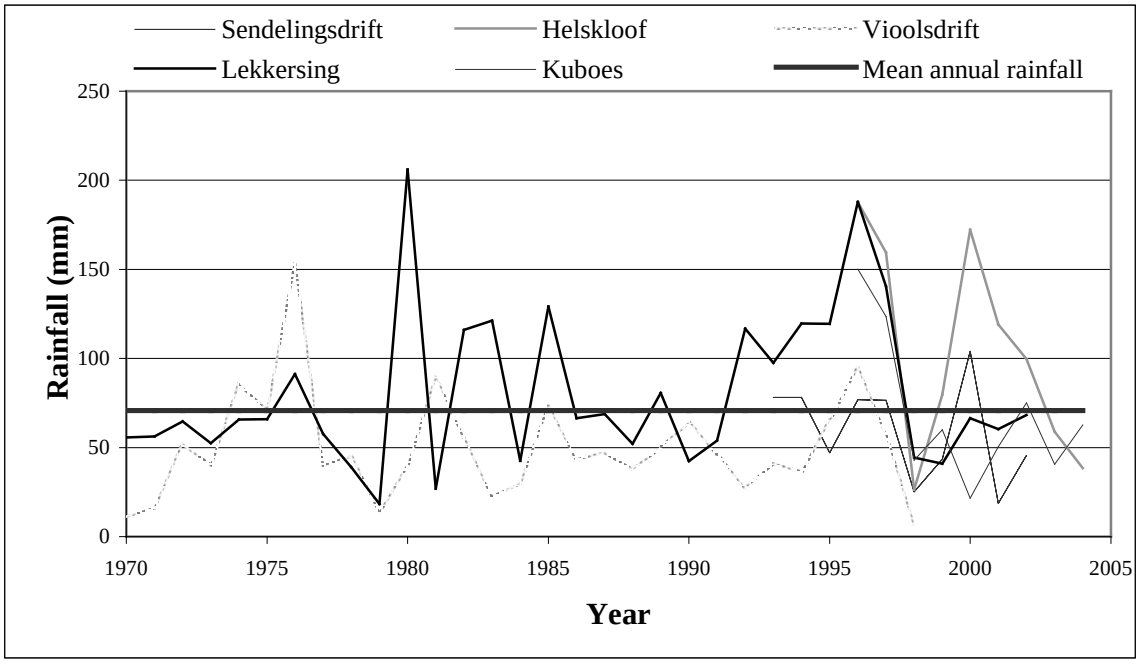

Figure 7.7 Annual rainfall variation in the Richtersveld area

There appear to be periods of relatively high or relatively low rainfall. The early 1990s consistently had above average rainfall for some sites, compared with the late 1990s to the present where rainfall at most sites was consistently below average, with certain exceptions, such as Hellskloof. The perceptions of declining rainfall are therefore more likely to be linked with the high variability in rainfall rather than an overall decline as such. It must be noted that the interviews were conducted in October, the dry summer season, and this may have influenced perceptions of rainfall change or drought. Had interviews rather been conducted during a wetter time of the year, perceptions of drought and or rainfall decline may have been different.

7.2.7.2 Water sources and uses

Due to the arid climate, water is scarce and is often a limiting factor. Water scarcity means that cultivation is not viable in the area, and is one for the primary reasons for stock movement. There are four windpumps in the RNP, and in addition to that, there are

ten other sources of water including the Gariep River, temporary springs, rock reservoirs and seepages (Hendricks 2003). In the northern Richtersveld as a whole the water sources available include: windmills, permanent springs, the perennial Gariep River and its ephemeral tributaries which are fed by strong springs; and water basins, which are hollows in the rocks which fill up in the rainy season (Khrone and Steyn 1991). Water is generally not readily available at many stock posts, unless near the river, and therefore water is usually transported to the stock post and stored in containers for use by the herder/ owner. The stock are taken to water points or to the river for water, and this is done more regularly in summer than winter. Household water availability is discussed in Section 7.6.2.

Water access appears to be a problem for both park and non-park farmers, but it appears that it is easier for those farming in the park to access water, especially the river. According to the park farmers, the park authorities are responsible for the maintenance of the water pumps, and have replaced some of the existing wind pumps with solar pumps. Five of the seventeen park farmers said that the authorities did not maintain the pumps, and they were often broken. None of the park farmers mentioned access to the river as a problem. In contrast, some of the non-park farmers mentioned that the mines affected their access to the river. In the group discussion held with non-park farmers in Sanddrift, the participants highlighted their problems with regard to water access saying that there were too few water pumps, which were wind pumps and therefore only worked when the wind blew.

> "We can only get water from the pumps when the wind blows, sometimes we have to take water out in a bakkie for the stock. At the one pump there are eight farmers that use it and all their animals are around that one place and it is very overgrazed." (Group discussion).

Water sources and grazing are inextricably linked, especially in summer as it is important that there is grazing around the water sources (Section 7.2.4.2). This may have influenced perceptions of water availability in that water sources may exist but are not considered

available because there is no grazing in the surrounding areas and therefore of no use to farmers. However, there still appears to be a shortage of water sources, more so outside the park than within. An important point to consider is that the park farmers have greater institutional support, in terms of pump provision and maintenance. However, not all park farmers are in agreement that the park provides this support, many feel that the park is not fulfilling their role in pump maintenance. This is an important issue because it could lead to conflict between the park authorities and the farmers. In addition, there is the possibility that despite informing respondents that this was independent research, some respondents may have been reluctant to criticise the park or its management. There is a clear need for increased access to water sources, which has the added advantage of relieving pressure on the rangeland surrounding the existing water points.

7.3 Financial capital

7.3.1 Sources of cash income

The dominant sources of cash income are from the sale of livestock/livestock products, wage labour on the mines, and state welfare grants in the form of pensions or disability grants (Table 7.3).

Table 7.3 Sources of financial capital in the Richtersveld

Sources of financial capital	No. of households
Stock only	3
Stock and pension	10
Stock and full time employment	5
Stock and part time employment or occasional remittances	2
Stock, pension and occasional remittances	2
Stock, full time employment and other source	2
Full time wages	4
Total	28

Most households relied on a combination of strategies to provide financial capital. Seven households (25 %) have one source of financial capital: three households (10 %) rely solely on stock, and the four herders interviewed rely solely on their income from herding. Income from stock and from government grants was the most common

combination activities (10 households or 35 %). Seven households in total (25 %) have at least one member in full time employment and combine this with stock farming alone (five households) or with stock and other sources (two households). Other sources in this case refer to alternative sources of income such as dividends from an investment, and income from commission received as a speculator for stock sales in the area. Four households in total receive occasional remittances from households members employed elsewhere. Therefore, overall, 11 households (44 %) have access to wage income through full time employment of a resident household member, or remittances from an absent household member.

Most households therefore have at least one reliable, steady source of cash income, in the form of pensions (±R780 per month) or wages, with the exception of the three households that rely solely on stock, and the two households that receive cash intermittently from their children. Seven households (excluding the herders) have at least one member with a full time job in the household. Of these households, all have had at least one member employed in the past as well. Of the remaining 17 households, 15 have had at least one member involved in wage labour in the past, all for the mining companies, either at Transhex in Baken or Reuning, Alexcor in Alexander Bay or in Oranjemond. The close proximity of the mines to the towns means that those who work on the mines do not have to spend long periods of time away from home. Of the remaining two households, one household head had never worked and the other did not say. The majority of households have therefore been involved in formal employment at some stage.

When looking at figures for the Richtersveld rural area as a whole (Census 2001), 13 % of households have no source of income, and nearly one quarter (22 %) earn less than R10 000 per annum (Table 7.4). Only 12 % of households earn over R76 000 per annum.

Due to the remoteness of the area, and its distance from the closest large centre (Springbok - ± 300 km), transport to bigger centres is expensive, and prices in the local

shops are much higher than in bigger centres (January 2002). The cost of living is therefore high in the area.

Table 7.4 Annual household income for the Richtersveld rural area

Annual household income	Total	Percentage %
No income	146	13
R1 – R4 800	69	6
R4 801 - R 9 600	175	16
R9 601 - R 19 200	214	19
R19 201 - R 38 400	198	18
R38 401 - R 76 800	177	16
R76 801 - R153 600	96	9
R153 601 - R307 200	21	2
R307 201 - R614 400	12	1
R614 401 - R1 228 800	0	0
Total	1108	100

(Adapted from Census 2001 data)

7.4 Human capital

The majority of households interviewed were male headed, with only two being female headed. Of the two female headed households, both of whom are widowed, one lives on her own but is helped with the stock by her children, and the other lives with her children, who primarily tend to the stock while she stays in town. In both cases, the husband was in charge of the stock before he died. Because only livestock owners were interviewed, it was expected that most of the interviewees would be male, and although stock ownership in the area is not strictly limited to males (Isaacs *et al.* 2000), it is mostly the case. In the Richtersveld rural area as a whole, the majority of households (68 %) are male headed (Census 2001).

7.4.1 Ability to labour

The need for cash income forced most households into work on the mines (Section 6.2.2). All but two households have been involved in work on the mines. Types of employment differed from household to household, but were largely unskilled or semi skilled, and include jobs such as labourers, operators and drivers.

> "In 1972 my father could no longer farm and I took over the stock. Before that I was working in Alexander Bay doing road works and also in the workshop. I have also worked since I started farming, I worked in Oranjemond from 1981 to 1989 as a plumber, and I did some construction work in Sanddrift in the 1990s. My sister and her children looked after the stock then." (Household 18).

According to the Census (2001), nearly two thirds (61 %) of people are not economically active. This category includes scholars, the elderly and housewives as well as those unable to find work and the unemployed (Table 7.5). In total, 36 % of the population can be classed as unemployed. The 39 % of the population that are employed are involved in a wide variety of jobs. The most common types of employment are: sales and services - elementary occupations (16 %), extraction and building trades workers (14.5 %), driving and mobile plant operators (10 %), office clerks (9 %), mining construction, manufacturing and transport labourers (6.3 %), and metal, machinery an related trades (5 %) (derived from Census 2001).

Table 7.5 Employment status for in the Richtersveld area

Employment status	**Total**	**Percentage %**
Employed	959	39
Unemployed	537	22
Scholar or student	128	5
Home-maker or housewife	293	12
Pensioner or retired person/too old to work	79	3
Unable to work due to illness or disability	78	3
Seasonal worker not working presently	21	1
Does not choose to work	96	4
Could not find work	240	10
Total	2430	100

(Adapted from Census 2001 data)

7.4.2 Education

Each of the towns have primary schools, but learners have to travel to either Alexander Bay, Steinkopf or further afield to Cape Town for secondary education. According to Census 2001, 23 % of the total population of the Richtersveld rural area attend either pre school or school. Tertiary level education numbers are low; only nine learners from the Richtersveld rural area attend college, technikon or university (Census 2001). The Richtersveld Community Trust provides funds for educational purposes, including transport to and from boarding schools in Steinkopf, bursaries for tertiary education and salaries for additional teachers in the area (Krog 2000, January 2002).

7.4.3 Availability of labour

Labour is required mainly for tending to the stock. Most households (68 %) have at least one herder at the stock post permanently. Thirteen of the 17 park farmers (76 %) have full time herders, compared with six of the 11 non-park farmers (54 %). Of the non-park farmers that do not have herders, one said it was too expensive, and has family who assist with the stock if necessary; three live out there permanently; and one has a stock post close to the town so he leaves the stock there and stays in town every night. As shown in Section 7.5.1, most herds have multiple owners, i.e. the herd consists of animals belonging to more than one farmer, and most owners do not live permanently at the post. Seven farmers have a household member (the farmer or his/her children) at the post permanently, five of which do not have a herder and therefore rely on family labour. Those that cannot afford to hire a herder, and do not have labour available in the household have to look after the stock themselves.

> "I was working on the mine and had some stock, my brother-in-law looked after them when I was working. He got sick and I could not always find people to watch my stock so I had to stop working so I could look after them myself." (Household 19).

Respondents in the group discussion expressed concern that the youth in the area are no longer interested in farming. This change in attitudes of the youth was partly seen as a result of having to go to bigger centres for schooling:

> "The older people are worried that their children will not want to farm, they think that in the future there will be less farmers, or maybe even no farmers, and then where will people get their meat from? We can see that the youth are interested but there is something holding them back. The children these days go away to be educated and they learn the wrong things there, they become criminals." (Group discussion- Sanddrift).

> "Oral history used to be very important. We used to sit around the fire and tell stories and learn from the older people. Now the young people are not longer really interested, they are becoming westernised." (Household 10- park farmer).

Robins (1996) found similar perceptions throughout Namaqualand, as older people viewed contemporary schooling as having failed to instill discipline and respect and found many of the youth expressed no interest in being involved in livestock farming. This could affect the availability of labour as in many cases children assist with labour.

7.5 Social capital

7.5.1 Arrangements regarding herd management

Arrangements exist between and within households regarding herd management, with regard to ownership and involvement in day to day management of the herd. Anseeuw (1999 cited in Debaudoin 2001) found there to be five different categories of organisation of farmers according to their management styles and the relationships between herders (Table 7.6).

Table 7.6 Types of management styles and relations between farmers

Delegated management	Herd consists of a collection of animals belonging to various owners. One owner is primarily in charge of the animals and may be compensated for this.
Shared management	Herd consists of a collection of animals belonging to various owners. The different owners are responsible for watching the herd temporarily depending on their availability.
Individual management	Herd is owned by one farmer, who makes all the management decisions.
Reduced livestock activity	Herd is small and grazes mainly around the house, and there is no organised technical management.
Hired herder	Herd is tended to by a salaried herder, and herd may consist of animals belonging to one or more owners.

(from Anseeuw in Debaudoin 2001).

The management styles detailed in Table 7.6 have been used to categorise the management styles prevalent in the Richtersveld. Anseeuw's styles are evident in the Richtersveld, although some of the categories are slightly different and are expanded upon below (Table 7.7). Ownership of the animals in the herd varies from household to household; with the majority of herds having multiple owners: fourteen households had multiple owners and six had individual owners. The four herders interviewed were unable to provide information on herd ownership, and four households did not provide information on herd ownership and therefore it was not possible to tell what style of management they adopted.

Table 7.7 Herd ownership and management styles in the Richtersveld

Individual ownership (n=6)		**Multiple ownership (n=14)**	
Management style	No. of households	Management style	No. of households
Individual management	2	Delegated technical management	3
Hired herder	4	Delegated technical management with herder	4
		Shared management with herder	6
		Reduced livestock activity	1

7.5.1.1 Individual ownership and herd management

Six of the 28 farmers interviewed had a system of individual management and therefore had sole ownership of their herds, but some had hired herders to help with the day to day management of the herd. All of these farmers were non-park farmers. Two of these individual managers were solely in charge of their herd and consequently lived out at the stock post and did not have a herder. Of the remaining four, two had herders who lived at the stock post, and the owners went out regularly (at least two or three times a week) while the remaining farmer went less regularly (approximately once a week). One household had sole ownership of the stock but received assistance from his brother with the stock and therefore did not have to spend all his time at the stock post.

7.5.1.2 Multiple herd management

Fourteen farmers had herds that had multiple owners. The majority were park farmers (11). The ownership of nine of these herds was shared between members of the same household, i.e. the herd was split between the parents and the children, many of whom had jobs and therefore little to do with the day to day management of the stock. The remaining five farmers had herds that were shared between related households, for example, two brothers in separate households keep their stock together. An example of an intra household arrangement is that of households 11 and 15. Household 15 keeps his herd with his uncle, household 11, therefore they effectively have one herd and both take part in the management.

> "I got some stock from my parents and started farming on my own 10 years ago. I keep them with my uncle in the park, and we have two herders at the stock post. I have a job at Transhex in Baken so can only go out to the post every third weekend." (Household 15).

7.5.1.2.1 *Multiple ownership management style*

The fourteen farmers with multiple herd ownership can be categorised according to management styles and relations between farmers as follows. Three farmers exhibit

Anseeuw's (1999 in Debaudoin 2001) delegated technical management, whereby there are multiple owners, all within the same family, and one member is responsible for looking after the animals and lives out at the stock post. None of the three farmers have herders, and all are park farmers.

> "I was married to a farmer who passed away so now I farm with two of my sons, we have one stock post and they are out there with the stock. I go out once or twice a month." (Household 13).

Four farmers operate on a system similar to that of delegated technical management, but slightly different. All four have multiple owners, all within the same immediate family, with one member at the post most of the time. However, all have a herder who is there all the time in addition to the family member. All are park farmers.

> "My herd is combined with my children's. They work on the mines, one at Transhex and one in Alexander Bay and they come out to the post once in a while to help. I spend most of my time here at the post, and we have a herder who helps here too." (Household 3).

One farmer said that due to his age he can no longer walk long distances so now has a herder to help him.

> "Farming is important to my life. You regret it if you stop farming. I am now too old and can't walk that far but I am happy if I am out there with the stock, even if I can just see the stock and so I go out to the post often." (Household 12).

Six farmers operate on a system, which combines shared management and that of a hired herder. Four of these farmers farm with relatives, but not those within their household, and the remaining two farm with their immediate family. This group can further be split into the three farmers whose management style more resembles that of shared management, where the farmers have a herder but someone goes out to the post regularly

(two or three times a week), and the three that have less of a direct influence on the day to day management and go to the stock post less frequently (varies from twice a month to every once in a while). The diversity of management styles can be seen when looking at household 11 and 15, whose stock are kept in one herd, household 15 goes out to the post once every three weeks, while household 11 goes out twice a week, and both farmers are employed on the mines.

Only one household exhibits a style similar to that of Anseeuw's reduced livestock activity (Table 7.7). This was a non-park farmer who lives in Kuboes and keeps his herd on the outskirts of town, enabling him to stay in own and take the stock out every day, without having to stay at a stock post.

7.5.1.3 Comparison of management styles between park and non-park farmers

Management styles differ between park farmers and non-park farmers, with the former favouring delegated technical management or a combination or shared management and hired herder.

Table 7.8 Comparison of management styles between park and non-park farmers

Management style	**Park farmers (n=10)**	**Non-park farmers(n=10)**
Delegated technical management	3	
Delegated technical management with herder	4	
Shared management with herder	3	3
Individual management		6
Reduced livestock activity		1

When looking at the differences between park and non-park households it can be seen that park farmers fall into the delegated technical management category (3), delegated technical management with herder category (4) and shared management with hired herder (3) categories. Non-park farmers generally fall into the individual category (6) and the combined category (3). None of the park farmers are individual managers, and therefore all herds consist of stock owned by more than one person. The majority of these herds (6) are owned by members in the same household. Three park households' herds

consist of stock from related households. Therefore, in summary, all park farmers adopt management styles that encompass multiple ownership compared with non-park farmers where the majority (7) adopt individual management styles. A possible explanation for this is that households utilise co-operative arrangements based on kinship as a means to access diverse ecological niches and resources in the park, and therefore supports the perceptions that conditions are better in the park.

7.5.2 Intra and inter household arrangements

There exist a range of inter and intra household arrangements. Regarding livestock owners, the majority of herds were owned by multiple owners, which could be inter household, or intra household. Stock farming can therefore be said to be a form of co-operative institution that enhances cohesion within and between households. Another form of social relationships with regard to stock farming concerns taking advantage of kinship links that enable one to be a part time farmer. This involves leaving ones stock with another farmer, usually related, while away working. Ten of the respondents reported leaving their stock with a relative while they were employed on the mines, and often resumed farming on a permanent basis when they had stopped working.

> "I started farming in 1970, I was working then and my brother in law looked after the stock for me. When I retired from Transhex in 1992 I took over the stock myself and have been farming full time since then." (Household 28 – non-park farmer).

> "My father was a farmer, and I always went out to the post with him when I was young. When he died in 1973, he spilt the herd between his eight sons. I combined the stock I was given with my one brother, we farmed together. I went on my own, and bought more stock and have had a herder to look after it." (Household 22- non-park farmer).

The above quote highlights the interrelationships regarding stock management, as well as inheritance as a means of acquiring stock, and a portion of the herd is sometimes given to

children while the parents are still alive. Five households said that they had given a portion of their herd to their children, who help out with the stock when possible, as most are employed.

> "We look after the stock for the children, most of the herd belongs to them now and we get only a share of the money from the herd." (Household 16- park farmer).

Inheritance appears to be the primary means of stock acquisition. Sixteen (66 %) of the farmers interviewed inherited or were given stock by their parents and have built up their herds over time starting from this base. Two female respondents (one the household head, and the other the wife of a farmer who was at the stock post at the time of the interview) said that their husbands already had stock when they were married. Two farmers bought their stock with wages from working and kept them with a relatives herd until they began farming full time. The four herders were unable to respond.

7.5.3 Formal social institutions

Several formal institutions are evident in the Richtersveld, including SANParks, the Communal Property Association (CPA), the Joint Management Board (RGBK) and the Richtersveld Community Trust. These were outlined in Section 6.3.2.

No formal institution exists with regard to the management and regulation of the rangeland in the park, but informal institutions are likely to exist which ensure that areas of the range are rested and that there are not too many occupied stock posts in one area for a length of time. According to the non-park respondents in the group discussion, there is a grazing association that is supposed to assess the availability of grazing as well as maintain the pumps. Stock owners are supposed to pay R0.20 per head per month. The association is also said to provide help in getting stock feed from Steinkopf at a reduced price in times of need. The respondents, however, expressed displeasure with the association, saying that they do not help them at all.

> "Its like a tax, and when you have 300 stock it becomes very expensive every month. They say they are giving us help, that we can go to Steinkopf to get cheap feed but we still have to pay to get there which is very expensive so we don't really see how they are helping us. They don't worry about the community, only about themselves." (Group discussion- Sanddrift).

Only two households mentioned the grazing fees. One household said that the municipality had decided that those who do not have a steady income would not have to pay the grazing fees. The other said that a committee was established in 2002 to manage the grazing, but nothing has happened. The grazing committee therefore, does not appear to be a functional institution.

7.6 Physical capital

7.6.1 Transport and communications

The Richtersveld area is easily accessible by tarred roads, but after Alexander Bay there are well maintained gravel roads. Many of the roads in the national park require 4x4 vehicles. Many of the main roads are utilised by the mines and are therefore maintained by them, and as a result the roads that are not used by the mines are in relatively poor condition. There are telephone lines throughout the area, and cellular signal around Baken mine.

7.6.2 Water

Almost all houses (93 %) in the Richtersveld rural area have piped water, either within their dwelling or in their plot (Table 7.9). An additional 5 % of households rely on piped water that is not within their yard. The remaining 2 % of households use 'natural' sources of water, i.e., pools, springs and rivers.

Table 7.9 Water sources in the Richtersveld rural area

Source of water	Number of households	Percentage
Piped water inside dwelling	441	40 %
Piped water inside yard	581	53 %
Piped water on community stand: distance less than 200m. from dwelling	36	3 %
Piped water on community stand: distance greater than 200m. from dwelling	24	2 %
Borehole	3	0.2 %
Spring	0	0
Rain-water tank	0	0
Dam/pool/stagnant water	3	0.2 %
River/stream	3	0.2 %
Water vendor	0	0
Other	15	1 %
Total	**1106**	

(Adapted from Census 2001 data)

7.6.3 Housing and sanitation

Most farmers have a household in one of the towns, as well as a simple stock post in the veld where they stay temporarily. The Census data (2001) indicates that a large majority (75 %) of dwellings in the Richtersveld rural area (as opposed to Municipality which includes the towns of Alexander Bay and Port Nolloth) are classed as houses or brick structures. Other types of dwellings recorded included traditional structures, informal dwellings and caravans or tents.

Nearly half (43 %) of the households in the Richtersveld rural area have flush toilets that are connected to a sewerage system. A large proportion of households (39 % in total) have pit latrines, and 9 % of households use the bucket system. Toilet facilities differ from town to town: the majority of households in Sanddrift and the Richtersveld area have flush toilets connected to sewerage systems, compared with the remaining three towns where the majority of households have pit latrines.

Table 7.10 Toilet facilities in the Richtersveld rural area

Type of toilet	Kuboes	Sanddrift	Richters-veld	Eksteen-fontein	Lekker-sing	Total	%
Flush toilet (connected to sewerage system)	27	137	260	43	9	477	43
Flush toilet (with septic tank)	3	9	3	0	0	15	1.5
Pit latrine without ventilation	126	30	6	15	0	177	16
Chemical toilet	0	3	0	0	0	3	0.3
Pit latrine with ventilation (VIP)	72	36	3	39	103	253	23
Bucket latrine	3	57	0	36	0	96	9
None	36	33	6	3	6	84	7.5
Total	267	305	278	136	118	**1106**	

(Adapted from Census 2001 data)

7.6.4 Energy

The area was electrified in the late 1990s and most households have electricity. The majority of households therefore use electricity for lighting. In the Richtersveld rural area, 92 % of households use electricity, 7 % use candles, and less than one percent use paraffin (Census 2001). A similar pattern is seen in the Municipality. The energy source used for heating and coking was only available in the Municipality, and therefore includes the towns of Port Nolloth and Alexander Bay (Figure 7.8). Electricity is used by more households for lighting than for cooking and heating. Candles are the other main source of fuel for lighting, although they are used by considerably fewer households than electricity. Electricity is the main source of fuel for cooking, followed by gas, wood and paraffin. The main sources of fuel used for heating, after electricity, are wood and paraffin, although a large number fell into the 'other' category (Figure 7.8).

7.6.5 Other infrastructure

The towns of Kuboes and Sanddrift have primary schools, post offices, small general dealers, a clinic and municipal offices. In the mining town of Baken there is a bank, a clinic, sports fields and a restaurant. Sendelingsdrif, the small mining settlement which also forms the headquarters for SANParks and the entrance to the National Park, has a

petrol station and guest house. The remoteness of the area means that markets are not easily accessible. Households sell stock both within the area, as well as to stock buyers that come in from other areas. This indicates that although markets do exist, livestock farmers do not have easy access to external markets, they have to wait for buyers to come to the area.

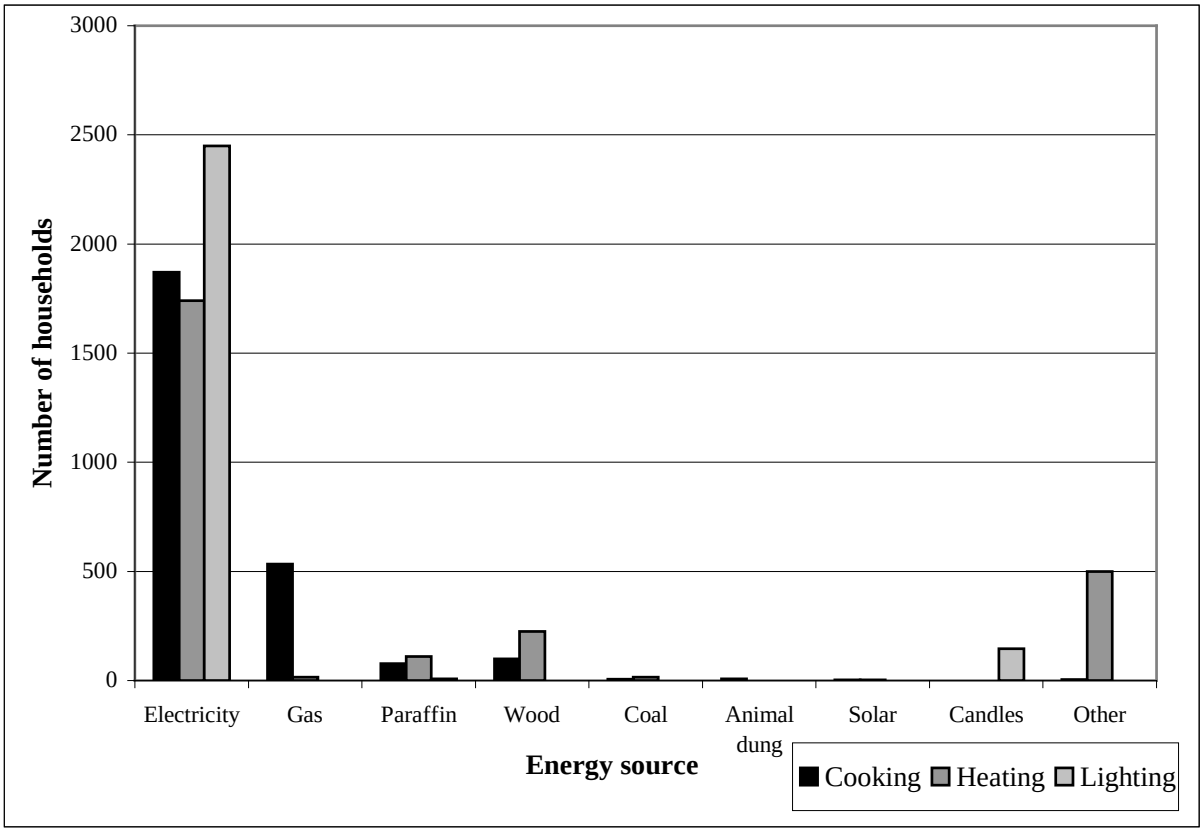

Figure 7.8 Energy sources used for cooking, heating and lighting in the Richtersveld rural area (Adapted from Census 2001 data).

7.7 Summary of asset base

Households in the Richtersveld rely heavily on natural and social capital for their livelihoods. Livestock is a vital asset which is an important source of subsistence, income and savings. Grazing is an essential resource and is perceived to be in good condition, while rainfall is perceived to be the major driver of any rangeland change. The availability of wild resources is not perceived to have changed over time but is influenced

by spatial and ecological variations. Households therefore access a range of sources of natural capital, and are heavily reliant on these sources.

Households rely on a range of sources of financial capital, namely wage labour, state grants and the sale of livestock and livestock products. However, only livestock owning households were interviewed and therefore this may not be the case for all households in the Richtersveld. The majority of households have steady and reliable access to cash, either wages or pensions. The cost of living in the area is high, and therefore financial capital is essential. In general, households can therefore be said to have moderate access to financial capital. Households appear to be moderately well endowed with human capital. Most households are or have been involved in employment, but generally in unskilled or semi-skilled jobs. Social capital provides an important avenue to address any labour shortages, particularly regarding livestock, and allows households to pursue multiple livelihood strategies. Social capital is therefore fairly high in the area. Households are generally not well endowed with physical capital, and although there have been improvements in service provision and infrastructure, the area remains largely under developed.

7.8 Links between capitals

As with Sehlabathebe, livelihood assets are often linked, and it is in utilising these linkages that households benefit from asset holdings. Several assets are combined, or linkages occur between assets, which are necessary for successful stock farming. Natural capital is an obvious vital asset. Sufficient good quality grazing is necessary for stock. Linked to this is rainfall, which is integral to water availability as well as rangeland functioning and therefore grazing availability. In addition, most households use natural capital, in the form of fuelwood, medicinal plants and wild foods, especially when out in the veld at the stock post. Physical capital is also necessary for stock rearing. Pumps provide an essential source of water, roads allow absent farmers to access their stock posts relatively easily and to transport water for the stock post from the towns. Financial capital is linked to stock ownership in that it is needed for the purchase of stock if necessary, as well as for the purchase of medicines and supplementary feed when

necessary. Stock can be turned into financial capital through its sale, which provides an essential source of cash for most households. Social capital is also linked with stock farming. Through the use of kinship links households can combine their herd with that of a relative while they are employed. This link therefore allows households with a shortage of human capital (labour) to accumulate financial capital and still have stock as an alternative or potential source of income. This link therefore allows households to adopt multiple livelihood strategies. Human capital is a vital asset in terms of economic productivity, and households endowed with high human capital can pursue a range of activities such as wage employment and stock rearing, thereby enhancing the financial capital of the household. Labour availability also means that households need not hire herders and therefore save financial capital.

7.9 Conclusions

Households in the Richtersveld have a diverse range of assets from which to draw upon in pursuit of a 'sustainable' livelihood. Natural, social and financial capital appear to be the most abundant assets available to households. The arid conditions in the area mean that livelihoods are constrained in terms of cultivation, for subsistence or sale, but this is compensated for by comparatively large stock holdings. The establishment of the Richtersveld National Park has had varying impacts on Richtersveld, including creating the perception that park farmers are in an advantageous position and have superior access to water, support and grazing. Herd management differs from household to household and mobility is a key adaptive strategy utilised by households to overcome the scarcity of water and grazing in such an arid area. The Gariep River is a key resource, providing both water and grazing, particularly in the summer months. Social capital in the form of kinship linkages plays an important role in allowing households to pursue multiple livelihood strategies. Although only stock farmers were interviewed, it is clear that livelihoods in the Richtersveld are generally diverse, with the majority of households relying on more than one source of income. Other than the sale of meat locally, there does not appear to be much involvement of households in informal trading. The remoteness of the area affects households' access to markets, as well as shops, and this limits the opportunities available to households. State pensions provide an important

source of income for many households in the area, particularly since most households have not been eligible for pensions from the mines in which they worked.

8 Chapter 8 Changes in livelihood strategies in the Richtersveld

8.1 Introduction

Households adopt a variety of livelihood strategies by utilising or combining the assets that are available to them. The general asset base available to households in the Richtersveld has been outlined in Chapter 7, and this chapter provides an understanding of the livelihood strategies adopted by individual households, as well as an understanding of how livelihoods change over time. Assessing the role of temporal change is important in understanding livelihoods because as households develop, their access to assets, composition and livelihood strategies change. A typology developed in the Leliefontein area (Modiselle 2001) will be used to categorise households now and in the past. This chapter begins with an outline of the typical development cycle in the Richtersveld. This is followed by a description of the characteristics of households at the establishment of the household, according to Modiselle's (2001) typology. The next section discusses the development of households and their movement into different categories over time. This is followed by an in-depth discussion of the present household categories and their characteristics.

8.2 The household development in the Richtersveld

The household development cycle has been used to show how household livelihood strategies change over time. Household composition and strategies change over time due to a number of factors including the age of household members and the asset base of the household. Households were divided into categories following the typology developed by Modiselle (2001) in the Leliefontein Reserve, where conditions and livelihood strategies are similar. This typology will be used to describe households in the past and in the present, and how they have moved between categories and therefore changed over time. Seven categories of households were developed by Modiselle: Autonomous households, the Livestock holders, the Regular income earners, the Irregular income earners, the Social transfer dependents, the Family dependents and the Poorest type (Section 8.3.1 for a detailed description of each category). Only five of these categories are evident in the

Richtersveld. The sample in the Richtersveld consisted of livestock owners and a few herders, and although most were older households, some were younger had not started their own households in 1970. The past in this case therefore refers to the establishment of the household. This study focused on livestock owners and therefore it can be assumed that livestock is a central activity in their livelihoods. This may however not be the case for all households in the Richtersveld, and therefore the findings detailed below cannot be extrapolated to the entire area.

The typical development cycle of livestock owning households in the Richtersveld is as follows: households usually allocate a portion of their herd to their children, which are kept with the family herd until such time as the children start a household of their own, or until they have accumulated sufficient stock and decide to start their own herd. The household head is still usually in charge of the management of the combined herd (Marinus 1998). Once married and having established their own household, sons either 'work' for their parents with the stock, go into full time farming on their own, or find employment and leave their livestock with a family member, a friend or hire a herder. While employed the herd is built up over time, through reproduction and stock purchases. Once no longer employed, most households take on stock farming full time, or as they age, go onto pension and still farm but not as actively, and mainly for subsistence uses. In terms of labour, household heads partake in livestock activities as long they are able to and also rely on their children, who have inherited a portion of the herd, or hire a herder.

Obviously not all households follow the above cycle, but it provides a picture of the general progression of most households. Households therefore generally start out as Livestock holders (reliant predominantly on livestock, but not with large herds) or Regular income earners (reliant on steady wage employment and livestock). They can either continue on this path until they are eligible for pensions and become Social transfer dependents (reliant primarily on pensions and stock for mainly subsistence purposes), or accumulate large stock numbers and become Autonomous (reliant primarily on large livestock herd). The categories of households in the past (i.e. at establishment of the

household) are outlined below, and this is followed by a section detailing how individual households have progressed over time.

8.2.1 Past categories of households

Modiselle's (2001) typology has been used to describe the characteristics of households in the Richtersveld. All of the categories developed by Modiselle (2001) include livestock ownership, and therefore the herders interviewed in the Richtersveld do not fit the typology. A new category has been suggested for these households. Livelihood strategies within each household were ranked in order of importance and this was used to determine which category households fell into.

Households ranked the importance of the livelihood strategies pursued, and the ranking differed from household to household. Cash income such as wages from employment and pensions, were largely ranked as more important or equal to the income earned from livestock farming, with a few exceptions. Livestock was generally ranked higher than remittances. Households who had one source of income (livestock or herding wages) could not rank these against other sources. It appears that the general order of importance for most households is as follows: steady income from full time employment or state grants, income from livestock, and finally remittances. There are of course some exceptions as not all households have identical assets, for example, those who feel that livestock farming provides greater income than grants or employment, but these households were in the minority.

The following sections outline the characteristics of households in each category in the past, i.e. at the establishment phase. Certain of the categories were not evident in the past, and will be outlined in Section 8.3.1. Using a life history approach to understand change in livelihoods allowed for data to be collected about the past and the present. However, more data was collected for the present and therefore, the following section provides a brief outline of household characteristics, but Section 8.3 provides more in-depth details on households in the present.

8.2.1.1 Category 1: Livestock holders (5)

According to Modiselle (2001), households in this category typically use family labour (household head or members of family) rather than hired herders, and try to make a living from livestock farming. They have generally been employed at some stage and have medium sized herds. Five households fit into this category. All of these households inherited stock from their parents. All of the households continued to keep their stock with their parents' herd after forming their own household, but assisted with looking after the stock. Stock forms the dominant source of livelihood for households in this category.

> "We have been farming in this area for many years. In those days there were only about three stock posts in this area. I built up my herd from stock given to me by my parents. I worked for my parents with the stock until they passed away, and my brother and I inherited the stock." (Household 2- park farmer).

8.2.1.2 Category 2: Regular income earners (15)

This type is made up of households that are involved in regular income generating activities. Livestock farming is generally aimed towards generating income, and extra money is usually invested in the herd. Livestock farming is thus an investment strategy with the aim of making livestock farming a successful business. These households utilise both hired herders and family labour (Modiselle 2001). Fifteen households fall into this category. All of the households were involved in full time employment, generally on the mines, and had stock which was kept with the family herd (6), a relation or friend (6) or was tended to by a hired herder (2). Wages from employment were often invested in the herd thereby building up the herd over time.

8.2.1.3 Category 3: Irregular income earners (2)

Households in this category engage in temporary jobs and have generally unreliable sources of income and depend on livestock farming as their source of security. According to Modiselle (2001), households in this category are often not prepared to take permanent jobs as this would take them away from livestock farming, and they therefore would rather engage in piece jobs. Part time jobs are therefore a strategy to boost farming

income. These households generally look after their own livestock, but may group their livestock with other livestock owners and hire a herder when piece jobs come up. Two households fall into this category. Both households had jobs once in a while, but always continued with and returned to stock farming.

8.2.1.4 Category 4: Income based (4)

This category was not included in Modiselle's (2001) typology, but four households interviewed in the sample did not own livestock and relied solely on herding wages for income. All of the households relied primarily on wage labour, either herding or employment on the mines or farms as their main income source and did not have stock.

8.2.2 The change over time

Each household follows a different development cycle due to differences in household size, in asset base and in their ability to cope with shocks. This section shows how individual households have developed over time and what has caused these changes. Household movement between categories over time is shown in Table 8.1. The majority of households in the past were Regular income earners (15), seven households were Livestock holders, two Irregular income earners and four were Income based (Table 8.1). This can be compared with the current state where the majority of households are Social transfer dependents (10), six are Regular income earners, four are Livestock holders, two are Irregular income earners, two are Autonomous and the remaining four are Income based (Table 8.1). Not all households have moved directly from one category to another, and therefore Table 8.1 indicates whether the move was direct or indirect for those households that have moved between categories.

Just over half of the households (16) have moved into different categories over time, whist the remaining 12 households have stayed in the same category. Nearly half (five) of the households that stayed in the same category were Regular income earners, four were Income based, one an Irregular income earner and two Livestock holders (Table 8.1). Of those that moved, the most common shift was to the Social transfer dependent category (10). Eight households moved from the Regular income earners category and two from

the Livestock holders category (Table 8.1). Two households moved into the Autonomous category, one from the Livestock holders category and one from Regular income earners. Seven households have been in other categories over time and have therefore not moved directly from the past category to their current category.

Table 8.1 Category of households now and in the past

Hh. no.	Past category	Present category	Direct/indirect move
2	Livestock holder	Livestock holder	
8	Livestock holder	Livestock holder	
9	Livestock holder	Autonomous type	Indirect
22	Livestock holder	Regular income earners	Direct
10	Livestock holder	Social transfer dependent	Direct
28	Livestock holder	Social transfer dependent	Direct
3	Regular income earners	Social transfer dependent	Indirect
7	Regular income earners	Social transfer dependent	Direct
14	Regular income earners	Social transfer dependent	Direct
16	Regular income earners	Social transfer dependent	Direct
17	Regular income earners	Social transfer dependent	Indirect
20	Regular income earners	Social transfer dependent	Direct
24	Regular income earners	Social transfer dependent	Indirect
25	Regular income earners	Social transfer dependent	Indirect
11	Regular income earners	Regular income earners	
26	Regular income earners	Regular income earners	
15	Regular income earners	Regular income earners	
23	Regular income earners	Regular income earners	
27	Regular income earners	Regular income earners	
12	Regular income earners	Autonomous type	Indirect
13	Regular income earner	Livestock holder	Direct
19	Regular income earners	Livestock holder	Direct
18	Irregular income earners	Irregular income earners	
21	Irregular income earners	Livestock holder	Direct
1	Herder/ income based	Herder/ income based	
4	Herder/ income based	Herder/ income based	
5	Herder/ income based	Herder/ income based	
6	Herder/ income based	Herder/ income based	

	Stayed in the same category		Moved category

8.2.2.1 Households that have moved categories

8.2.2.1.1 *Livestock holders → Autonomous*

One household moved from Livestock holders to the Autonomous category (Table 8.1). This household has always focussed on livestock farming as their central activity, and have invested in building up their herd, and livestock contributes significantly to their household. The main difference between Livestock holders and Autonomous households is that Autonomous households are financially more secure and have large livestock holdings, whereas Livestock holders generally have smaller herds and engaged in building up the herd.

> "My husband had stock before we were married. He was always with the stock. He did work for a while, from 1992-1998 but then he was killed in an accident on the mine. I now get a pension from the mine because of it. I farm with my sons. We have the pension, but we get most of our money from the stock". (Household 9- park farmer).

This household therefore moved form Livestock holder to Regular income earner to Autonomous over time. The shock of the death of the household head meant the move from the Regular income earners category. The household may have entered the Social transfer dependent category for a while before reaching the Autonomous stage. This household provides an example of how livestock are a form of investment. Significant time and resources were dedicated to livestock rearing as a Livestock holder, and the money earned from working was further invested into the herd. Therefore, although the death of the household head presented a shock, the household was able to cope due to its livestock holdings, family labour and the pension from the mine.

8.2.2.1.2 *Livestock holders → Social transfer dependents*

Two Livestock holders have moved into the Social transfer dependent category. These households have changed from farming for commercial purposed to farming more for subsistence purposes and rely on pensions to provide additional income. Both households have relied on livestock as their main source of livelihood, and as they have aged they

have moved towards less intensive livestock farming, and have thus followed the typical development cycle.

> "My father died when I was very young, and so I took over the stock and have been farming since then, I have never worked. I still have a few stock now and I sell most years, but it depends on how many stock I have." (Households 28- non-park farmer).

8.2.2.1.3 *Livestock holders → Regular income earners*

One household moved from Livestock holders to Regular income earners. This household built up a herd before working, and then used the earnings from employment to further build up the herd over time, while leaving the stock with a herder.

> "My father was a farmer and when I was young I used to go out to the post with him. When he died in 1973 he split the stock between his eight sons. I went on my own in 1975, I had 42 stock then. I started buying more of my own when I could, and then I started working in Reuning in 1979. By 1980 I had around 300 stock, but the year after I lost many to the drought. I have a herder out at the post who watches the stock, and I go out there three times a week". (Household 22 – non-park farmer).

This household highlights one of the possible routes of household development in the Richtersveld. Stock farming remains a priority, but employment provides security as well as money for investment in building up the herd.

8.2.2.1.4 *Regular income earners → Social transfer dependents*

Eight households fall into this category. The dominance of households moving to the Social transfer dependents category can be explained by the ageing of households. As household heads age they are no longer able to work on the mines and become eligible for state pensions.

> "My husband started farming soon after we got married, he got the stock from his father. He worked in Alexander Bay until 1999 and after that he went onto pension. He farmed with his father while he was working so his father looked after the stock" (Household 14- park farmer).

> "I started farming in 1970, and was working at Alexcor and then later at Transhex. My brother in law looked after the stock then. I retired from Transhex in 1992 and started farming on my own. We get two pensions now, but the stock is important because we don't have to buy meat. But I am getting old now and I cannot keep it up so I want to sell all the stock" (Household 25- non-park farmer).

Not all households that were Regular income earners in the past were continuously employed until they became Social transfer dependents. Four of the households were Livestock holders at one stage after working, before they became Social transfer dependents. Households 16 provide an example of this:

> "I was married in 1950 and have been farming for many years. I used to work in Alexander Bay, but in 1982 I stopped and started farming on my own. My stock had been with my brother's stock before that. We used to live out at the post, but now we are old and my wife is sick so we stay here in Kuboes and my stock is with my nephew. We get two pensions now, and the stock is mainly for meat" (Household 16- park farmer).

This example highlights how employment serves as an income earning strategy as well as a source of cash for investment in livestock holdings, which allows for the household to eventually rely solely on livestock holdings for their livelihood. As households age they continue to rely on livestock, but play less of an active role in its management.

8.2.2.1.5 *Regular income earners → Autonomous*

One household has moved over time from being a Regular income earner to an Autonomous household. This move was not direct; the household became a Livestock holder before it was Autonomous. This household can be said to be an example of optimal household development.

> "My parents were farmers and when I was young I helped them out. When I got married I started farming on my own with just a few but over the years my herd has grown. I worked in Port Nolloth and then Alexander Bay. I then worked doing construction for a while and had a herder to look after the stock when I was working. After I stopped working and was with the stock. The stock is the most important source of income for us, it has always been. They provide money and food and they are still the most important priority. Some of the stock belongs to the children, and they help out at the post." (Household 12 – park farmer).

Livestock is clearly the priority for this household and other strategies adopted have been geared towards further stock accumulation. Through this investment and accumulation over time, this household has reached the optimal stage in terms of wealth and security, the Autonomous stage.

8.2.2.1.6 *Regular income earners → Livestock holders*

Two households have moved from being Regular income earners to Livestock holders. Both households were working at some stage but prioritised stock over work and turned to stock farming full time.

> "My husband worked for five years before he started with the stock, and after that the stock provided the only income. When we started we had only 35, now we have many, but I do not know how many. I used to stay here in Kuboes when the children were growing up so that they could go to school and then we would all go out to the stock post in the school holidays. He has now died and my sons help with the stock and own some of the stock. I get a pension as well, but the stock is

more important because we get money from it and meat as well." (Household 13- park farmer).

"I was working on the mine for many years, since 1972 and my stock was with my brother in law. My stock increased over the years, but I lost some to drought last year. I stopped working two years ago because there was no one to look after the stock. Now the stock is the only income for us." (Household 19- non-park farmer).

Stock is therefore perceived to be the most viable livelihood option for these households and as the household has developed they have moved towards building up their herd. However, when asked which source of income was most important when he was working, the head of Household 19 (see quote above) said the employment was the most important because it was regular whereas the livestock depends on the condition of the veld. This contradiction could be due to a variety of factors: firstly, the household livestock holdings when he stopped working could have been much higher than at present and therefore livestock seemed a more lucrative option, secondly, at present due to the 'drought' he is unable to sell sufficient livestock to raise enough income and therefore, in retrospect, receiving a constant salary seemed a more secure source of income.

8.2.2.1.7 *Irregular income earners → Livestock holders*

One household moved from the Irregular income earners into the Livestock holders category. This household was involved in irregular income earning activities over time, but now relies solely on stock for income.

"We have had stock since we got married. My husband worked for his father with the stock until he died, and then he took over completely. He worked on and off on the mines for a bit now and then during that time. Now the stock is the only source of income for us." (Household 21- non-park farmer).

Stock has therefore been perceived to be the most important strategy in this household over time, and brief periods of employment have provided additional income.

8.2.2.2 Households that have stayed in the same category

The households that have remained in the Regular income earners category (five) are households that are still young enough to work and do not yet receive a pension. These households invest wages from employment into building up their herds up, leaving them with kin or hired herders while working.

> "After I left school I helped my mother with the stock because my father was working on the mines. When I started working my stock was with them, and then in 1998 I started farming on my own. I have a herder at the stock post and I go there twice a week. The stock is important to me because it is in my blood". (Household 11- park farmer)

These households will move out of this category once they stop working and will move into either the Social transfer dependents category, the Autonomous category or the Livestock holders category.

The four hired herders interviewed have all stayed in the Income based category, which does not necessary mean they have always been herders, but have been involved in some type of income generating activity as their primary livelihood strategy.

> " I have been in this area for 34 years now. I was from Upington and came here to look for work. I worked on the mines when I came here and then I stopped and have been herding for 14 years now. I have not been a herder all that time, I work for maybe four months to a year and then I might find another job on my weekend off and then I do that for a while and then come back and do herding. I had stock for a time in the past but I sold them and now I rely on the money from herding" (Household 5- herder).

> "I have been working here in the area for 32 years, for many different farmers. I worked for Oom Frikkie for a while, and now Oom Koos. I looked after Oom Koos's stock in the past when he was working there on the mine" (Household 6-herder).

Two Livestock Holding households have stayed in the same category, and have therefore continued to rely primarily on livestock. Households in this category appear to see livestock as more important, or of greater value than employment.

> "I was farming with my father before he died. When he died in 1983, I took over from him. I have always relied only on the stock. I sell some if I need money and I can slaughter some for food when I need it." (Household 8-park farmer).

The last household that has not moved has stayed in the Irregular income earners category. This household has been involved in employment irregularly at different times, but has always returned to stock farming.

> "I worked in Alexander Bay for a while and then my father could no longer farm so I took over his stock in 1972. After than I worked in Oranjemond for a few years in the 1980s and then in Sanddrift for a while doing construction. When I was working my sister looked after the stock". (Household 18- non-park farmer).

8.2.3 Trajectories of household development

The movement of households between categories over time can be used to predict how households develop over time. Although it is not possible to predict exactly how households will move or develop, the movements of households in this study shows some of the possible trajectories of household movement and their causes (Figure 8.1)

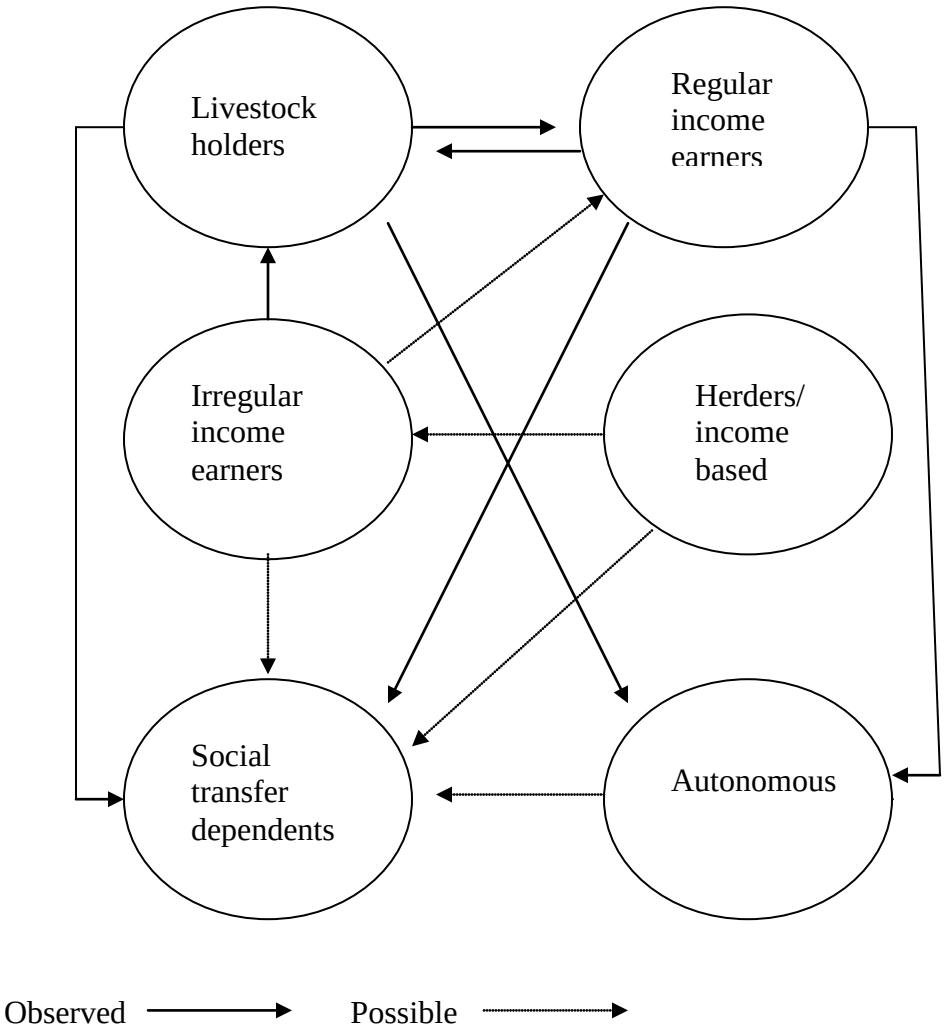

Figure 8.1 Trajectories of household movement

Livestock holders either stay in the same category, enter wage employment and become Regular income earners, build up enough stock over time to become Autonomous or decrease livestock reliance and become Social transfer dependents as they age (Figure 8.1). The latter two options are likely to happen as the household ages. Regular income earners often stay in the same category as long as a household member is able to work and then generally become Social transfer dependents as the household ages. This category can also become Livestock holders after working, or build up enough stock to become Autonomous. Irregular income earners either stay in the same category or become Livestock holders, and thereby rely less on irregular wages and focus on

livestock. It is possible for Irregular income earners to become Social transfer dependents when they are eligible for pensions, and to become Regular income earners should they choose to be involved in full time employment. All of the households that fell into the Income based category stayed in that category, but these households could possibly become Irregular income earners if they purchased stock, or they could move into the Social transfer dependents category when they received a pension. None of the households started off in the Social transfer dependent or Autonomous category, indicating that these categories encompass households at an advanced stage of development. Autonomous households could become Social transfer dependents as the household heads age and decrease livestock activity.

8.2.4 Summary

Over half of the households in the Richtersveld have moved between categories over time. The majority of households that have remained in the same category are Regular income earners and are still young enough to be employed. There are various options for movement between categories (Figure 8.1). Movement is often the consequence of the natural development of a household, for example the movement from Livestock holders or Regular income earners categories to the Social transfer dependents category as the household ages and decreases investment in stock and become more reliant on pensions. On the other hand, households can accumulate assets and move towards the Autonomous category later in the cycle of the household.

The external environment does not appear to have played a major role in the movement between categories over time. The availability of employment is an important aspect to be considered because without employment, many households would not have had access to cash to invest in building up their herds. Looking at the numbers of households that have been, or are, Regular income earners (Table 8.1) highlights the importance of employment. The possible downscaling of the mines in the future will therefore play a significant role in livelihoods, particularly younger households who are still reliant on employment. State pensions and grants are an important source of security for households in old age as it allows them to decrease livestock activity to subsistence level.

Developments such as the formation of the park do not appear to have influenced livelihoods greatly on the ground, and was not stated by any of the households as being an important development in terms of livelihood strategies.

Livestock farmers in the Richtersveld have adapted to the harsh and variable environment, using strategies such as mobility and reliance on the Gariep River as a key resource area. The natural environment has the potential to drive livelihood change. A severe drought could result in high stock losses and this would affect households that rely predominantly on livestock (i.e. Livestock holders and Irregular income earners) more than those with alternative sources of income.

8.3 Present livelihoods in the Richtersveld

8.3.1 Household strategies

The above sections have outlined how livelihoods have changed over time. This section provides more detail of the current livelihood strategies in the Richtersveld, using the same categories as above. Asset bases differ from household to household and therefore so too do the strategies that are adopted. The different livelihood strategies adopted by each household are shown in Table 8.2, and have been broadly grouped together to provide a clear picture of the strategies adopted.

All households in the study rely on wild resources to some extent, particularly fuelwood, wild foods and medicinal plants. Only livestock owning households were interviewed and therefore all households rely on livestock. However, four herders were interviewed who were responsible for the management of the livestock, but they themselves did not own livestock. All livestock owning households sell livestock to provide income. Most households (25) have at least one alternative source of income, in the form of wage employment, government grants, remittances or an alternative such as dividends from an investment.

> "There are few people who rely on stock alone, most have jobs or pensions." (Household 22- non-park farmer).

Table 8.2 Livelihood strategies adopted by households in the Richtersveld

Hh number	Wild resources	Livestock	Sales	Employed	Govt. grant	Steady income	Remittances	Agriculture
2	■	■	■					
8	■	■	■					
21	■	■	■					
3	■	■	■		■			
10	■	■	■		■			
12	■	■	■		■			
13	■	■	■		■			
14	■	■	■		■			
16	■	■	■		■			
17	■	■	■		■			
20	■	■	■		■			■
24	■	■	■		■			■
25	■	■	■		■			
7	■	■	■	■	■			
9	■	■	■	■	■			
11	■	■	■	■				
15	■	■	■	■				
18	■	■	■	■				
23	■	■	■	■				
26	■	■	■	■				
22	■	■	■	■		■		
27	■	■	■	■		■		
19	■	■	■				■	
28	■	■	■				■	
9	■	■	■			■	■	
1	■			■	■			
4	■			■	■			
5	■			■	■			
6	■			■	■			

Only two households are involved in cultivation and this is due to the areas' general unsuitability for agriculture (Section 7.2.1).

Although Table 8.2 outlines the livelihood strategies adopted by households, it does not provide a clear picture of the relative importance of each strategy within a household as a part of the total portfolio of strategies. For example, all livestock owning households sell livestock but some households may sell only a few animals a year in times of need,

whereas others might sell 70 head of livestock on a yearly basis. To account for these differences, each household was allocated a score according to the effectiveness of each strategy. For example, households that have a member in casual employment receive a lower score than a household with a member who is employed full time (see Appendix 4 for scores). The scores were then applied to each household and are detailed in Table 8.3.

Table 8.3 Scores allocated to livelihood strategies

Hh number	wild resources	Live-stock	Live-stock Sales	Emp-loyed	Govt grant	Steady income	Remit-tances	Agric-ulture	Total score	No. of strat-egies	Mean score per strategy	Typology
9	2	3	3	0	0	1	2	0	11	5	2.2	Autonomous types (n = 2)
12	2	3	3	0	2	0	0	0	10	4	2.5	
13	1	2	2	0	1	0	0	0	6	4	1.5	Livestock holders (n=5)
2	2	2	3	0	0	0	0	0	7	3	2.3	
8	2	1	2	0	0	0	0	0	5	3	1.7	
19	1	1	2	0	0	0	3	0	7	4	1.8	
21	2	2	2	0	0	0	0	0	6	3	2.0	
3	2	3	1	0	1	0	0	0	7	4	1.8	Social transfer dependents (n=10)
7	2	2	2	1	1	0	0	0	8	5	1.6	
10	2	2	2	0	1	0	0	0	7	4	1.8	
14	2	2	2	0	1	0	0	0	7	4	1.8	
16	2	2	1	0	2	0	0	0	7	4	1.8	
17	2	1	1	0	2	0	0	0	6	4	1.5	
20	2	2	2	0	1	0	0	2	9	5	1.8	
24	1	1	1	0	2	0	0	1	6	5	1.2	
25	2	1	2	0	2	0	0	0	7	4	1.8	
28	2	2	2	0	0	0	1	0	7	4	1.8	
11	2	3	3	2	0	0	0	0	10	4	2.5	Regular income earners (n=6)
15	2	1	2	2	0	0	0	0	7	4	1.8	
23	1	2	1	2	0	0	0	0	6	4	1.5	
26	1	2	2	3	0	0	0	0	8	4	2.0	
22	2	3	3	2	0	1	0	0	11	5	2.2	
27	1	1	2	2	0	1	0	0	7	5	1.4	
18	2	1	1	1	0	0	0	0	5	4	1.3	Irregular income earners (n=1)
1	1	0	0	2	0	0	0	0	3	2	1.5	Herders/ income based (n=4)
4	2	0	0	2	0	0	0	0	4	2	2.0	
5	1	0	0	2	0	0	0	0	3	2	1.5	
6	2	0	0	2	0	0	0	0	4	2	2.0	

Table 8.4 Mean scores per category

Category	Mean total score	Mean number of strategies	Mean score per strategy
Autonomous	10.5 ± 0.5	4.5 ± 0.5	2.4 ± 0.1
Regular income earners	8.0 ± 1.7	4.3 ± 0.5	1.9 ± 0.4
Social transfer dependents	7.1 ± 0.9	4.3 ± 0.5	1.7 ± 0.2
Livestock holders	6.2 ± 0.7	4.3 ± 0.6	1.7 ± 0.3
Irregular income earners	5.0	4.0	1.3
Income based	2.5 ± 0.5	2.0 ± 0	1.8 ± 0.3

A one way ANOVA revealed that there is a significant difference in the number of strategies adopted ($F=20.76$, $p = < 0.001$). A pairwise comparison between the categories revealed that there is no significant difference between the Autonomous, Regular income earning and Social transfer dependent. However, Livestock holders have a significantly lower number of strategies to all three, and the Income based have significantly less strategies than all of the other groups. The Irregular income earning group was excluded from this analysis because it only consisted of one household. Autonomous, Regular income earners and Social transfer dependents therefore have more diversified livelihoods than the remaining categories, allowing them to spread risk across a range of strategies. There is a significant difference in the mean total score per category ($F = 13.59$, $p = <0.001$). The pairwise comparison revealed that Regular income earners, Social transfer dependents and Livestock holders do not show significant differences, but these three categories are significantly different to the Autonomous category, and the Herders/ income based is significantly lower than all of the categories. Autonomous households therefore are the most effective category as they have a higher mean total score, but similar mean amount of scores. Regular income earners, Social transfer dependents and Livestock holders are therefore similar in terms of effectiveness. The Irregular income earners and Herders appear to be the least effective households. There was no significant difference between the mean score per strategy ($F= 2.20$, $p = 0.1$).

As with the Sehlabathebe site, a sensitivity analysis was conducted to determine whether the weightings allocated change the overall trend. The scores allocated in the original analysis (Table 8.3) were then multiplied by these weightings and the mean total points, number of strategies and mean total scores calculated. In the first sensitivity test livestock

were weighted 1, employment 2, sale of livestock 2 and pensions 2. In the second sensitivity test livestock were weighted 2, employment 1.5, sale of livestock 3, remittances 1.5, steady income 1.5 and pensions 1.5. Finally, in the third sensitivity test livestock, livestock sales, employment and pensions were all allocated a score of 1.5.

Table 8.5 Sensitivity analysis of weightings per strategy

	Category	**Mean total score**	**Ranking**	**Mean score per strategy**	**Ranking**
Original analysis	Autonomous	10.5	1	2.4	1
	Regular income earners	8.2	2	1.9	2
	Social transfer dependents	7.1	3	1.7	5
	Livestock holders	6.2	4	1.9	2
	Irregular income earners	5.0	5	1.3	6
	Income based	3.5	6	1.8	4
Analysis 1: employment=2, sale of livestock = 2, pension=2	Autonomous	14.5	1	3.3	1
	Regular income earners	12.5	2	2.9	2
	Social transfer dependents	10.1	3	2.4	5
	Livestock holders	8.6	4	2.6	4
	Irregular income earners	5.0	6	1.3	6
	Income based	5.5	5	2.8	3
Analysis 2: livestock 2, employment 1.5, sales 3, remittances 1.5, steady income 1.5, pension 1.5	Autonomous	18.0	1	4.0	1
	Regular income earners	13.8	2	3.2	2
	Social transfer dependents	11.3	3	2.6	3
	Livestock holders	10.4	4	1.3	5
	Irregular income earners	5.0	6	1.3	5
	Income based	4.5	5	2.3	4
Analysis 3: livestock 1.5, sales 1.5, pension 1.5, employment 1.5	Autonomous	14.0	1	3.2	1
	Regular income earners	9.8	2	2.3	3
	Social transfer dependents	9.5	3	2.2	4
	Livestock holders	8.2	4	2.5	2
	Irregular income earners	5.0	5	1.0	6
	Income based	4.5	6	2.3	5

The sensitivity analysis indicates that the relative ranking of the mean total scores for the categories was robust and not influenced by subjective weightings. In all of the analyses

Autonomous retain the highest mean total score, followed by Regular income earners and Social transfer dependents and Livestock holders (Table 8.5). The mean score per category however, changes slightly across the analyses. Autonomous households, however, consistently had the highest mean score per strategy, and this was generally followed by Livestock holders. The mean total score represents the integration of all strategies per household and even if particular strategies are weighted more than others, the relative order stays the same. This indicates that the total livelihood portfolio is more important than any single strategy.

8.3.1.1 Category 1: Autonomous

Households that fall into this category are generally wealthy and have relatively large herds (Modiselle 2001). These households have financial autonomy and access to regular income from business or pensions, and do not rely on remittances. These households have sufficient funds to follow an autonomous strategy, and hire labourers to assist them. According to Modiselle (2001), these households are predominantly male headed. Two households in the study fall into this category. One household is headed by a widow who farms with her children, and the other is male headed. These households have the largest average livestock holdings (417 ± 106). One household receives remittances fairly regularly. Both households are park farmers, and both receive a pension in addition to income from livestock sales, and both sell over twenty stock yearly. Income from stock was ranked as the most important source of income by both households. Both have hired herders, but also have family members either who spend a significant amount of time at the stock post, and therefore play an active role in the day to day management of the livestock.

> "We live out at the stock post and come into town when we need something, but spend most of our time out there. My parents used to farm and when I got married I started farming on my own with just a few and over the years my herd has grown bigger. When I worked for a while I had a herder. The children own some of the stock so they help at the post. We get two pensions, my wife's one and mine, but this means little to us because we get most of our money from our

stock. We sell about 30 a year, or more when there is no drought. We slaughter between 2 and 4 stock a month". (Household 12- park farmer).

8.3.1.2 Category 2: Livestock holders (5)

Five households fit into this category, three are park farmers and two are non-park farmers. None of the households have a herder and therefore a household member lives at the stock post and is responsible for all aspects of herd management. The average herd size for this category is 140 ± 37. This category has the lowest variation in herd size indicating that all households in this category have herds of similar size. All households sell livestock yearly. One household sells over twenty a year, and sold approximately 75 last year. Four households sell no more than twenty a year, and the number sold depends on the condition of the herd and the amount of money needed. Only one household has an alternative source of steady income in the form of a pension. One household receives regular remittances from children that still live in the household, but says that livestock provides a more important source of income. All five households rely on wild resources (Table 8.3); three use fuelwood, medicinal plants, water and grazing regularly, while the remaining two households uses them less regularly.

"I grew up in Kuboes and my family moved their stock into this area [park] because the veld was good here. More people have moved in over time, but there is still lots of grazing. I built up my herd from the occasional goat or sheep given to me by my parents, which was kept with them. I inherited stock when my father passed away and I farm with my brother now. The stock is the only source of income, I sell them when I need money, around ten a year mainly in December." (Household 2 – park farmer).

"We have no pensions, the stock is our only income so we sell stock every year. We can sell to people here in Sanddrift for meat or to people from outside who come to buy them. My husband lives at the post and I stay here in town, but I sometimes go out for the day. We have around 150 stock, but have lost around 50 to drought in the past three years." (Household 21 – non-park farmer).

> "My husband was a farmer but he passed away and now I farm with my sons, and they are there at the stock post helping with the stock. My husband started farming in 1967 and he worked for a bit on the mines but returned to farming. I get a pension every month and we sell stock once or twice a year, last year we sold 53 and then 25 later, and I share this money with my sons. The stock and the pension are both important to me." (Household 13- park farmer).

8.3.1.3 Category 3: Social transfer dependents (10)

This group consists of households that receive some form of grant, either pensions or disability grants. According to Modiselle (2001), these households generally keep livestock for household consumption or to generate funds when necessary. Herds are looked after by either the owner, a family member or a hired herder. Social transfer dependents constitute the biggest group of the sample (10). Households in this category have the second highest average herd size, 187 ± 113. Six households receive one state pension, and the remaining four receive two pensions. The majority of households (9) utilise at least two wild resources, while one household uses only fuelwood. One household receives remittances occasionally. Two households partake in cultivation, one household sells when possible, and one grows produce for subsistence use only. Regarding livestock sales, almost half the households (4) keep livestock primarily for subsistence use and sell only occasionally, while over half of the households (6) sell livestock regularly, up to 20 per year. Only one household has a member in part time employment. Households in this category therefore rely primarily on pensions for income and sell livestock occasionally and not in great quantities. The majority of the households that fall into this category are park farmers (6).

> "When we got married we had a few stock, and while I was working they were looked after by another farmer. I started farming on my own 11 years ago when I stopped working for medical reasons. At the moment we get money from my pension and from the stock, and the pension is most important because it comes every month. We slaughter a goat a month and sell every year, but it depends on

the drought. Last year was very dry so we didn't sell." (Household 14 – park farmer).

"I get a pension and so does my husband. He used to work on the mines but he stopped in 1999 and went onto pension. When he went onto pension he started with the stock full time, and most of it now belongs to our children. When he was working he had stock in the park, it was kept with his father and he used to go out as often as possible to help. The pensions is not much, around R700 a month, and we do not get that much money from the stock but do get meat, it helps that we don't have to buy meat. My husband lives out there all the time, with a herder and he comes into town to get his pension." (Household 16 – park farmer).

8.3.1.4 Category 4: Regular income earner (6)

Six households fall into this category (Table 8.3). All households have at least one member in full time employment, and one household has two members employed. None of these households receive government grants or remittances. Two households have additional sources of income, one from dividends and one from acting as a speculator for the livestock sales and is receiving a commission. Households in this category have and average herd size of 256 ± 254. This category has the highest variation in herd size. Regarding livestock sales, half (three) of the households sell over 20 livestock a year, while the remaining half sell regularly, but fewer than 20 a year (Table 8.3). All six households have hired herders.

8.3.1.5 Category 5: Irregular income earners

One household in the sample falls into this category. This household has a herd size of 43. The household uses wild resources regularly, and has a member of the household involved in casual employment. The household sells livestock regularly but not more than 20 a year. The household head 'worked' for his father with the livestock until he died in 1988, after which he took over completely. After this he worked on and off at the mines, but not for very long at a time.

8.3.1.6 Category 6: Income based (4)

Two herders were not originally from the area and had moved to find work. All four herders relied on wild resources, two used only fuelwood because they were unfamiliar with the area and did not know where to find medicinal plants and wild foods. Owners provide food, clothing and water if necessary in addition to monthly wages of around R250.

8.3.2 Livelihood categories of park and non-park farmers

The previous section has shown the differences in livelihoods between the different categories. This section sets out to determine whether livelihood strategies differ between park and non-park farmers. This was achieved by comparing the livelihood categories that park and non-park farmers fall under (Table 8.6). The Income based category has been excluded from this table because they do not have stock and are therefore neither park nor non-park farmers.

Table 8.6 Livelihood categories of park and non-park farmers

Category	**Park farmers (n = 13)**		**Non-park farmers (n=11)**	
	Number	%	Number	%
Autonomous (n=2)	2	15 %	0	0
Livestock holders (n=5)	3	23 %	2	18 %
Social transfer dependents (n=10)	6	46 %	4	36 %
Regular income earners (n=6)	2	15 %	4	36 %
Irregular income earners (n=1)	0	0	1	9 %

Looking at the distribution of households across the categories (Table 8.6) it can be seen that both of the Autonomous households are park farmers, similar numbers of park and non-park households are Livestock holders, and a higher proportion of park farmers are Social transfer dependents, whereas a higher proportion of non-park farmers are Regular income earners (Table 8.6). The prevalence of park farming Autonomous households indicates that having access to the park is potentially conducive to success. However, the other categories are more or less evenly distributed, indicating that park and non-park households have very similar livelihood strategies. The prevalence of park farming Autonomous households cannot be said to be solely a result of access to the park, but

could rather be a result of superior asset accumulation over time, or intensive investment in herd building as opposed to other assets. Therefore, access to the park cannot conclusively be said to influence livelihood strategies.

8.3.3 Livelihood categories and herd management

Herd management differs from household to household, particularly with regard to time invested in livestock farming. The time spent at or visiting the stock post varies across households (Table 7.2 Section 7.2.4). This section compares household livelihood categories with time spent on livestock management (Table 8.7). One would expect that households in full time employment spend less time with the stock and rely on hired herders or family members to tend to the stock. Autonomous households would be expected to spend time at the post, but at the same time afford to hire a herder to tend to the stock. Households receiving a pension would be expected to be able to hire a herder to tend the stock, but also, as they are not working, may be responsible for herding themselves. Livestock holders and Irregular income earners would be expected to spend significant time with the stock as it is their primary livelihood strategy.

Table 8.7 Frequency of trips to post according to livelihood strategy

Frequency of trips to post	**Autonomous (n=2)**	**Livestock holders (n=5)**	**Social transfer dependents (n=10)**	**Regular income earners (n=6)**	**Irregular income earners (n=1)**	**Hired Herders (n=4)**
Live at post or spend most of their time at post	1	5	6	0	1	4
Go to post regularly (2-4 times a week)	1	0	2	4	0	0
Got to post 2-3 times a month	0	0	1	2	0	0
Once in a while	0	0	1	0	0	0

Households in the Autonomous group spend considerable amounts of time at the stock post, one household spends most of their time there, and the other goes out regularly. Both households have herders. All five households in the Livestock holders category live

permanently at the stock post or spend significant amounts of time there, and therefore invest all their time into livestock rearing (Table 8.7). None of these households have hired herders. This illustrates how households in this category are focussed primarily on livestock rearing for their livelihoods. Within the Social transfer dependents category (10), over half (six households) either live at the stock post or spend most of their time at the stock post. Two households go to the stock post fairly regularly (between two and four times a week). The remaining two households go to the stock post less regularly: one household visits the post twice a month, but is involved in casual labour which may explain this, and the remaining household only goes to the post once in a while, and expressed that he is no longer as involved in farming as before. Seven of the ten households in this category have hired herders, and the three that do not spend all their time at the post. This category exhibits the greatest variation in time spent at the stock post. It is therefore a broad category that encompasses households that are still very involved in livestock rearing and those with decreasing livestock involvement. None of the Regular income earners live at the stock post or go there frequently, but most (4) go fairly often, while two go less regularly. All six households have hired herders. Households in this category are involved in permanent employment and therefore have less time to devote to stock farming than households that are not employed and this explains why none of the Regular income earning households live or spend most of their time at the stock post. The one Irregular income earner spends significant time at the stock post and does not have a herder. The Income based group all live at the stock post. Time spent at the stock post is therefore a function of the livelihood strategies adopted by a household, i.e. those that rely primarily on livestock spend more time at the post than households that have an alternative source of livelihood (e.g. employment or pensions). Those households with alternative sources of income are also in a position to hire herders to tend the stock, whereas those without regular income (Livestock holders, Irregular income earners) rely on their own labour.

8.4 Conclusions

Households change and develop over time as access to assets and household composition change. Over half of the households moved categories, some to more than one category,

as the household developed. Government grants play a vital role in livelihoods in the Richtersveld as they provide a steady source of income in the decline stage of the household. The general trend appears to be a move towards the Social transfer dependent category as the household ages. Households that remain focussed on livestock and have a large asset base (i.e. Autonomous households) are the exception to this. It is essential to consider the role of temporal scale in understanding present livelihoods as it allows for an appreciation of how their asset base and consequent livelihood strategies have changed. Interventions such as the formation of the RNP do not appear to have played a great role in influencing livelihoods. The change over time appears to be the result of the natural progression of households and the differing access to assets that the ageing of a household brings (i.e. access to pensions, decreased livestock holdings) rather than a result of external shocks and trends.

Presently, livelihood strategies differ across households in the Richtersveld. Livestock rearing is a central strategy, and other strategies pursued are often geared towards increasing livestock holdings, particularly in the earlier stages of the household cycle. Most households have access to a regular source of income as well as income from the sale of livestock, therefore allowing them to reduce risk and mitigate against the impacts of shocks. Livestock appear to play a crucial role in buffering against shocks, in that households can rely solely on livestock should a shock, such as loss of employment, occur. Households that have access to a steady source of income in the form of pensions or wages appear to have more effective livelihoods and be more resilient than those relying on irregular income or livestock alone. This indicates that households that have a diversified livelihood portfolio are a better position than those without.

9 Chapter 9 Discussion and conclusions

9.1 Introduction

Households in both the Richtersveld and Sehlabathebe rely on a diverse range of assets to secure their livelihoods (see Chapters 4 and 7). Livelihoods at the local level are complex and do not exist in isolation, but are influenced by various factors at different spatial scales (Fairhead and Leach 1996, Mertens *et al.* 2000, Gibson *et al.* 2000, Francis 2000, Murray 2002). Assets and livelihoods are also influenced by temporal scale, both in terms of how households progress and change over time (the household development cycle, see Chapters 5 and 8), and the complex broader social, political, economic and ecological dynamics that change over time (Fairhead and Leach 1996, Bagchi *et al.* 1998, Daniels and Basset 2002, Chapters 3 and 6). This chapter provides a comparative discussion of livelihood change. Naturally, livelihood assets and strategies differ between households, so a general overview of the trends masks some of the nuances at the household level, but at the same time is important in providing an overall understanding of the trends and their effects on livelihoods. This chapter begins by discussing the dominant trends in livelihood change, followed by the major drivers of change in the Richtersveld and Sehlabathebe, and the responses to these changes. The following section addresses the diversity of livelihood strategies adopted. The use of the development cycle in studying livelihood change is then discussed, followed by an overview of the vulnerability of households in both sites.

9.2 Trends of livelihood change

By looking at the changes in individual households over a period of 30 years, this study has allowed for an understanding of changes that result as a household ages and progresses through the development cycle (e.g. a move from reliance on waged employment to pensions), as well as changes that have resulted from shocks and trends outside of the control of the household (e.g. retrenchment from waged employment as a result of macro-economic factors, or the loss of livestock due to stock theft). This section provides an outline of the general trends of livelihood change in both areas.

The relative importance of livelihood strategies has changed over time in both areas, often due to factors beyond the control of the household, such as the integration into the formal economy, or the decline in employment opportunities. Traditionally, livelihoods in Sehlabathebe and the Richtersveld were primarily centred around subsistence agriculture (cultivation and livestock in Sehlabathebe, livestock rearing in the Richtersveld), with some trade in goods (Sharp and West 1984, Gill 1993). Colonial and apartheid policies have been instrumental in the changing importance of livelihood strategies in both areas. By the late 1800s, the influence of colonialism could be seen in both areas, as households were forced into the formal cash economy (Sections 3.2.1 and 6.2.1), and moved away from reliance on agriculture alone to reliance on a mixture of migrant remittances and agriculture. This trend continued, with households becoming increasingly reliant on off-farm income, but continuing with subsistence agriculture, albeit less and less successfully, particularly in Sehlabathebe. Over time, households have therefore moved away from reliance primarily on cultivation and livestock, towards reliance on wages, remittances, garden cultivation and petty trading (Phororo 1999, Green 2000, Gay and Hall 2000, IFAD 2001, Turner 2003a, Ziervogel and Calder 2003) in common with changes elsewhere in Africa (Ellis 1998, Francis 2000, Bryceson 2002) and the rest of the developing world (Foster and Rosenzweig 2004, Rigg 2006).

However, looking specifically at livelihood change in the past 30 years, it can be seen that livelihoods have changed more in Sehlabathebe than in the Richtersveld. Livelihoods in the Richtersveld have not changed significantly over the last 30 years. Although employment opportunities on the mines in the Richtersveld are subject to fluctuations and may be influenced by downscaling (Section 6.2.2), households in the Richtersveld have not experienced as drastic a decline in employment opportunities, and are still heavily reliant on wages. Livestock owning households in the Richtersveld have continued to rely predominantly on a combination of livestock and income from either employment or state grants/ pensions, and natural resources continue to play an integral role in livelihoods. This is in line with the findings of other studies conducted in Namaqualand and the Richtersveld (Anon. 1998, Modiselle 2001, Berzborn 2003,

Hendricks 2003) and elsewhere in similar environments (Sullivan 1999, Twyman *et al.* 2004).

Livelihoods in Sehlabathebe have, on the other hand, exhibited more marked change over the past 30 years. The decline in migrant labour opportunities in South Africa (Section 3.2.1) has meant a decreased availability of off-farm income for households in Sehlabathebe. Subsistence farming has continued to play a role, although without access to regular income in the form of remittances, many households are no longer able to cultivate effectively (Section 3.2.3.2). There has been no significant growth in employment opportunities within Lesotho to offset this, and therefore many households remain without access to employment or income (see Section 3.2.1). Households in both the Richtersveld and Sehlabathebe, like other areas in Africa, have been locked into the formal economy and markets since the colonial period through the paying of taxes, buying of food and goods, selling crops and selling their labour (Francis 2000). This has had the effect of a move away from reliance solely on on-farm income, and in both cases has led to an interdependence between farm and off-farm income, i.e. remittance/employment income became integral to the performance of on-farm activities (Spiegel 1979, Beinart 1980, Bryceson 2002, Twyman *et al.* 2004). The lack of employment opportunities for households in Sehlabathebe therefore has repercussions for their ability to cultivate and rely on on-farm productivity in place of remittances.

9.3 Drivers of livelihood change

Drivers of change operate at multiple spatial and temporal scales (see Section 1.1). Identifying the drivers of change, exogenous and endogenous, is complex. Many drivers are interrelated, and in addition, household responses to exogenous drivers can become localised drivers themselves. As a result of the interconnectedness of many drivers, many of the changes seen are responses to several interrelated factors. The drivers can be broadly characterised as macro-economic drivers, institutional or social drivers, demographic drivers and climatic drivers. The interrelationships between drivers means that some responses are a result of a combination of drivers.

9.3.1 Macro-economic drivers

The integration of these remote traditional areas into the formal economy has been a major exogenous driver of change in both sites. Colonial policies, such as taxation, were instrumental in pushing people into the formal capitalist economy in the late 1800s at both sites and elsewhere in the region (Beinart 1980, Murray 1981, Dore 2001, Ponte 2001, Tywman *et al.* 2004). This change has itself been instrumental in driving several other changes, which differed between the two sites. In Lesotho, the integration into the formal economy initiated the move towards reliance primarily on migration as a livelihood strategy, while on-farm strategies declined in importance. The increased reliance on off-farm income influenced households' ability to cultivate (Spiegel 1979, Murray 1981, Gill 1993, Gay and Hall 2000). Households therefore became fully entrenched in the capitalist mode of production where on-farm strategies provided only a supplement to remittances (Spiegel 1979). A similar trend was reported in the former Transkei, where reliance on remittances meant that agriculture became a secondary activity (Beinart 1980, Heron 1991). However, this decline in arable production and reliance on on-farm income was not solely a result of the integration into the formal economy, but a result of a complex interaction of drivers including population growth (Section 9.3.2) and a lack of access to inputs and markets. In the Richtersveld, the integration into the formal economy has led to a growing reliance on waged employment as a livelihood strategy. Wage labour and stock farming have become complimentary activities as earnings from wage labour are invested into livestock. This relationship between employment and livestock farming has meant that few households would be able to survive on livestock rearing alone (Boonzaier 1987, Khrone and Steyn 1991).

Both areas are remote and peripheral, with limited access to inputs and markets (Khrone and Steyn 1991, DAO 2002). This has been a driving factor as it has influenced the viability of relying on agriculture alone as a dominant livelihood strategy, especially since subsistence alone, divorced from the need for cash and participation in the formal economy, is no longer possible due to the increased population and decreased land quantity and quality. The role of access to markets in agriculture and poverty reduction has been well documented (Wiggins 2000, Barrett *et al.* 2001, Orr and Mwale 2001,

Ellis *et al.* 2003, Andrew *et al.* 2003, Ade Freeman *et al.* 2004, Andrew and Fox 2004). According to Campbell *et al.* (2002), markets in peripheral areas are often under developed and regular access to them is usually constrained by long distances and the cost of transport, as well as poorly maintained infrastructure. This is evident in both sites. The lack of infrastructure in both areas is due to political and economic factors. In Lesotho, the lack of development in general has meant little infrastructural development in Sehlabathebe (see Section 3.3.2.4). In the Richtersveld, the area's history as a coloured reserve meant there was little infrastructural development during apartheid (see Section 6.2.2), but there have been improvements since the end of apartheid.

The decline in demand for Basotho labour in South Africa and the associated retrenchment and lack of migrant labour opportunities (Section 2 3.2 and 3.2.3.2) has been a major driver of change in Lesotho. The most important change associated with this decline is that many households no longer have access to cash income, which undermines their ability to cultivate and accumulate assets (see Section 5.2.4 for the impact on individual households). Tywman *et al.* (2004) also found that in the decline in employment opportunities in South Africa affected households in Botswana by limiting their access to capital inputs necessary for cultivation. In addition, households in the North West province of South Africa were found to be unable to participate in agriculture although they were endowed with land holdings because they lacked the capital and infrastructure necessary for agriculture to be viable (Twyman *et al.* 2004). This can be compared to Sehlabathebe where many households have access to land, but do not have the assets necessary to cultivate the land (see Section 4.2.1). The decline in availability of employment in South Africa is compounded by the state of the Lesotho economy. Lesotho's economy is small and has exhibited insufficient growth to compensate for the loss of employment in South Africa (see Section 3.2.1). Lesotho has effectively been a labour reserve for South African industries, similar to the former Bantustans established under apartheid, with very little industry and few employment opportunities within the country (Section 3.2.1).

9.3.1.1 Responses

Households have responded to the different exogenous macro-economic drivers in a variety of ways, emphasising the adaptability of rural livelihoods (Francis 2000, Mortimore and Adams 2001, Orr and Mwale 2001, Ponte 2001). In both sites, the integration into the formal cash economy has led to households having more diversified livelihood portfolios, with off-farm income in the form of wages, remittances and pensions playing an increasingly important role. Social capital has always played an important role in both sites (Sections 4.5 and 7.5), allowing households' access to assets that they lack, and to pursue multiple strategies simultaneously. Social capital is a particularly important asset in Sehlabathebe, especially since the increase in retrenchments and consequent decline in asset availability, notably financial capital. Similarly, Francis (2002) noted an increase in reliance loans and gifts after a decline in the availability of remittances in the North West province of South Africa. Social capital allows households access to food, cash and labour in times of need, and is therefore a fundamental coping mechanism and safety net, particularly for poorer households (Section 5.3.2) (Rancoli *et al.* 2001, Sayer and Campbell 2004). Similarly, Slater (2002) highlights how social networks and kin relationships allowed people to respond to risk in Qwaqwa, South Africa. Snel and Staring (2001) stress how social institutions provide a functional source of security in many countries where public social security, such as pensions, is absent. Many of the strategies used to cope in times of crisis are existing strategies that are deliberately maintained as security and assume an important role in times of stress (Adger 1999b, Campbell *et al.* 2003). This is clearly evident in Sehlabathebe where social capital, particularly networks of kinship and reciprocity, assume a more important role in times of crisis, but are always maintained even in times of low stress.

The improvements in service provision and infrastructure in both sites have influenced livelihoods, particularly the use of and reliance on natural capital. In Sehlabathebe, medicinal plant use has declined since the establishment of clinics in the area (Section 4.2.4.4). In the Richtersveld, reliance on fuelwood and medicinal plants has reportedly declined due to the electrification of the area and the establishment of clinics (Section

7.2.6). These natural resources are still utilised in both sites, but in general, the improvements in infrastructure have meant that physical capital can be substituted for natural capital, although at a cost. Modern clinics and electricity all require a cash payment, albeit small. This is contrary to the findings of Davis (1998) and Madubanasi and Shackleton (in press), who found that electrification in other areas of South Africa had not significantly decreased the proportion of households using fuelwood, nor the amount used per household. Although this study did not quantify the amount of fuelwood used, Figure 7.8 shows that most households in the Richtersveld rural area use electricity for cooking, heating and lighting, while significantly less use fuelwood. This indicates that the Richtersveld is an exception. However, further study is required to determine whether the perceptions of declining fuelwood use match practice.

Both sites exhibit a declining interest and participation in farming. In the Richtersveld this is mainly due to westernisation and reliance on employment, whereas in Sehlabathebe it is due to a combination of factors: the general trend of declining agriculture has meant that the youth do not see it as a feasible livelihood option; and added to that is the declining availability of land, which means that even if people want to engage in agriculture they cannot get access to the land. Rigg (2006), using examples from Thailand, Malaysia and Indonesia, highlights how rural life is becoming increasingly monetized, and how the younger generation are increasingly building futures that avoid farming. Bishop-Sambrook (2003) found that the youth in western Kenya also showed a decreased interest in farming, preferring rather to seek employment in the urban areas. However, it is necessary to consider whether this is a reflection of cultural change away from farming, and how much is related to the development cycle of households, i.e. will these young people see the merits in farming and become involved in later life? (Rigg 2006).

In Lesotho, one of the most notable responses has itself become a driver of change. The declining employment opportunities in South Africa and the concomitant decline in remittance income available has been one of the major driving factors behind the increase in stock theft (Section 3.2.3.3, Kynock and Ulicki 2000). Stock theft is therefore a

response by some households to the lack of employment opportunities, but at the same time, is itself a major driver of livelihood change in afflicted households. The rise in stock theft has had a range of impacts (Section 3.2.3.3) including impacting livestock ownership (Section 4.2.3), fuel availability (Section 4.2.4.2) and social capital (Section 4.5.1). Section 5.2.4 highlights the impact on individual households. Ellis *et al.* (2003) found similar results in Malawi, where stock theft, and the risk associated with owning livestock meant that very few households owned livestock, thus reducing the flexibility of livelihoods and possible pathways out of poverty. Stock theft constitutes a major shock to households, and can drive the move of households between categories in the development cycle, and in some cases causing households to shift out of the typical development cycle (Section 5.2.4). The magnitude of the effect of stock theft has been highlighted by Letsela *et al.* (2002a) who calculated the total economic value of stolen stock in a community in Lesotho to date to be US $ 275 000. Stock theft has affected the communal rangelands in Sehlabathebe because it has meant that people are reluctant to utilise the distant pastures and therefore livestock is concentrated on the pastures around the villages, leading to increased impact on these pastures (Sections 3.2.3.3 and 4.2.3.2). This in turn has been a contributing factor in the collapse of the Range Management Project (Section 4.5.3). This example highlights the complexity in understanding drivers and the interrelationships that exist between drivers at different levels. Macro level economic changes are the primary exogenous driver, and the response to this has itself become a local driver, which has resulted in changes at the household level. It is necessary to clarify the role of scale at this point: a driver can be endogenous or exogenous depending on scale, i.e. stock theft is an endogenous driver at the community level because theoretically it is within the community's sphere of influence, but it is exogenous at the household level, because households have little control over it.

9.3.2 Demographic drivers

Population growth has been a driver of change in Sehlabathebe, but not in the Richtersveld. In Sehlabathebe, population growth has meant that land holdings per household have decreased and that there are a growing number of households that do not have access to arable land at all. Estimates of landlessness in Lesotho vary from 19 %

(DAO 2002), 29 % (Letsela *et al.* 2002b) and 33 % (Turner 2003a). Section 4.2.1 highlighted the respondents concerns about land availability for allocation to young men when they marry. Declining arable land holdings affect the contribution that cultivation can make to livelihoods, and with the general lack of access to markets and inputs, the contribution of cultivation is on the decline. According to IFAD (2001), only 20 % of mountain households produce enough to be self sufficient for the whole year. Francis (2000) highlights that the inability to produce enough from agriculture is a widespread predicament throughout Africa. The lack of land available means that many households do not have the option of engaging in arable cultivation, unless they inherit a field from their parents, and even in this case, only one child can inherit the field. Bryceson (2002) stresses that this is a common trend throughout Africa. Younger households therefore often have to pursue a livelihood that does not revolve around farming. The declining availability of land has repercussions for livelihoods later on in life. Cultivation was traditionally viewed as a strategy to ensure survival in old age (Spiegel 1971, Murray 1981), whereas now it is increasingly unfeasible, and the number of households in this study that are not participating in cultivation bears testimony to this (Section 4.2.1). Households have to find alternative sources of income for old age now. Relying on garden cultivation and petty trading are among such alternative sources, but there does not appear to be a replacement as such for the benefits derived from cultivation, which indicates that households will be more impoverished in old age.

Population growth is perceived to be the major driver of natural resource decline in Sehlabathebe (Section 4.2.4). Lesotho has experienced a doubling of the population since independence in 1966 (Turner *et al.* 2001, Section 3.2.3.1). This typically Malthusian relationship between population growth and natural resource decline has been well documented (Reardon and Shaikh 1998, Leach *et al.* 1999, Mearns *et al.* 1998, Mortimore and Adams 2000, Scherr 2000, Mortimore *et al.* 2001, Sarch 2001). There is a growing recognition however, that other factors such as the breakdown of traditional authority, the change and erosion of institutions, social change, inappropriate state policies and migration to urban areas are equally important factors in natural resource decline (Folke 1998, Leach *et al.* 1999, Campbell *et al.* 2002, Geist and Lambin 2002).

Geist and Lambin (2002) found, in a study of 152 case studies, that contrary to popular belief, population increase was not a primary driver of deforestation, and found that where population increases had had an effect, it was always combined with other drivers. Therefore, although population growth is a major driver, the decline in resource availability is also associated with the unstable institutional context, which has been driven predominantly by political and economic trends (see Section 9.3.3). The Richtersveld has not seen these impacts because the population has not increased as drastically. The reasons for this are unclear, but may include out migration from the area and low migration into the area due to its peripheral location and harsh environment.

9.3.2.1 Responses

Garden cultivation has emerged as an important strategy that allows households in Sehlabathebe to cultivate even if they do not have access to arable land. The participants in the workshops said that they only started planting gardens in their homesteads in the 1960s and 1970s, and before this they relied solely on arable fields. Gardening had been encouraged by agricultural extension officers. The increased importance of garden cultivation is also a response to other factors, such as a lack of access to inputs (labour, capital) and markets (macro-economic factors). The prevalence of garden cultivation can be compared to the former homeland areas of South Africa, particularly the former Transkei, where there has been a move away from arable cultivation towards garden cultivation (Andrew 1992, McAllister 1999, Andrew *et al.* 2003, Timmermans 2004). According to Andrew *et al.* (2003), the move away from arable cultivation is due to factors including the absence of male labour, a shortage of draught power, shortages of capital for inputs and a lack of markets, soil erosion and damage to crops due to a lack of fencing. Similar factors appear to be at play in Sehlabathebe. Therefore, although arable land is an important asset, gardens appear to play an increasingly important role in livelihoods because they are more accessible (i.e. do not require allocation and require less inputs) and can provide households with a source of subsistence. Garden cultivation has therefore been a response to exogenous factors, but is itself an endogenous change.

The decline in natural resource availability has meant that households in Sehlabathebe have to spend more time collecting as they have to travel further, use inferior resources (such as juvenile thatch grass), purchase resources from areas where they are still available (Section 4.2.4.4), or purchase substitutes. Dahlberg (2000) found a similar situation in Botswana. The purchase of resources, or of substitute products (such as paraffin instead of fuelwood, or asbestos roofing instead of thatch) means that households are utilising scarce financial capital to purchase goods that were previously freely available, putting increased strain on already scarce financial capital. The decline also affects human capital as significant time is spent collecting resources. Medicinal plant use is perceived to have declined as more people, particularly the younger generation, go to clinics rather than rely on traditional medicines.

9.3.3 Institutional and social drivers and dynamics

Changes in the institutional environment have been a driver of change in both sites. However, in Sehlabathebe there appears to be a general weakening of the institutions, while in the Richtersveld there has been a general strengthening. Since democracy in Lesotho, several changes have been implemented in the institutional context, including attempts to replace traditional institutions (i.e. the chiefs) with westernised institutions (VDCs) (Section 3.3.1). The constantly changing and conflictual institutional environment may have led to a weakening of the traditional methods of controlling resource use (*maboella*). The rapid politically motivated decentralisation (Section 3.3.1) was aimed at gaining power of village level governance and undermining the traditional institutions, i.e. the chiefs, by replacing them with democratic institutions. However, this process was legislated quickly, for political reasons, with little thought as to its implementation (Goldman 1998). In Ha Mavuka, although the VDC is in operation, the chief is still considered to be the authority in the area. This indicates the strength of this traditional institution, but at the same time, the role of external interventions and the consequent changes to village level institutions have led to much confusion as to who is responsible for what, and this may have undermined the effectiveness of traditional natural resource management practices. Turner (2003b) highlights this in connection with rangeland management as the continuing decay of local level governance has led to

uncertainty about authority at the local level, which is vital for successful management of communally held resources. Institutional change has therefore been instrumental in the natural resource decline perceived by respondents in this study. The role of State led interventions in weakening local level institutions and therefore natural resource management has been shown elsewhere (see Adger 1999a, Berkes 2000, Sarch 2001, Daniels and Basset 2002). Rehabilitation projects funded by the State in the former Ciskei in South Africa led to the undermining of traditional natural resource management institutions as people became reluctant to engage in rehabilitation without remuneration (Ainslie 1999, McDermott 2002). In the Lowveld area of South Africa bureaucratisation of traditional authorities has meant that they have become increasingly weakened and marginalised in terms of natural resource management (Twine 2003). This is also said to be a result of confusion regarding the role of traditional authorities in resource management, less policing due to budget cuts for traditional authorities, and diminishing respect for traditional leadership by the youth (Twine 2003).

The land tenure system in Lesotho is a driver that constrains change, rather than drives change. Section 3.3.1 outlined the land tenure system and associated institutional factors. Under the land tenure system, all married adult males have the right to arable land. This has meant that with the growing population, there has been increasing fragmentation of arable fields, which reduces the ability of households to harvest sufficient for subsistence. Demographic drivers are therefore closely linked to this (Section 9.3.2). In addition, in accordance with the Laws of Lerotholi, if arable land is not cultivated for two successive years, access can be revoked. The increase in land scarcity and the threat of losing land (potential or real) means that people continue to attempt to cultivate even though they lack the necessary inputs, which is often a waste of scarce household resources. The land tenure system has therefore been able to absorb some population growth, but at the cost of subsistence. The land tenure system is therefore in a state of institutional inertia, where despite pressure and tensions, the institution remains largely unchanged. A possible explanation for this is that there are often time lags between detection of the problem and institutional change, and that population growth and macro economic factors are

changing faster than changes to the institutional environment (Millennium Ecosystem Assessment 2003).

The Range Management Project in Sehlabathebe provides another example of institutionally driven change. The RMP was implemented with the express aim of arresting rangeland degradation and did function effectively for some time (Section 3.3.2.2). However, due the withdrawl of external support and a lack of capacity on the ground, lack of buy in from all livestock owners and problems associated with stock theft, the RMP had limited success (Lawry 1988, Hunter and Weaver 1993). Sarch (2001) discusses the role that intervention by external organisations play in natural resource management, arguing that they often led to depletion or erosion of natural resources and in many cases led to the erosion or dissolution of community based access arrangements. Another notable external intervention was the formation of the Sehlabathebe National Park in 1970. This influenced households' access to grazing land, as well as natural resources such as medicines and thatching grass. It is likely that the effects of the establishment of the park were also felt by households further afield who used the area as summer grazing.

In the Richtersveld, external interventions such as the proposed economic units (Section 6.2.2.1) and the establishment of the Richtersveld National Park (Section 6.3.1) have been instrumental in driving change. Both interventions were externally driven, with little or no consultation with the community, but were successfully rejected by the community and in the process increased community cohesion. The establishment of the RNP has meant an increase in tourists in the area and the increased potential (as yet unrealised) of tourism to provide income and/or employment. The Richtersveld Community Trust emerged as a result of the conflict surrounding the establishment of the park and provides access to financial capital (Section 6.3.2.4). However, the establishment of the park has also led to a growing perception that park farmers are in an advantageous position, which may lead to conflict in the future. The success of the land claim against the park has been instrumental in driving further land claims (Section 6.3.3.2), which have great potential to enhance livelihoods in the area. The external interventions in the Richtersveld initially

weakened the local institutions, but conflict and resistance led to the adaptation and strengthening of these institutions. Outside interventions in this case, have therefore led to institutional strengthening rather than weakening. Berkes (2000) provides examples of the positive effects of higher level institutions, which may rejuvenate or strengthen local level institutions.

Another important driver of change in Sehlabathebe has been the provision of food aid. Food aid constitutes a fundamental contribution to the livelihoods of the poor and the elderly. Without access to State pensions as in the Richtersveld, food aid provides an important source of security for elderly households in Sehlabathebe. Food aid provides an example of a positive government/ donor intervention. The receipt of food aid is important in maintaining social linkages as it allows households to repay borrowed goods, and also may allow households to assist other households in crisis, thereby investing in social capital (Section 4.5.1.3). Dercon and Krishnan (2003) found that in Ethiopia, informal risk sharing arrangements existed within the community, allowing the benefits of food aid to be spread out. The receipt of food aid allows households to diversify their livelihood portfolio, particularly by engaging in the brewing and sale of beer (see Section 9.4). Dercon and Krishnan (2003) found food aid to provide an important safety net in Ethiopia, particularly since, similar to Lesotho, no other publicly provided safety net exists.

9.3.3.1 Responses

The local level responses to natural resource scarcity have been outlined in Section 9.3.2. The response to the changes in the institutional environment in Sehlabathebe has been continued existence and support for the traditional institution (i.e. the chiefs), in spite of the externally driven changes. The failure of the RMP has been a local response to several interrelated factors, including the lack of capacity locally and the withdrawal of external support. In addition, the rising threat of stock theft played a role in its failure as people responded by keeping their stock closer to the village, thereby undermining the core concept of rotation of pastures. These two examples highlight that local people are not necessarily victims of outside interventions, but rather respond in ways which

maintain or enhance their resilience. Similarly, Orr and Mwale (2001) found that rural households in southern Malawi were not passive victims of policy reforms, but rather were active problem solvers. The Richtersveld community formally opposed external interventions to take their land by following legal channels, with the assistance of external agencies such as NGOs, and emerged successful in both cases. This in turn has led to a resurgence of Nama culture and increased co-operation between the North and the South, as well as an enhanced sense of community (Boonzaier 1996). In both sites therefore, the communities have opposed outside intervention, although the Richtersveld community took a formal stand, the responses by the Sehlabathebe community have been less drastic. However, the interesting difference between the two sites is that outside intervention in one site led to institutional strengthening, whereas in the other led to institutional weakening. This could be due to the differing existing institutional arrangements, i.e. more structured and regularised hierarchical institutions in Sehlabathebe (the King and chiefdom), compared with the more informal unstructured institutional make up in the Richtersveld. The interventions in the Richtersveld did not attempt to alter the structures of authority, but rather to monopolise access to resources. The external assistance, particularly regarding the establishment of the RNP and the land claims, played an important role, whereas no such external assistance was received in Sehlabathebe. Unlike the Richtersveld, legal channels could not be followed in Sehlabathebe, and the result was a more informal resistance to outside intervention and change.

9.3.4 Climatic drivers

Rainfall variability is perceived to be a driver of change in both sites. However, differences exist between the sites, both in climate and in the perceptions of rainfall change. Sehlabathebe is an example of an equilibrium system, with high rainfall and low inter-annual variability supporting a perennial grass sward, the dynamics of which are largely controlled by disturbance, such as fire or grazing (Morris and Fyn 2003). The Richtersveld is a non-equilibrium system, which is characterised by low annual rainfall, high inter-annual variability (>30 %) where forage availability is largely determined by rainfall, which results in variable and unpredictable primary productivity (Behnke and

Scoones 1993, Naimir-Fuller 2000, Ho 2001, Briske *et al.* 2003, Vetter 2004). In non-equilibrium systems therefore, livestock numbers are controlled by forage availability, which is determined by rainfall rather than by density dependent interactions such as the competition for resources (Wiens 1977). The coefficient of variation of rainfall for Sehlabathebe was calculated to be 17 %, whereas the Richtersveld was calculated to be 57 %. The two different environments mean that there are fundamentally different driving forces, particularly with regard to natural resource availability. In addition, different management strategies and decision making are required: in the more predictable equilibrium system conservative optimisation is appropriate, whereas in the unpredictable non-equilibrium systems, opportunistic decision making is appropriate (Sullivan and Rohde 2002, Burke 2004).

In Sehlabathebe, rainfall decline was perceived to be a factor in the decline in harvests and the availability of certain natural resources (Sections 4.2.1.1, 4.2.4.2, 4.2.4.5). Grazing was perceived to have declined as a result of drought and wild fires (see Section 4.2.3.2). Rainfall data for the area showed no clear trend of decline (Section 4.2.5.1), but rather showed inter-annual variability. Dahlberg (2000) found that the decline in availability of resources in Botswana was perceived by local respondents to be primarily driven by rainfall, although the data showed no trend of declining rainfall. Declining resource availability was found rather to be a result of the nucleation of settlements as a result of government policies, and associated competition for resources around the settlements (Dahlberg 2000). In Sehlabathebe, the concentration of stock around the villages as a result of stock theft is having a similar effect. In addition, other factors such as macro economic and institutional factors, and population growth, are more likely to be driving natural resource decline rather than unsubstantiated rainfall decline. In Kenya it was found that the general perception among farmers was that declining rainfall was the driving factor behind declining maize yields. Although there was no overall trend of decreasing rainfall, by analysing rainfall trends within the growing seasons and when maize is susceptible to drought, Ovuka and Lindqvist (2000) found there to be decreasing rainfall trends within the growing seasons and therefore found evidence to support the farmers' perceptions. Ward *et al.* (2000) found similar perceptions of declining rainfall in

Namibia. They propose that one of the reasons for this perception is that people remember extreme rainfall events and perceive these to be the norm, and therefore consider years with rainfall closer to the long term mean as drought years. The perception of rainfall decline, particularly with regard to cultivation, could also be linked to declining moisture retention capabilities of arable fields as a result of degradation, which would affect yields (Shaxson *et al.* 1997). Also, poor farming practices, such as poor ploughing, insufficient weeding and a lack of inputs such as fertiliser, as well as the reduced area of arable land held by most households, could be the reason for declining yields. Rainfall is therefore unlikely to be a major driver of change in Sehlabathebe, and other factors such as macro economic and institutional change, and population growth are more likely to be driving changes.

In the Richtersveld, rainfall is perceived to drive grazing and natural resource availability (Section 7.2.5 and 7.2.6). Contrary to Sehlabathebe, rainfall is a major driving factor in the availability of resources in the Richtersveld, with significant ramifications for livelihoods. The availability of most medicinal plants and wild foods are perceived to be seasonally dependent, and were mainly found after the rains. Anon. (1998) found this to be the case in Leliefontein as well. Debaudoin (2001) found that livestock farmers in Leliefontein perceived rainfall as the major driving factor in livestock number and range condition. Livestock rearing constitutes an important part of livelihoods in the Richtersveld, and therefore the availability of grazing is a crucial factor to be considered. Livestock populations in non-equilibrium systems are controlled by the amount of forage available, and therefore if livestock numbers are high and near 'carrying capacity', and therefore already competing for resources, the livestock population is likely to crash in drought years when resources are scarce (Briske *et al.* 2003, Vetter 2004). Livestock numbers are therefore built up in 'wet' years, but mortality rates are likely to be high in drought years, particularly when there is more than one consecutive year of drought (Ellis and Swift 1988, Vetter 2004). Key resource areas, i.e. areas of high productivity, play an important role in maintaining livestock numbers in dry periods (Vetter 2004). The Gariep River is an example of a key resource area as during the dry summer months livestock farmers can obtain both water for the stock and forage along the river.

9.3.4.1 Responses

Livestock farmers in the Richtersveld have adapted a range of responses to cope with the risk and uncertainty associated with an inherently variable environment. Mobility is the key adaptive strategy utilised. It allows for the opportunistic use of resources, allowing farmers to cope with the spatial and temporal heterogeneity of grazing resources (Naimir-Fuller 2000, Sullivan and Rohde 2002, Vetter 2004). Mobility also allows farmers to maintain relatively high stocking rates, even in dry years, because they are not exerting constant pressure on grazing resources (Vetter 2004). However, consecutive dry years can still result in large livestock losses. Livestock farming is therefore an inherently risky venture, and households' buffer against this risk by engaging in more than one livelihood strategy. Large stock losses associated with drought will have a negative influence on livelihoods, particularly those without an alternative source of income (Chapter 8). Livestock farmers also employ an opportunistic stocking strategy in such environments (Sullivan and Rohde 2002, Burke 2004), which involves building up the herd in wetter years, which means that the risks associated with drought years will be minimised (Mortimore and Adams 2001, Sullivan and Rohde 2002, Vetter 2004).

9.4 Diversity of livelihood strategies

Livelihoods in Sehlabathebe and the Richtersveld have changed over time and have moved away from relying solely on on-farm income (cultivation, livestock, natural resource utilisation) towards a more diversified portfolio (Section 9.2). Diversification is the process "by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and improve their standard of living" (Ellis 2000: 15). Diversification does not imply that households abandon on-farm strategies, but rather attempt to generate additional income from other agricultural and non-agricultural goods and services, the sale of waged labour, self employment in small enterprises and migration (Hussein and Nelson 1999, Ellis 2000, Francis 2000, Smith *et al.* 2001). The forces driving changes in livelihood portfolios have been outlined in Section 9.3. These are similar to the underlying trends of diversification proposed by Ellis (1998), which

include rural population growth, farm fragmentation and declining returns to farming compared with other activities. Diversification allows households to spread risk over a range of strategies, and the consequence of one livelihood strategy failing is less severe if a household has more than one strategy (Francis 2000). Diversification of livelihood strategies has become the norm, with very few households relying on any one strategy for income or holding all their wealth in any single asset (Barret *et al.* 2001). Several studies support this notion: Ellis (1998) estimates that between 30 % and 50 % of household cash income in sub-Saharan Africa is from off-farm sources; Reardon *et al.* (2000) estimate the same figure to be 42 %; Soini (2005) found 56 % of households in a study in Tanzania to receive some off-farm income; and Rigg (2006) estimates that 57 % of households in Thailand have multiple sources of off-farm income.

The contribution of off-farm sources of income (particularly wages, remittances and pensions) has grown in importance over time (Ellis 1998; 2000, Francis 2000, Barrett *et al.* 2001, Bryceson 2002). This study considers livelihood change over a period of approximately 30 years and this trend towards diversified livelihood portfolios started long before this (see Section 9.2). Within the time frame of this study, livelihoods in both sites do not appear to have become any more or less diversified, but rather the relative importance of the different strategies employed has changed. In Sehlabathebe, households still rely on remittances, cultivation, livestock, and natural resources, but to a lesser extent, while strategies such as garden cultivation, borrowing and donations, beer brewing and poultry rearing have remained important, or increased in importance. In the Richtersveld, households have continued to rely on livestock and waged employment, while reliance on pensions has increased as households have aged.

The household development cycle must be taken into account when considering the diversity of livelihood strategies, as certain strategies may be restricted to particular stages in the development cycle. The reliance on pensions in the Richtersveld is a function of the age of households, and the associated decline in labour availability, rather than a conscious move away from on-farm income. The role of migration must also be considered within the household development cycle. In Sehlabathebe, many households

no longer have access to this source of income due to the decline in employment opportunities, but it must also be noted that the households interviewed were all elderly and therefore would not be able to engage in migration/formal employment if it were available. Sweetman (1995) and Bryceson (2002) highlighted the importance of migration at certain stages in the household development cycle. Migration and employment are important in the middle years of the development cycle, while pensions and social capital become important in the more advanced stages of the cycle.

In Sehlabathebe, the strategies adopted differ from household to household, and while a village level analysis provides a broad understanding of these differences, looking at the household level allows for an understanding of the differences in the diversity of strategies that are adopted. Section 5.3 outlined the present livelihood strategies in Ha Mavuka, using three categories: robust, coping and poor, based on the type, number and effectiveness of strategies (see Tables 5.3 and 5.4). The results indicate that access to financial capital is an important factor in the success of on-farm strategies. This relationship has been well documented (Murray 1981, McAllister 1999, Bryceson 2002, Twyman *et al.* 2004). Turner *et al.* (2001) found in their study in Lesotho that most poor households lacked the capital and assets necessary to utilise their arable land. On-farm strategies therefore are a high investment activity in order to get returns. This, however, is a paradox in many cases, as poor households do not have the capital to invest in agriculture and therefore cannot in turn reap the rewards and reinvest in agriculture.

There was no significant difference in the number of strategies pursued by the different categories of households in Sehlabathebe (Section 5.3.2). This is contrary to the findings of other studies where diversification differs between income groups (Reardon *et al.* 2000, Barrett *et al.* 2001, Smith *et al.* 2001). However, the portfolios of poorer households are often more diversified away from on-farm strategies, but they receive very marginal returns. This is in line with the findings of other studies (Bryceson 1999, Reardon *et al.* 2000, Barrett *et al.* 2001, Ponte 2001, Francis 2002, Shackleton 2005), where it was found that poorer households often enter into over saturated markets which yield low marginal returns, i.e. desperation led diversification. Activities that yield high

returns are generally also those with large capital requirements and are only accessible to wealthier households (Barret *et al.* 2001, Bryceson 2002, Rigg 2006). An example of an easily accessible market in Sehlabathebe is the brewing and sale of beer, which is done by many households and yields negligible profits (Table 4.12) (Sweetman 1995, Turner *et al.* 2001). Bryceson (2002) highlights another paradox, where many households engage in on-farm activities because they lack sufficient capital to engage effectively in off-farm activities, but successful on-farm activities are also largely determined by access to capital.

Livelihoods in the Richtersveld are generally less diverse than in Sehlabathebe, offering an interesting hypothesis of the relationship between climate and livelihood variation, i.e. the higher the climatic diversity the lower the livelihood diversity. Households rely heavily on off-farm income, but few households engage in any other income generating activities that are not associated with livestock. However, since only livestock owning households were interviewed, this may not be the case for all households. The availability of secure access to cash income in the form of employment and pensions are a vital source of security, and may be the reason households are less diversified in the Richtersveld. Households in Sehlabathebe may diversify their livelihood portfolio more in search of security, whereas in the Richtersveld, pensions in particular provide a safety net as such. Diversification can therefore be said to be a means to address a lack of social insurance. This is in line with the findings of Barrett *et al.* (2001).

Households in the Richtersveld adopt multiple strategies because income earned from stock is rarely consistent, as livestock sales fluctuate due to natural factors such as drought, predation and disease (Marinus 1998). Pensions and wages from employment provide a steady source of income that allow households to cope with any fluctuations in sales, such as during a drought year (Hendricks *et al.* 2004). On the other hand, livestock farming provides an important source of security in that in the event of job loss, households can rely on their stock to provide income and sustenance until work becomes available (Khrone and Steyn 1991, Hendricks *et al.* 2004). Bryceson (2002) asserts this, saying livelihoods consisting of both farm and off-farm strategies reduce the risk of total

production failure. This can be seen when looking at the various categories of households and the strategies adopted (Tables 8.3 and 8.4). Households with access to both livestock and a regular source of income (i.e. Autonomous, Regular income earners and Social transfer dependents) are more effective than the categories without regular access to more than one source of income. Similar findings have been noted by Bryceson (2002) and Ellis and Mdoe (2003).

This study has shown that regular income, in the form of pensions, wages, remittances and earnings from the sale of goods, is a critical resource for households in both sites (see Francis 2002). In addition is has shown that looking at the number of strategies alone is insufficient for understanding livelihoods. What is needed is an understanding of the composition of livelihoods and the relative success of, and importance of each strategy, and how these have changed. The Sehlabathebe case highlights this: looking at the number and type of strategies alone over time would not allow for an understanding of the changing composition of livelihoods, which has been due largely to exogenous driving forces (Section 9.4).

9.5 Using the development cycle as a tool for understanding livelihood change

The development cycle was useful in highlighting the temporal changes of access to assets and livelihood strategies. Human capital provides an example of the changes in asset base as a household develops. Human capital fluctuates as a household ages, it first increases in the expansion stages and then declines later (Section 1.3.2). This means that households in the later stages of the development cycle cannot pursue employment opportunities and are less able to engage as meaningfully in cultivation or livestock rearing, and rely rather on State grants (in the Richtersveld case), or intermittent remittances from children who have started their own households. David (1997) showed that the age and resource endowment of a household influence livelihood strategies. The development cycle was also useful in showing that some changes experienced are a result of the natural progression of households as they age (e.g. going onto pension), while others are due to shocks and trends beyond the control of the household (e.g. stock theft, death of a breadwinner). In Sehlabathebe it was shown that such shocks were

instrumental in shifting households into a different phase in the development cycle (Section 5.2.4). Similarly, Orr and Mwale (2001) found that shocks such as the death of breadwinner caused households in Malawi to enter a downward spiral, from which they could often not escape.

Using the development cycle allowed for an understanding of the relative importance of livelihood strategies at different phases in a household's development cycle. In Sehlabathebe wage labour was the primary strategy in the middle phases, while arable and garden cultivation and petty trading are more important in the later stages of decline. In the Richtersveld, stock and wage labour constitute the most important strategies in the middle phases, while the later phases of household development are characterised by reliance on pensions and stock to a lesser degree. Livestock constituted an important source of security in Richtersveld that households in Sehlabathebe do not have. Households in the Richtersveld can accumulate livestock which will generate income in retirement. Peters (1983) noted this for households in Botswana, who, like households in the Richtersveld, are reliant predominantly on livestock. Households in Sehlabathebe on the other hand, rely more on cultivation (if possible), petty trading and social capital for security in old age. Households therefore have different trajectories of household development in different locations (Peters 1983).

Combining the use of the development cycle and the SLF has been allowed for one of the major criticisms of the development cycle to be addressed, i.e. the need for a simultaneous assessment of the role of the broader factors such as the economy (Section 1.3.2). An example of this can be seen in Sehlabathebe where various macro level factors have affected the feasibility of relying on cultivation as a source of security in the later stages of the development cycle. An analysis of class or differentiation is integral to a thorough understanding of the household development cycle (Murray 1981, Heron 1991). The differences between households in the same stage of the development cycle highlights this (Chapter 5 and Chapter 8).

The development cycle can also be used to understand vulnerability. Older households, without access to regular income (such as many households in Sehlabathebe) are likely to be more vulnerable than younger households in the same area who have greater access to assets (such as human capital to engage in cultivation, pursue employment, or other off-farm activities). Vulnerability is therefore a function not only of the macro level trends and circumstances (Section 9.6), but also a function of a household's stage in the development cycle. Peters (1983) reinforces this saying that certain points of vulnerability can be discerned in household development cycles. The development cycle is therefore also a useful tool in highlighting which households are likely to be more vulnerable.

9.6 Vulnerability

Moser (1998) describes vulnerability as "insecurity and sensitivity in the well-being of individuals, households and communities in the face of a changing environment and implicit in this is, their responsiveness and resilience to risks that they face during such negative changes" (Moser 1998: 3). Resilience describes the ability of a livelihood system to bounce back from stress or shocks (Ellis 2000). Vulnerability can differ across different populations living under different environmental conditions and faced with different resource endowments, social norms, and institutional and political factors (Adger 1999b).

This section discusses the vulnerability of households in both sites, and how this has changed. The shocks and trends that influence and affect households have been discussed elsewhere (Chapters 3 and 6, Section 9.4). Vulnerability can be said to be a function of multiple factors: a households stage in the development cycle (Section 9.5), a household's asset base, strategies adopted and macro level trends and structures. The issue of scale comes into play once again, as looking at the household level allows for an understanding of how differential access to assets affects vulnerability, i.e. vulnerability is socially differentiated and some households are more vulnerable than others (Adger 1999b, Devereux 2001, Glavovic *et al.* 2002). For example poor households are more vulnerable than robust households in Sehlabathebe, and Irregular income earners are

more vulnerable than Autonomous households in the Richtersveld. However, looking at the community level allows for an understanding of the overall vulnerability of households in Sehlabathebe and the Richtersveld.

Households in Sehlabathebe have been subject to greater external shocks, such as institutional transformation, the decline in employment opportunities and stock theft, than households in the Richtersveld (Section 9.3). This is in line Turner (2005), who found that households in the Maseru district of Lesotho have become more vulnerable in the past thirty years. The decline in employment not only decreased the financial capital available to households, but also had widespread effects, as remittance income often benefited the wider community through gifts and the purchase of goods or services (Spiegel 1979, Murray 1981). The dearth of employment opportunities available within Lesotho to offset this decline has meant that households have become more vulnerable. The declining feasibility of arable cultivation has also contributed to increased vulnerability. However, social capital plays an important role as a coping strategy in mediating against vulnerability (Ellis 2000, Misselhorn 2005). An example of this can be seen in Sehlabathebe, where households borrow food or cash in times of crisis. Pensions provide an important source of social security for households in the Richtersveld. Food aid in Sehlabathebe provides a similar, albeit less reliable, source of security. Both pensions and food aid are distributed widely through social networks and purchases, thereby enhancing the resilience of multiple households. Devereux (2001) notes that cash or food transfers provide a range of benefits beyond direct consumption, and the impacts are often magnified through redistribution.

Households in the Richtersveld are vulnerable to climatic perturbations (Section 9.3.4), but have adapted to cope with these, using strategies such as opportunistic stocking and mobility. However, natural resource availability is not perceived to have declined in the Richtersveld, unlike Sehlabathebe, where the availability of most natural resources is perceived to have declined drastically. This heightens the vulnerability of households in Sehlabathebe as they cannot rely as heavily on freely available resources as a buffer against vulnerability, and instead have to utilise scarce financial resources to purchase the

resources or substitutes. The role of natural resources as a buffer against vulnerability has been well documented (Shackleton *et al.* 2001, Wunder 2001).

Households in the Richtersveld appear to be less vulnerable than those in Sehlabathebe, with most households having a steady source of income as well as livestock. However, as discussed in Section 9.4, this may be a consequence of the sample selection in this study, i.e. livestock owners. Households that do not own livestock may therefore be more vulnerable, and this has implications for extrapolating the findings of this study to the entire Richtersveld population. Many households in Sehlabathebe do not have access to steady income and often rely on a range of strategies for security. Natural resource decline (particularly fuelwood and shrubs) has also increased vulnerability. The various political, economic, demographic and institutional changes that have taken place in Sehlabathebe have been instrumental in heightening the vulnerability of households over time, whereas vulnerability in the Richtersveld does not appear to have increased as much. This suggests that unfavourable macro-economic and political conditions and a weak, unstable institutional environment exacerbate vulnerability, more so than climatic events and demographic changes. However, as has been shown elsewhere in this chapter, these factors are interrelated. Certain factors act synergistically, further heightening vulnerability. An example of this is the connection between the broader economic and political trends in Lesotho and institutional weakening.

9.7 Conclusions

This study has highlighted the livelihood strategies of two diverse rural communities, and the changes that have taken place in both livelihoods and the wider context over a period of thirty years. Livelihoods have been shown to change as a household moves through the development cycle, be influenced by historical factors, institutionally mediated and influenced by broader political and economic trends. Investigating livelihoods in two contrasting areas has allowed for an appreciation of the many and varied factors that influence livelihoods.

Several of the findings of this study corroborate the findings of other research on rural livelihoods. Rural livelihoods exhibit marked heterogeneity, both within communities, and between communities. The livelihood strategies pursued differ markedly across the two sites, due to a combination of environmental, economic and institutional factors. This heterogeneity is in line with the findings of other research (Campbell *et al.* 2002, Timmermans 2004, Twyman *et al.* 2004). This heterogeneity supports the need for individual, local level case studies framed within the broader context as means to fully appreciate and understand the nuances of rural livelihoods. Secondly, this study has highlighted the importance of a thorough understanding of multiple factors at differing spatial and temporal scales. In particular, the focus on the role of temporal scale on livelihood strategies has been highlighted as it allows for a more thorough understanding of current livelihood strategies. For example, looking at households in Sehlabathebe at present shows that very few households own livestock and very few are employed. The use of the development cycle and a 30 year time period showed that livelihood strategies in the past were different and that they change as households move through the different stages in the development cycle. However, using the development cycle and a 30 year time period also allowed for an understanding of the driving forces behind livelihood change. The importance of historical analysis for determining the parameters of change has been well documented (Fairhead and Leach 1996, Bagchi *et al.* 1998, Adger 1999a, Murray 2002). It has been shown that multiple inter-related factors drive livelihood change. This has implications for further livelihoods research as it emphasises the importance of a multi-scale analysis and an appreciation of the various broader scale political, economic, social, institutional and environmental factors that exert an influence on livelihoods at the local level.

The SLF is a valuable tool for analysing livelihoods as it allowed for a thorough understanding of the current asset base available to households and how these are influenced by external factors. The use of the SLF in conjunction with the household development cycle and the Millennium Ecosystem Assessment framework facilitated a comprehensive understanding of the multiple spatial and temporal influences on livelihoods, and has highlighted that although external factors drive livelihood change,

the natural progression of households over time, i.e. the household development cycle, also influences the assets available to households and the livelihood strategies pursued. This study has therefore highlighted that the use of these three conceptual frameworks together allows for a more comprehensive understanding of livelihoods and change than would be possible using the SLF alone. In addition, it has been shown that livelihoods cannot be thoroughly understood by looking at the number livelihood strategies adopted alone. Further livelihoods research should therefore include an examination of the relative success of, and importance of each strategy to gain a thorough understanding of livelihoods.

The role of ecosystem goods and services (EGS) in rural livelihoods has been emphasised. Rural households in both Sehlabathebe and the Richtersveld rely on a range of EGS in the form of wild resources for their livelihoods. The use and availability of wild resources differs between the sites. Environmental constraints are a key factor in determining the livelihood strategies pursued, and the use and availability of wild resources. Institutional factors play a key role in the availability of wild resources, and as can be seen in the Sehlabathebe site, where institutional weakening is a key driving factor in the declining availability of wild resources. The declining availability of wild resources has been shown to negatively influence households, particularly in terms of financial capital used for the purchase of substitutes and human capital in terms of increased time collecting scarce resources. This demonstrates that environmental and social changes are closely linked. This study corroborates the findings of Shackleton *et al.* (2001) who noted that the use of natural resources varies from region to region, and natural resource availability is due to multiple factors including institutional controls, accessibility, population density, employment levels and the availability of alternatives.

The integration of households into the formal economy during the colonial era, and continued involvement in the formal economy, has meant that households have become increasingly reliant on financial capital in their livelihoods. However, although colonialism forced households into the formal economy in both sites, households have chosen to remain engaged in the formal economy (especially the Richtersveld). This can

be said to be attributed to both the increased monetarisation of life in general, and also a conscious choice, because it provides an important source of resilience. However, other factors have also been instrumental in maintaining reliance on the formal economy. In Sehlabathebe, population growth and the associated declining size and availability of arable land has meant that cultivation is not a feasible livelihood strategy for many, and has perpetuated the reliance on wage labour and remittances. The importance of migrant labour and remittances in livelihoods can be seen in both sites. The multiple negative effects of the decline in employment opportunities for households in Lesotho stresses the magnitude of the reliance on the formal economy, and how households have moved away from subsistence based livelihoods. This has important implications in that policy should be geared towards the provision and support of income generating opportunities.

The role of State grants and pensions in livelihoods has been shown to be an important source of security in the advanced stages of a household's development in the Richtersveld. This is reinforced by a comparison of households in Sehlabathebe who do not receive State grants and have been shown to be more vulnerable than households in the Richtersveld. The provision of pensions in South Africa is an indication of the stronger and more stable macro-economic and institutional context in South Africa, and emphasises the fundamental importance of these factors. Policy should focus on the provision of some support older households. The introduction of State pensions in Lesotho would play an integral role in decreasing the vulnerability of older households.

This study has shown that rural people are managers of complex asset portfolios and make conscious choices that influence their livelihoods, rather than being victims of changes beyond their control (Mortimore and Adams 2001). Households in the Richtersveld were shown to adopt a range of strategies to cope with climatic uncertainty. Several households in Sehlabathebe made a conscious choice to move to Sehlabathebe, which involved trade offs in their asset base, for example moving from an area where they have access to arable land, to an area with better infrastructure in the form of roads, clinics and schools. The responses of the Richtersveld community to the threat of being further marginalised from their land is a key example of how rural communities are not

passive victims of exogenous changes, but actively shape their own futures. However, this study has also shown that although rural households make conscious choices that influence their livelihoods, they are also vulnerable to factors outside of their control, as can be seen by the effect of various shocks on livelihoods. Various shocks were shown to influence households, and shift them to another stage in the development cycle, or out of the typical cycle completely. Reliance on social capital in both sites has been shown to be an important strategy that is instrumental in buffering against shocks. The diversity of livelihood strategies shows that households pursue multiple strategies in an attempt to enhance their resilience and buffer against vulnerability. However, the success of strategies, and the strategies that are available to households are strongly influenced by macro-level factors.

Just as livelihoods have been shown to differ between the sites, so has vulnerability. Households in the two sites are vulnerable to different shocks and trends, and have been influenced by different factors. The change in the availability of formal employment and the marginalisation from the South African economy has been a key source of vulnerability for households in Sehlabathebe, whereas households in the Richtersveld have not been as affected by this. Overall, households in the Richtersveld have been shown to be less vulnerable than households in Sehlabathebe, and at the same time have been shown to have a more stable economic context and stronger, more resilient institutions, and have been less affected by population growth and resultant land scarcity, which can therefore be said to be major factors differentiating the two sites.

Policy should therefore be geared towards promoting individual, local level studies that include an analysis of the macro level factors that influence livelihoods as a means to gain an understanding of the interventions that can be made to improve livelihoods and decrease vulnerability. The relationship between macro level factors and livelihoods highlights the need for interventions not only at the local level, but also at the macro level.

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Appendices

Appendix 1: List of resources used in Sehlabathebe

Resource category	Scientific name	Sesotho name
Shrubs and wood	*Aster filifolius*	Leholo
	Chrysocoma tenuifolia	Sehalahala
		Rapesi
		Moqhobo-qhobo
		Sethaba-mutla
Wild vegetables and herbs	*Amaranthus paniculatus*	Theepe
	Chenopodium album	Serue
	Lepidium capensese	Qhela
	Rorippa nudiscula	Papasane
	Senecio geradii	Leshoabe
	Sisymbrium thellungii	Sepaile
	Urtila dioica	Bobatsi
		Moetse
		Sehoa bohloko
		Lehanasoana
		Semitseng
		Tsoetla
		Tenane
		Lefokotsane
		Mabere botlolo
Medicinal plants	*Artemisia afra*	Lengana
	Eriocephalus punculatus	Sehalahala sa matalka
	Helichrysum caesepitium	Phate ea ngaka
	Helichrysum odarotissimum	Phefo
	Kedrostis capensis	Sesepa sa linoha
	Teedia lucida	Hloenya
		Mothethebala
		Mohalakhane
	Helichrysum nudifolium	Letapisa
		Poho-tsehla
		Lesoko

		Merisaka
		Selepe
		Lehlokoana ba tsela
		Boloa
		kahamakhamane
		Phela
Thatch grass	*Eragrostis chloromelas*	Tsane
	Ficinia gracilis	Roro
	Hyparrhenia hirta	Mohlomo
	Hyparrhenia pilosissima	Qokoa
	Miscanthus capensis	Mothala
		Seteroi
Reeds	*Aloe polyphylla*	Lehlaka
		Leqala
Wild fruit and berries	*Rubus rigidus*	Monokatsoai
	Thesium burkei	Mabelebele
		Lintsontso
Bushmeat	Mountain reedbuck	Letsa
	Hare	Mutla
	Rabbit	Hlolo
	Dassie	Pela
	Springbok	Lebele
	Water mongoose	Qhibi
	Porcupine	Nooko
	Jackal	Phookojoe

Appendix 2: Scores allocated to livelihood strategies in Sehlabathebe

Score	**0**	**1**	**2**	**3**
Strategy				
Gardens	No garden	Unable to effectively cultivate garden due to illness/ old age, yet still attempt to cultivate	Plant a range of vegetables every year, rotate planting, for subsistence use only	Plant a range of vegetables every year, rotate planting, sell surplus
Fields	No field, or do not cultivate field	Have fields elsewhere and receive a portion of the harvest, or have field and sharecrop but get poor harvest	Have between 1 and 3 fields, cultivate every year, use fertilisers etc.	5 fields, plant fodder for livestock, vegetables for household
Livestock	No livestock	Under 5 cattle, or horses. No sheep or goats	Under 5 cattle, under 20 sheep	Over 5 cattle, over 20 sheep
Poultry	No poultry	Under 5, keep eggs. Often sell poultry when have in times of need- e.g. school fees	Over 10	
Steady income		Sell clay pots/ wool/ surplus vegetables		Disability grant
Remittances	None	Children send money occasionally	Children send money approx every 6 months	Children/ spouse sends money as often as possible, approximately every 2 months
Sale of beer	Does not sell beer	Brews and sells when needs to raise cash	Brews and sells regularly, approximately once or twice weekly	
Use of wild resources	Injured/ too old and cannot collect. Do not	Collect some resources occasionally-	Collect wild vegetables daily in summer,	

	use them.	e.g. occasional medicinal plant use	used wood and shrubs for fuel daily	
Government food	Does not receive	Receives monthly		
Donations	Do not rely on donations	Church group or borrow when in an emergency	Borrow maize meal regularly, repay with govt food. Borrow cash regularly.	

Appendix 3: List of resources used in the Richtersveld

	Botanical name	**Traditional name**
Wild foods	*Cyphia phyteum/ vulobilis*	Baroe
	Cyperus species	Uintjie
	Grielim grandiflorum/ humifusum	Piet Snot
	Ipomoea spp	Veldpatat
	Orbea mamquensis	Gunu
	Oxalis capiosa	Suring
	Trichocaulon alstonii	!oba
	Fockea angustifolia	Kambro
	Quaqua mammillaris	Aroena
Medicinal plants	*Crassula mucosa/ Dicoma capensis*	Koorsbos
	Sarcocaulon patersonii	Maagbos
	Sutherlandia frutescens	Jaantjieberand
	Tulbaghia dregeana	Wild garlic
Wild animals	Dassie	
	Klipbok	
	Hare	
	Rooibok	
	Steenbok	

Appendix 4: Scores allocated to livelihood strategies in the Richtersveld

Score	**0**	**1**	**2**	**3**
Livestock	No livestock	Under 100	Between 100 and 300	Over 300
Employed		Uncertain (e.g. street cleaner, poverty relief work)	Steady job, e.g. nurse, mine	Combination of 1 and 2
Steady income		Dividends, speculator, mine pension, etc.		
Remittances	None	Children send money occasionally	Children send money regularly, as often as possible	Children live in house and contribute
Sale of livestock and livestock products	None	Livestock kept mainly for home use, sell occasionally depending on herd size	Sell livestock regularly, at least once a yr (under 20). Livestock also slaughtered for home use	Sell livestock regularly, at least once a yr (over 20). Livestock also slaughtered for home use
Use of wild resources	Do not use them	Use mainly fuelwood and other resources occasionally	Use at least two wild resources: fuelwood and/or medicinal plants and /or wild food	
Government grant	None	One pension/grant	Two pensions	

Lindsay McDermott: Responses to examiners comments

Abstract

- "To" added to sentence (page 1, line 16)
- "An" changed to "at" (page 1, line 19)
- Paragraph 2 reworded to clarify that the combination of livelihood strategies differs between the two sites but similar livelihood strategies are adopted.
- Examples of external shocks and trends that result in vulnerability have been added (page 1, line 29).

Chapter 1

- "A" removed from line 9, page 10.
- The differences and similarities between the sites have been clarified and the effect of this on comparability between the sites has been problematised and expanded upon (page 13).
- Theoretical frameworks changed to conceptual frameworks (page 12, line 20). Section 1.3 heading changed to theoretical frameworks.
- Reference to other livelihoods frameworks has been clarified and expanded upon, and it has been highlighted that this study uses the DFID framework. (Section 1.3.1, page 14).
- Scoones 1999 changed to Scoones 1998.
- MA 2003 changed to Millennium Ecosystem Assessment 2003 both in text and in the reference list.
- Abbreviations written out in full on page 14 and added to glossary.
- "Socks" changed to "shocks" (page 16, line 7).
- Farrington et al 1999 added to reference list.
- Mearns et al 1997 changed to Mearns et al 1998 as in reference list.
- Spelling of Spiegel 1980 changed in reference list.
- McKay and Lawson 2003 added to reference list.

- The final stage of decline in the household development cycle has been expanded upon (page 20, line 28).

Chapter 2

- The exact location of the Sehlabathebe and Richtersveld study sites has been clarified.
- Spelling of Kuboes in Table 2.1 changed (page 33).
- Details of dates of field visits have been added in (page 37, line 11).
- The role of the chief in participant selection has been clarified (page 37, line 26).
- The selection of respondents for interviews and workshops has been clarified (pages 37-39).
- Section 2.4.3 (Methodological considerations) has been expanded upon to include a more critical analysis of the methods employed, how they differed between the sites and how this may have influenced the data. The choice of a 30 year time frame and a focus on older households has been discussed, as has the status and role of the translators used and how this may have influenced the data. It has been clarified that the data represents the perceptions of the household head rather than the household as a whole (pages 41- 43).
- In Section 2.4.4.2 (analysis) the allocation of scores to the various livelihood strategies was clarified (page 45, line 18).

Chapter 3

- “I” changed to “it” (page 46, line 23).
- Paragraph spacing removed (page 48).
- Summary of the economic context added (page 52).
- Green 2003 changed to Green 2000 as in reference list (page 58, line 9).
- The reference to the workshops conducted in Ha Mavuka has been left as it is and not put in a footnote because footnotes have not been used at all in the thesis (page 62, line 16).
- The fact that only males are allocated land has been clarified in Section 3.3.1 (page 66, line 20).

- Subramanian 1996 changed to Subramanian 1998 as in reference list (page 70, line 10).
- The long conclusion in this chapter (pages 78 and 79) has been left because it is felt that it reinforces how the various factors discussed in the chapter have influenced livelihoods at the local level.

Chapter 4

- Not all scientific names of species could be found, and in these cases the Sesotho names have been used. The reference to the Appendix where the remaining Sesotho names can be found has been changed (page 87).
- The attributes of arable fields in rows three and four of Table 4.1 have been reworded (page 82).
- Section 4.2.2 has been amended to include data on changes in gardens over time.
- It has been clarified in certain sections whether the data discussed was from the interviews or from the workshops.
- Certain sections have been reworded to clarify that the results refer to the sample studied rather than the whole village or area (Section 4.2.2, 4.3).
- It has been clarified that the species in tables 4.4, 4.6, 4.8, 4.9 and 4.10 were grouped together by the participants.
- The Fuel for cooking and heating section has been moved to just after the Fuelwood and shrubs section as suggested. The relationship between the changing availability of fuelwood/shrubs and the changes in fuel types has been highlighted.
- The column dealing with 1960 in Table 4.5.has been removed for ease of comparison with Table 4.4.
- Section 4.4 (human capital) has been reorganized.
- A definition of social capital has been included in Section 4.9.
- The role of factors discussed in Chapter 3 and their effect on the household asset base has been highlighted (Section 4.9, page 116).

Chapter 5

- Title of chapter changed to reflect case study.
- The colour coding has been removed from Table 5.1.
- A sentence detailing the livelihood strategies pursued has been added in Section 5.3.1 (page 132).
- A brief discussion has been added on livelihood strategies and how although having multiple livelihood strategies can itself be considered a strategy, the analysis looks at each strategy individually (Section 5.3.2, page 133).
- The statement that households produce "sufficient for subsistence" has been changed (page 139, line 19).
- The conclusion (Section 5.4) has been expanded upon to include reference to previous sections (pages 142 - 143).

Chapter 6

- 2 before chapter title has been removed and section headings have been changed to start with 6.
- A sentence referring to Section 6.2.1 has been included in Section 2.3.4.
- "IPD" changed to "IDP" (page 155, line 2).

Chapter 7

- Niewoudt pers. comm. changed to Niewoudt 2004 pers. comm. as in reference list.
- Sentence added to clarify that table 7.1 excludes cattle (page 172 line 8).
- A sentence clarifying that the nature of the sample (i.e. livestock owners) means that the results may not apply to all households in the Richtersveld (Section 7.7, page 204).
- With regard to the Anseeuw 1999 reference, this thesis was not available in South Africa, hence why it is quoted from Debaudoin 2001. The author was contacted and was unable to provide a copy before the submission of this thesis.

Chapter 8

- Title of chapter changed to reflect the case study (page 207).
- Sharp 1997 removed (page 208).
- The difference between the Autonomous and Livestock Holders categories has been clarified (page 208, line 23; page 213, line 6).
- A few sentences have been added to stress that this study focused only on livestock owners and this has implications for generalizations for the area as a whole (page 208).

Chapter 9

- "Section" changed to "chapter" (page 235, line 9).
- A paragraph has been added to Section 9.2 to emphasise that changes in livelihoods have been a result of both movement along the development cycle and shocks and trends beyond the control of the household.
- Section 9.2 has been reworked to clarify the time frame being discussed for the trends and changes discussed. The first paragraph describes the broad trends of livelihood change over time, while the following two paragraphs go on to discuss livelihood change in the two sites over the past 30 years.
- "Section # intro" changed to "Section 1.1 (page 237, line 21).
- Access to land clarified to mean access arable land (line 12, page 244).
- Section 9.3.2.1 clarified to show that the changes discussed refer only to the Sehlabathebe site and not the Richtersveld (pages 244 and 245).
- Section 9.3.3.1 clarified to remove contradictions (page 248).
- Morris and Fynn 2003 added to reference list.
- Vetter 2004 added to reference list.
- Paragraph 3, page 254 has been reworded to clarify that it refers to the Sehlabathebe site only.
- # removed from after reference to Section 9.4 (page 256, line 15).
- Peter 1983 changed to Peters 1983 as in reference list (page 257).
- Section 9.7 (conclusions)

- The role of the development cycle in livelihood change has been stressed (page 260, line 2; page 261, line 15)
- Paragraph 3, page 261 has been reworked to include a critique of the use of the SLF and highlight.
- Lessons for further research have been highlighted (page 262, line 5).
- Lessons for policy have been included (page 263, line 18; paragraph 3, page 264).
- A few sentences have been added to clarify that although rural households make conscious choices that influence their livelihoods, they are also influenced by external factors beyond their control (page 264, line 2).

Reference list

- In cases where abbreviations have been used in text (e.g. DFID 1999) the references have been changed to begin as they appear in the text, with the full translation in brackets.