THE CONTRIBUTION OF MUNICIPAL COMMONAGE TO LOCAL PEOPLE'S LIVELIHOODS IN SMALL SOUTH AFRICAN TOWNS

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Abstract

To redress past discrepancies in land tenure, the ANC government acknowledged that land needs to be made accessible to the previously disadvantaged, announcing that commonage would be a pillar of their land reform programme. Municipal commonage is land granted by the state to municipalities for urban households to use. Presently many urbanites in South Africa seek a livelihood from commonage. However, there has been no livelihood valuation of the contribution commonage makes to previously disadvantaged households. Thus there is a need to calculate the benefits of the commonage programme. Through a two phase approach, this thesis investigated firstly, the proportion of township households which use commonage; and the main characteristics of those households. Secondly, the thesis looks at the extent to which commonage contributes to users' livelihoods and the dominant livelihood strategies pursued by user households. Data was collected for three towns in the Eastern Cape province of South Africa; Bathurst, Fort Beaufort, and Grahamstown. Firstly, it was found that between 27 - 70 % of households used commonage, with the largest town having the lowest proportion of users, and vice versa for the smallest town. In terms of household characteristics, each study town was unique. Both Bathurst and Grahamstown user households were poorer than non-using households, however all Fort Beaufort households were considered poor. To assess the benefits of the commonage programme, the marketed and non-marketed consumptive direct-use values of land-based livelihoods on commonage were calculated via the 'own reported values' method. Commonage contributions to total livelihoods ranged between 14 - 20 %. If the contributions from commonage were excluded, over 10 % of households in each study town would drop to living below the poverty line. Additionally, commonage was being used productively, with the productivity at each study town being worth over R1 000 per hectare and over R4.7 million per commonage. Finally, a typology of subsistence/survivalist commonage users is presented, with four types being identified. Overall, results suggest that commonage use has increased over the last decade. Moreover, due to food inflation and urbanisation the use of commonage is expected to increase further, highlighting the need for holistic commonage management plans to be created, which should include strategies such as sustainable grazing regimes and natural resource management.

Keywords: Municipal commonage; Livelihoods; Natural resource valuation; Direct-use value of natural resources.

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Glossary

ANC	African National Congress
CMC	Commonage Management Committee
DfID	Department for International Development
DLA	Department of Land Affairs
DM	District Municipality
DoA	Department of Agriculture
DWAF	Department of Water Affairs and Forestry
HDI	Human Development Index
IDP	Integrated Development Plan
LEAP	Local Environmental Action Plan
LM	Local Municipality
LOA	Livestock Owners Association
LRAD	Land Redistribution for Agricultural Development
LRP	Land Reform Programme
LSU	Large Stock Unit
MAP	Mean Annual Precipitation
MEA	Millennium Ecosystem Assessment
MC	Municipal Commonage
PHPA	Per Household Per Annum
PNR	Primary Natural Resources
PPPA	Per Person Per Annum
SNR	Secondary Natural Resources
SRS	Systematic Random Sampling
SSU	Small Stock Unit
TEV	Total Economic Value
UPA	Urban and Peri-urban Agriculture

1 Chapter One

Introduction

1.1 Introduction

Land has an important economic, social and environmental value, and represents the key livelihood foundation for many in Africa and elsewhere (Cotula *et al.* 2004; UNEP 2004). People depend on land, because it holds abundant invaluable natural resources which supply numerous goods and services for human well-being (Andrew *et al.* 2003a; Millennium Assessment 2005). While all of humanity is linked to ecological processes and healthy ecosystems which produce the requirements for life, poverty stricken people depend significantly more on these than other members of the population do (USAID 2006). Natural ecosystems have a number of characteristics which make them appealing and accessible as a source of income to the poor. Many environmental resources are renewable, especially natural resources, which are widely dispersed and often found in common property areas where the poor can access them without owning the land (USAID 2006). South Africa, which is a developing country with massive inequality and widespread poverty, relies greatly on its natural resources for economic activities and growth (Turner 2001).

The twentieth century saw South African colonial and later the Apartheid government restrict black people from accessing land (Bradstock 2006). The main aim of the government's strategy was to provide a supply of cheap labour for the expanding mining sector, as well as the white commercial farming sector (Levin 1996). The main reservoir of this cheap labour consisted of the former homeland or Bantustan areas, to where many black South Africans were forcibly moved without any consideration of the established inhabitants (Adams *et al.* 2000). This policy approach by the former Apartheid government led to a highly skewed racial distribution of land rights and development; it threatened livelihoods and caused a tainted quality of life for the bulk of people in South Africa (Geach & Peart 2000).

The Native Lands Act of 1913 was perhaps the most discriminatory legislation in South Africa. This law allowed black people to set up new farming enterprises only on the Native Reserves which, at that stage, only comprised eight percent of the country's land surface (Bradstock 2006). The Act also denied black people the right to purchase land from whites

and from entering into any sharecropping arrangements with them (Adams *et al*. 2000). Thus, it may be said that former South African land legislation, especially during the Apartheid era, greatly influenced resource access, use and livelihoods of all South Africans. The black majority were denied access to land outside of homeland areas, which only allowed for limited livelihood options, while the white minority were allowed to purchase and own land in the rest of the country, giving them unconstrained livelihood options. Consequently, South African land and especially the Land Reform Programme (LRP) are undeniably emotive issues, especially with regards to racial ownership patterns. Therefore, any affairs that pertain thereto need to be dealt with in a cautious and sensitive manner by the government (Sibanda 2001).

After coming into power in 1994, the African National Congress (ANC) was faced with a large task in redressing the inequitable and racialised pattern of land rights passed on from the colonial and Apartheid past (May & Lahiff 2007). The need for land reform to deal with the legacy of the past was openly acknowledged in the new South African Constitution (Act 108 of 1996, Section 25). The opening statement in the foreword section of the 1997 White Paper on Land Policy sums up the country's land dilemma quite well: "Land ownership in South Africa has long been a source of conflict. Our history of conquest and dispossession, of forced removals and a racially-skewed distribution of land resources, has left us with a complex and difficult legacy" (DLA 1997: 6).

In South Africa, poverty is acute for many rural people as well as millions who live in urban and peri-urban areas (Turner 2001). According to StatsSA (2007) 55.1 % of all South African households were living below the R2 400 per month indigence line (poverty measure used by municipalities) in 2006. According to Carter & May (1999), 52.1 % of all rural African households were living in poverty in the late 1990's, i.e., those who were living below the income poverty line of R4 654 per adult equivalent per year (Box 1.1). As has already been mentioned, those who live in poverty depend significantly more on natural resources (USAID 2006). Therefore there is a need to test this notion, by measuring the proportion of households who are living below the poverty line with access to land, and without.

Forced removals, especially of those living in poverty has led to a situation where in certain parts of the country large numbers of people rely on inadequately sized land parcels thereby giving them limited options but to use that land unsustainably (Crais 2003; Hajdu 2006). The majority of South Africans have been denied access to a fair share of the natural resource

base and the precious goods and services that it provides. It is commonly felt, therefore, that land needs to be made accessible to the landless so that they can also benefit from the environment's goods and services. One way this is happening is through the government's LRP.

Box 1.1 The income poverty line

The income poverty line refers to the necessary income to achieve a minimum acceptable standard of living, or to meet minimum household consumption requirements (i.e., basic needs), and may be expressed on a per person or per household basis (Hunter et al. 2003, World Bank 2004). The poverty line varies from country to country, with the Millennium Development Goals using US $1 and US $2 per person per day in 1993 Purchasing Power Parity terms as the minimum global standard (World Bank 2000). Households can be said to have been 'lifted out of poverty' if their incomes climb above this pre-defined poverty line (Angelson & Wunder 2003, Meth & Dias 2004). The poverty line for South Africa is R4 654 (adjusted to 5% inflation per annum from 1999 to 2007) per person per annum (per adult equivalent) (Carter & May 1999).

1.1.1 Common Property

It is generally accepted that four property regimes exist, these are namely: state property, private property, common property and situations of 'open access' or non-property (Bromley & Cernea, 1989: 11). In this regard Municipal commonage is placed among common property. Ainslie (1999) explains that under common property, ownership of and management rights to a particular stream of benefits are vested in a corporate group of people. Such a group consists of a social unit with clear-cut membership and boundaries, with some shared cultural norms and an endogenous authority system (Ainslie 1999). According to Cousins (2007), common property regimes (communal tenure) in South Africa are under increasingly severe strain as a result of overcrowding, weak administration, abuses by traditional leaders, tension over common property resource use, and lack of clarity over the roles and responsibilities of traditional authorities and local government bodies.

Based on the above it should be clear that natural resources (water, fuelwood, soil, game, wild fruits, vegetables and medicinal plants) in many areas of South Africa's former bantustans are technically held and managed as common property (Ainslie 1999). Common property resources may be described as a class of resources for which exclusion is problematic and joint use involves subtractability (Berkes & Farvar, 1989; Berkes et al. 1989; Ostrom et al. 1999). Inherent in this description is the potential for the overexploitation of these resources, famously expressed by Hardin (1968) as the 'tragedy of the commons'

scenario (Bennet & Barret 2007). According to the Hardin (1968) hypothesis, commons may be viewed as a cause of destruction of natural resources and poor livelihoods (Allsopp et al. 2007). However, it has been demonstrated that in many parts of the world effective governance systems are in place which allow common property resources to be utilized sustainably (e.g., Moorehead, 1989; Niamir-Fuller, 1998).

1.1.2 Land Reform in South Africa

According to May & Lahiff (2007), land reform aims to positively control local peoples' access to land, help in the creation of livelihood opportunities and develop the local economy. Land reform has come about because the South African Constitution has placed a positive obligation on the state to enact land reforms (Hall *et al.* 2007) (see Appendix 1). Thus, the process pursued by government which allows previously dispossessed people access to land can be described as 'land reform'. This happens primarily through the Department of Land Affairs (DLA), as well as governmental departments such as the Department of Water Affairs and Forestry (DWAF), the Department of Agriculture (DoA) and local municipalities (Atkinson & Benseler 2004; Mayson 2004).

In 1994, the ANC Government outlined three major elements of their LRP, namely: land redistribution, restitution and tenure reform. Land redistribution was created to broaden access to land among the country's black majority, of which municipal commonage is a key component (DLA 1997). Land restitution was adopted to restore land, or provide compensation, to those dispossessed of land as a result of racially discriminatory laws and practices since 1913. Combined with these two land transferring schemes, the tenure reform programme was designed to secure the rights of people living under insecure arrangements on land owned by others, including the state and private landowners (Hall *et al*. 2003). The collective aim of the LRP is to ensure the transfer of 30 % of South Africa's agricultural land to emerging farmers by 2015 (DLA 1997; Cartwright *et al.* 2002).

The benefactors of land redistribution include the poor and previously disadvantaged, labour tenants, new entrants to agriculture, women and farm workers (Benseler 2003; Ntsebeza & Hall 2007). There is currently an underlying assumption that providing land to the above mentioned beneficiaries will supply them with beneficial assets, which can be used profitably to enhance their livelihoods (Andrew *et al.* 2003b). However, there is the argument that, "giving agricultural land to people without the necessary farming, farm management and financial administration skills, without adequate finance for improvements and production

costs, and above all without a bankable business model that takes producer prices and market trends into account, is tantamount to setting them up for failure" (Hofstatter 2007: 36).

Bradstock (2006) is of the opinion that the LRP in its current arrangement is unlikely to have a significant effect not only on poverty reduction but also on the creation of a would-be black commercial farming class. To date, few land redistribution beneficiaries seem to be using land productively (Lahiff 2001; du Toit 2004). This has raised question marks about the LRP and its effects on the future of agriculture and food production in South Africa (du Toit 2004). However, Andrew *et al.* (2003b) examined land use amongst land reform beneficiaries and found that resource poor households do in fact use the land productively and resourcefully even though their livelihoods are limited to survivalist mode. According to Andrew *et al.* (2003b) land reform can augment livelihoods beyond this survivalist mode if it is integrated into a greater rural development programme intended at granting subsistence land users the foundation they need to rise above the production limitations and to connect them to markets.

1.1.3 An overview of municipal commonage

Dönges & van Winsen (1953: 303) define municipal commonage (or common pasture lands) from a legal perspective as: "lands adjoining a town or village over which the inhabitants of such town or village either have a servitude of grazing for their stock, and, more rarely, the right to cultivate a certain portion of such lands, or in respect of which the inhabitants have conferred upon them by regulation certain grazing rights."

A more recent definition of municipal commonage is given by the Department of Land Affairs (DLA 1997: 1) as: "land, owned by a municipality or local authority that was usually acquired through state grants [new commonage purchased by the DLA] or from the church [old commonage]. It differs from other municipally owned land in that residents have acquired grazing rights on the land, or the land was granted expressly to benefit needy local inhabitants. Municipal commonage is not the same as communally owned land held in trust by the state and usually occupied and administered by tribal authorities." The above two definitions overlap considerably, but differ greatly as well. The underlying definition of 'inhabitant'/'resident' differ between the two broader definitions. In 1953, 'inhabitant' would have referred to white people, whereas in 1997, 'resident' would have shifted to a referral of black people.

Commonages are usually found in arid and semi-arid regions, which includes the Karoo, Namaqualand, the Kalahari (Northern Cape), grasslands (Free State and Eastern Cape), and the scrublands of the southern parts of the Eastern Cape (Atkinson 2007a; Atkinson 2007b). These are mostly relatively harsh environments; for example, Esler *et al.* (2006) comment that, in the Karoo, livestock farming and other enterprises are more challenging than anywhere else in South Africa due to the erratic weather and unusual vegetation.

Historically, municipal commonage refers to land found adjacent to small towns that was granted by the state or church for the use and benefit of the town's poorer residents (Anderson & Pienaar 2004; Ingle 2006). This land was granted to municipalities at the time of the formal establishment of towns during the 1800s (Anderson & Pienaar 2004). In the past commonages were granted to white residents for keeping livestock; this enhanced their livelihoods through benefits such as meat, milk and draught power (Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b). However, from the 1950s onwards municipalities moved away from the 'local resident' system due to a lack of interest in small scale agriculture by the white urban sector (Atkinson & Benseler 2004). Thus, they started leasing commonage to commercial farmers at market prices (Anderson & Pienaar 2004; Atkinson & Benseler 2004). This benefited the municipalities because it allowed them to make an income from their commonages (Benseler 2003). However, in 1996 municipalities started terminating their leases with commercial farmers, because the new government needed land for the poor (Atkinson & Buscher 2006).

In addition to old commonage, in some towns more land was bought to increase the size of their commonages, i.e. new commonage. New commonage refers to land purchased by the DLA (Act 126) from commercial farmers after 1994 as part of South Africa's LRP (Anderson & Pienaar 2004). After being purchased, the land is transferred to municipalities free of charge (Anderson & Pienaar 2003). It must then be allocated to emergent (same as emerging farmer; see Table 1.1) farmers from disadvantaged backgrounds so that they can practise farming with a view to improve their standard of living (Buso 2003).

1.1.4 Municipal commonage as a component of land reform

The 1997 White Paper on South African Land Policy outlined the way in which municipal commonage should play a role within the LRP: "In large parts of the country, in small rural towns and settlements, poor people need to gain access to grazing land and small arable/garden areas in order to supplement their income and to enhance household food

security. The Department of Land Affairs will encourage local authorities to develop the conditions that will enable poor residents to access existing commonage, currently used for other purposes. Further, the Department will provide funds to enable resource-poor municipalities to acquire additional land for this purpose" (DLA 1997).

Municipal commonage, which falls within the redistribution component of the LRP (Figure 1.1), was identified as a pillar of the LRP by the DLA (1997) because it "is public land which does not need to be acquired, there is an existing institution which can manage the land, and needy residents live next-door." The significance of commonage in the redistribution programme is evident in the fact that, up until 2003, the largest transfer of land from any one programme within the greater land redistribution programme was that of commonage (Anderson & Pienaar 2003). However, this transfer was not in favour of ownership by black farmers directly but instead to municipalities which were required to use this land for black farmers.

Each distinct component of the LRP has its own set of sub-programmes. The Redistribution component has three, namely; Land Redistribution for Agricultural Development (LRAD); settlement; and non-agricultural enterprises (DLA 2007a). The LRAD sub-programme has two separate components. The first deals with transferring agricultural land to either individuals or groups and the other deals with commonage, which again can be sub-divided into municipal and tribal commonage (Figure 1.1). It is important to note that this research only dealt with municipal commonage, not tribal commons or communal land, which occurs in the former homeland areas where land use is adjudicated wholly or partially by traditional institutions of chiefs or indunas.

The LRP has supported municipalities financially, which in turn has helped them convert their municipal commonages into a livelihood option for previously disadvantaged people (Atkinson & Benseler 2004; Atkinson 2005; Atkinson 2007b). Land reform is an integral part of government policy, driven politically through land claims, as well as land reform pressures in countries such as Zimbabwe (Benseler 2003; Atkinson 2005; Atkinson 2007b). There is, however, a need for it to be executed swiftly, which in so doing places a lot of pressure on municipalities to make their commonages progressively more available to emergent farmers (Benseler 2003; Atkinson 2005; Atkinson 2007b). Township residents are also placing pressure on municipalities to promote pro-poor commonage projects, which has added to the need for land reform haste (Atkinson 2005; Atkinson 2007b).

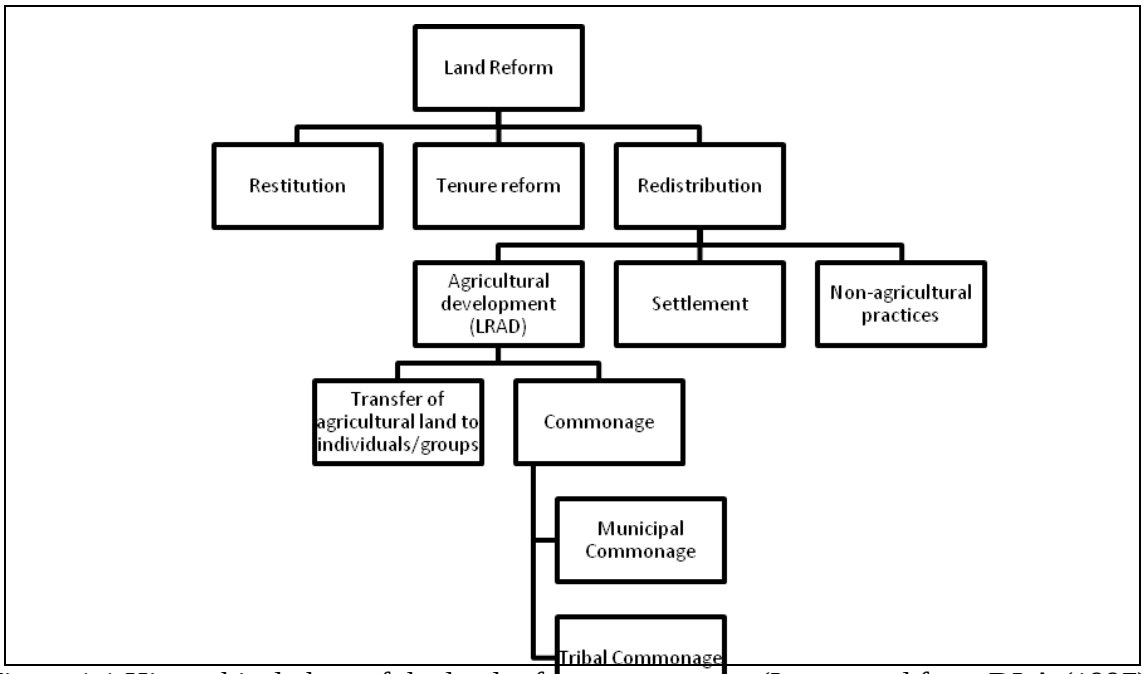

Figure 1.1 Hierarchical chart of the land reform programme (Interpreted from DLA (1997) policy documents)

1.1.5 How urbanisation affects municipal commonage

The peri-urban interface shifts over time as towns and cities expand (May & Rogerson 1995). Due to urbanisation, land is being cleared for housing and infrastructure, severely impacting natural areas surrounding cities through a reduction in extent, fragmentation, transformation, dumping and alien species invasions (McConnachie *et al*. 2008). Urbanisation is a real world phenomenon, in 2008 for the first time in earth's history more people will be living in cities than in rural areas (Mathee *et al*. 2008). There are estimates that two thirds of the global population will be living in urban centres by the year 2030 (UNPF 2007). In Africa the size of the urban population is expected to double over the next 25 years, and the main segment of this expansion will be in already underprivileged areas (Mathee *et al*. 2008). In South Africa, approximately 57 % of the population is urbanised (Naude & Krugell 2003; StatsSA 2007).

The demand for commonage land is intensifying due to rapid urbanisation (Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b). A deepening social and economic crisis in the rural areas, fuelled by the decrease of formal sector employment, the devastation of HIV/AIDS, and the ongoing evictions from farms is accelerating the movement of rural people to towns and cities resulting in rapid urban growth (Lahiff 2001). The ten years from 1988 until 1998 saw 20 % (140 000 labourers) of the agricultural labour force lose their jobs,

while from 1996 to 2001, South Africa's rural population declined from 44.9 % to 42.5 % (830 000 people) (Simbi & Aliber 2000; StatsSA 2001). There are political and economic reasons behind this changing demographic trend. Political reasons include the fact that many commercial farmers fear the government's land tenure policies (Simbi & Aliber 2000). Economic reasons include the reality that farmers have to contend in complex agricultural markets with no subsidies and have had to cut labour costs due to the impacts of globalisation (Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b).

The majority of evicted farm workers are drifting to nearby towns (Atkinson 2005; Palmer 2005; Atkinson 2007b). The exact number of migrants is unknown, but these new urban residents usually live in severe poverty. Nevertheless, many have some agricultural skills a lot of which attempt to farm on municipal commonage to maintain their livelihoods (Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b). Moreover, the bulk of rural households regard themselves primarily as agriculturalists (Shackleton *et al.* 2005). The landless aspire to land and the majority of those with land are keen for more (Shackleton *et al.* 2005). Thus, as rural households are displaced or attracted to towns, they will need to maintain or increase their cash income streams. This will inevitably lead to an increase in demand for municipal commonage for agricultural purposes. This in turn may also cause an increase in conflicts surrounding resource use.

1.1.6 The scale of municipal commonage

A large amount of South African land consists of municipal commonage (Atkinson 2007a; Atkinson 2007b), however exact figures are unknown. Municipalities own a considerable amount of agricultural land primarily in rural towns in the western (Western Cape, Eastern Cape, Northern Cape) half of South Africa (Atkinson 2007a; Atkinson 2007b). The size of commonage land differs from one municipality to the other. Buso (2003) discovered that, in the Free State, municipal commonages ranged in size from 83 ha to 29 701 ha per town. There are no official records for the size of commonage in the Eastern and Western Cape; however, Buso's (2003) survey estimated that for the Free State there are at least 112 795 ha of commonage. Benseler (2003) found that in the Northern Cape there are an estimated 367 871 ha of commonage plus another 1.2 million hectares of Namaqualand "Act 9" land (also considered as commonage); totalling an estimated 1 641 433 ha (Pienaar & May 2003). When considering the scale of commonage in South Africa one realises the importance of sound planning and effective management for this land (Ingle 2006).

1.1.7 Agricultural use of municipal commonage

The two primary aims of municipal commonage are: (1) providing access to land (so that township households may use the land as subsistence farmers to supplement their income), and (2) as a stepping stone for emergent farmers (emergent farmer system) (DLA 2002). This involves improving people's access to municipal land primarily for grazing purposes, small scale production and/or access to other natural resources. There have also been a handful of endeavours which have attempted to use commonage for other agricultural purposes such as poultry farming or vegetable patches (Anderson & Pienaar 2003; USN 2004). Nonetheless, it is important to remember that even though municipal commonage appears to be rural agricultural land because it's often used for grazing, it has always been urban land (Ingle 2006). Town planners have established its use over time for the benefit of urban residents, which therefore makes it an urban resource subject to peri-urban practices (Ingle 2006).

At present there is a wide assortment of uses for commonage. It can be used for fuelwood collection and building material; running livestock for supplementing income (for sale for weddings and funerals, and for sons' bride wealth), vegetable production for household consumption and additional income as well as for recreation, ablution, housing, refuse disposal and even sewage treatment works (Anderson & Pienaar 2003; Cartwright *et al.* 2002; Ingle 2006). The type of agricultural use which is employed on commonage depends on the local conditions. Buso (2003) found that, in the Free State, commonage was being used differently depending on its location; old and new commonage was used predominantly for grazing stock and to some extent crop farming, while the peri-urban municipal land was being used for vegetable garden projects and poultry farming. Thus, municipal commonage is not just urban land; it does serve an agricultural purpose. It also provides the urban poor with access to natural resources, which can be used to supplement their livelihoods, however, commonage policy does not focus on this aspect (see DLA 2002).

1.1.8 Livelihood benefits from municipal commonage

Livelihood benefits from access to commonage are not easy to calculate (Anderson & Pienaar 2003), especially as there is a great deal of diversity amongst commonage beneficiaries, ranging from survivalists to proto-capitalist farmers (Cartwright *et al.* 2002; Atkinson & Buscher 2006). This diversity has only been recorded amongst livestock farmers (Table 1.1), and has not included other users who make a living harvesting crops or natural resources. Many impoverished households rely heavily on common property resources for potential

income opportunities as well as goods and services such as grazing, fuelwood, thatching grass, medicinal plants and fruit (Shackleton *et al.* 2000; Saruchera 2004). This indicates that more research on commonage is needed to incorporate crop growers and natural resource harvesters so that a more complete and comprehensive typology can be developed.

Table 1.1 Types of commonage users (adapted from Cartwright *et al.* 2002; Atkinson & Buscher 2006)

User type	Denotation	Connotation
Survivalists/subsistence	Households who have few alternatives	The majority rely on social grants and/or pensions. Keep small amounts of animals to supplement income. Not interested in expanding herds.
Micro-farmers	Households who supplement income through farming	Keep a limited number of livestock to either supplement other forms of income, or for cultural purposes.
Emerging farmers	Farmers who show signs of commercialisation	Have acquired some livestock and show signs of commercialisation; may have bank accounts and want to expand stock to start farming for a profit. May still be reliant on non-agricultural forms of income.
Proto-capitalist farmers	Farmers who have enough stock but need more land	Have built up large numbers of stock and are in need of additional land. May have other livelihoods, but want to start farming commercially on a full time basis. Ideal candidates for a "step-up" land reform strategy, thereby making more space for other farmers on the commonage.

Commonage land has had a positive impact on livelihoods. This is because owning livestock can operate as a buffer against the loss of income from other livelihood sources (USN 2004). According to May (1997), in 1997 a farmer with 33 sheep could expect an income of approximately R250 per month. Even though this may appear to be a small income, the farmer could bank the funds over several months until it was needed, representing an indispensable resource for poor people (Anderson & Pienaar 2003). Livestock acts as a cushion against impoverishment caused by unemployment or failure to acquire enough income by other means (Anderson & Pienaar 2003). When seen from this perspective, the commonage programme's contribution may be considerable. For this reason an extensive valuation of municipal commonage livelihoods needs to be done, which must include not

only livestock but crop and wild resource harvesting as well, to see who uses it and for what purposes.

The South African economy, due to its market-based structure, has to a great extent failed to account for the value of the so called "free" goods and services offered by the natural environment (Smit & Wiseman 2001; Cavendish 2002; see Shackleton *et al.* 2000). For this reason, when calculating the benefits of the commonage programme, Anderson & Pienaar (2003: 13) concluded: “it is important that any analysis of [commonage] benefits looks at figures with an understanding of the subsistence approach to commonage use, rather than what is commercially ‘economic’.”

1.1.9 Livelihood valuation and direct-use values

As per the Millennium Ecosystem Assessment (MEA 2003), ecosystems and the services they provide (provisioning, regulating, cultural, and supporting) have economic value to human societies; because people gain benefits from their actual or potential use, either directly or indirectly (use values); however people also value ecosystem services they are not currently using (non-use values). Although the MEA (2003) uses the concept of total economic value (TEV), I accept the fact that the TEV concept may have dimensional issues, particularly for option and non-use values (Plottu & Plottu 2007). However to understand the notion of use values which are used in this study one must tolerate the concept temporarily.

Use-values can be divided into direct and indirect use values (Figure 1.2). Some ecosystem services are directly used for consumptive (when the quantity of the good available for other users is reduced) or non-consumptive purposes (no reduction in available quantity) (MEA 2003). Consumptive direct-use values are normally tangible; they include livelihoods such as agriculture (livestock farming), horticulture, medicinal plant use, and fuelwood use. Conversely, non-consumptive use values include practices such as eco-tourism and conservation. This research attempted to value the marketed and non-marketed consumptive direct-use values of land-based livelihoods on municipal commonage via the ‘own reported values’ method (see Clarke & Grundy 2004: 175). Marketed consumptive direct-use values include products which are sold for cash, such as timber, fruit, fuelwood, and medicinal plants. Alternatively, non-marketed consumptive direct-use values include products which are directly consumed by the household, such as fuelwood, fruit, wild vegetables, and medicinal plants (Boxall & Beckley 2001; Campbell & Luckert 2001; Clarke & Grundy 2004). It is important to note that a product can be either marketed or non-marketed,

depending on how the household uses it. Also in some instances a household may use a product for home consumption and for cash sales, in such an instance, the household would be receiving both marketed and non-marketed values from the same product.

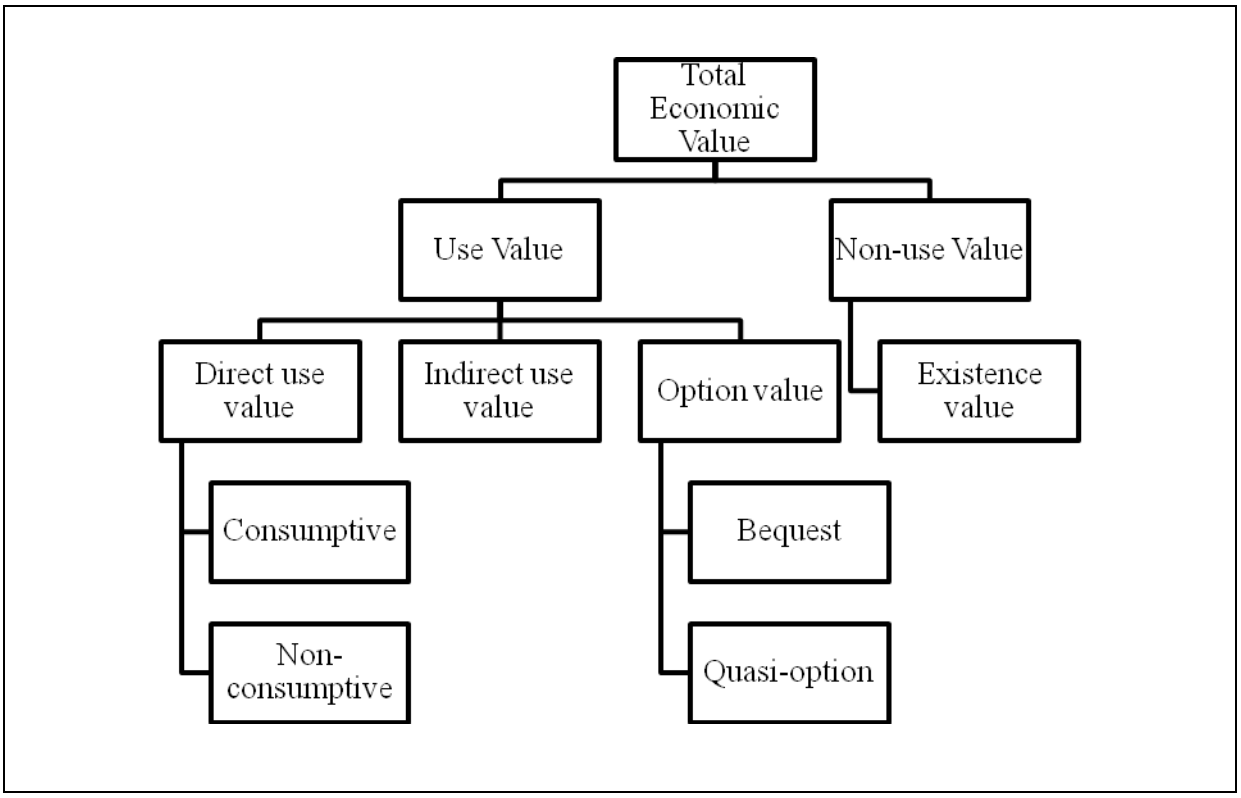

Figure 1.2 Total economic value framework (adapted from MEA 2003)

There are limitations associated with resource valuation. Amongst other shortcomings of valuation, it has: limited scope; methodological difficulties; and limited impact on policy making. Firstly, valuation only focuses on a limited part of livelihoods (natural capital), in terms of the sustainable rural livelihoods framework (Campbell & Luckert 2001). It does not examine other aspects of how natural resources contribute to livelihoods (i.e. 'social capital' of sacred areas). Secondly, methodological difficulties include most notably methods which are based on existing market values. It is also important to note that values derived are estimates. Thus values are not absolute, but rather, they are subjective, method and context dependent, approximations (Clarke & Grundy 2004). Lastly, valuation can play a role in understanding economic trade-offs involved in decision making, but ultimately, decisions are made on the basis of power and influence (Clarke & Grundy 2004).

1.1.10 Livelihoods and livelihood strategies

According to Carney (1998), a livelihood relates to the assemblage of activities, capabilities and assets required for people to make a living. Within this definition, capabilities mean the ability to cope with stresses and shocks as well as the ability to find and make use of livelihood opportunities; assets mean the basic material and social resources that people have in their tenure; and activities mean the ways in which capabilities and assets are pooled to accomplish livelihood outcomes (Scoones 1998).

Livelihoods analysis and planning is an important component within the LRP. However, according to Lahiff (2003) the links between land reform and sustainable livelihoods has not been satisfactorily addressed at a policy level. Fortunately, since the early 1990s there has been an increase in the understanding of land-based livelihood activities and common pool resources through the emerging interests of natural resource valuation, as well as the construction of new conceptual frameworks for comprehending poverty and livelihoods (Shackleton *et al.* 2000; Hajdu 2006). Characteristically, conventional models of poverty analysis often tended to be disjointed and sectoral, whereas the latest research proposes that poor households often depend on a number of different income sources for their survival (Bryceson 2000; Barrett *et al.* 2001; Carney 2002).

According to de Haan & Zoomers (2005), one of the reasons for the increase in livelihood centred approaches is because of past conceptualisations of poor people as 'powerless victims'. Due to these being incorrect, it has lead to modern poverty analyses having a more actor-orientated approach. This means that modern poverty analyses acknowledge that poor people construct their own history through active choices and strategies which provide for their nourishment (Hajdu 2006).

According to the Department for International Development (DfID 1999), 'livelihood strategy' is a term used to represent the range and combination of activities that people undertake to accumulate assets so as to accomplish their livelihood goals. It is an active method which is influenced by the vulnerability context (from the sustainable livelihoods framework: trends, shocks, culture environment (Scoones 1998)), the extent of livelihood assets, and the nature of transforming structures and processes in which people balance various activities to meet their range of needs across time (DfID 1999). A variety of livelihood strategies are followed by households based on the assets (five capitals) available to them and the livelihood outcomes they aspire to achieve (Shackleton *et al.* 2000). A

livelihood outcome is simply the achievements or outputs of a livelihood strategy (DfID 1999). The five most important livelihood outcomes that most people aspire to achieve are: more income, increased well-being, reduced vulnerability, improved food security and sustainable use of the natural resource base (people who recognise the long-term benefits of sensible resource use) (DfID 1999).

The livelihoods of the poor are complex and dynamic, characterised by a wide range of activities that enhance household income as well as food security, health, social networks and savings (Shackleton *et al.* 2000). According to May *et al.* (2000), detailed studies of livelihoods in the homelands of South Africa found that most households depend on multiple sources of income, however those studies found that agriculture generally plays a relatively small role when compared to other sources of income such as wages and pensions. On the contrary, there is now a growing body of research which shows that poor households frequently obtain a substantial portion of their incomes from natural resource based activities such as cultivation and livestock husbandry as well as from using 'wild' natural resources (Cavendish 2000; Shackleton *et al.* 2001; World Bank 2002; Lahiff 2003).

Resource availability is essential to local peoples' livelihoods because it allows for diversity among income activities. A wide range of resources available to households allows for a broad range of income activities, allowing for more diverse and flexible livelihoods (Shackleton 2000; Fabricius 2004). A diverse and flexible livelihood has a high capacity to adapt to change, therefore making it non-vulnerable and resilient (Smit & Wandel 2006). The majority of poor southern African households rely on a range of activities and income sources that bridge the rural-urban divide (May *et al.* 2000; Shackleton *et al.* 2000; Campbell *et al.* 2002; Hajdu 2006). These activities and sources of income may include casual and permanent wage employment, remittances, welfare grants, crop production, animal husbandry, wild resource use, social network transfers and other means of income generation through small endeavours such as sewing or making bricks (Shackleton *et al.* 2000).

In today's world, one of the largest issues confronting humanity is how to assimilate economic endeavours with environmental integrity and social concerns, which is the essence of 'sustainable development' (MMSD 2002). For South Africa to realise sustainable development through sustainable livelihoods, the whole country needs to greatly reduce and/or eradicate poverty and inequality (Turner 2001). The South African government must build an adequate standard of living for its entire people, while sustaining or restoring the

health of the country's ecosystems (Turner 2001). One method of making this succeed is by implementing land reform correctly, whereby land tenure reform policy is developed along with other policies as well as resources and financial incentives to assist the building of more sustainable livelihoods (Adams *et al.* 1999).

Sections 1.1.9.1; 1.1.9.2 and 1.1.9.3 of this chapter, deal with livestock, crop production and wild resources respectively. They draw largely on literature discussing the rural commons and not on municipal commonage. However, municipal commonage is problematic to place, because it is in part rural and urban land. It is important to note that municipal commonage is used in a rural agricultural manner, even though it is officially urban land (Ingle 2006). It is therefore as Ingle (2006) suggests, an urban resource subject to peri-urban practices. For this reason, it is submitted that municipal commonage is unique in a legal sense, but does share certain agricultural livelihood aspects with rural commons. Therefore, when referring to rural area livelihoods, municipal commonage may also be included.

1.1.10.1 Livestock

Livestock is a potential source of capital which equates to potential assets for the household (Barrett 1992). According to Dovie *et al.* (2006) low input, small scale livestock farming is a key land use option in communal areas over most of southern Africa. Dovie *et al.* (2006) found that when compared to the contributions of other major livelihood activities, the relevant contribution of livestock was 22.7 % in Thorndale, South Africa.

Even though the minority of households own livestock, they do so for the multiple benefits that they provide (Cousins 1996; Shackleton *et al.* 2001; Shackleton *et al.* 2005). The multiple uses that livestock provide include direct and indirect use values (Shackleton *et al.* 2001). Direct use values consist mainly of draught, draught hired out, transport, milk (for home consumption), dung (as a sealant, for burning, and for manure), slaughtering (for ceremonies), meat, hides, and cash sales (Shackleton *et al.* 2000; Shackleton *et al.* 2001; Andrew *et al.* 2003a). This is not only true for communal areas, urban livestock can fulfil many roles besides producing milk or eggs; they can also improve the nutritional status and income of poor households (FAO 2001; Riethmuller 2003).

Indirect use values include the savings value accrued to herd growth, cultural benefits as well as the value that non-owners receive from access to livestock products and services. These products and services come in the form of cooperative ploughing arrangements, meat and

milk sharing, bride-wealth payments (*lobola*), loaning of animals, and hiring out and selling of goods and services (Shackleton *et al.* 2001; Andrew *et al.* 2003a). In this regard, cattle have an important social and financial role to play in the community as a whole (Shackleton *et al.* 2001; Shackleton *et al.* 2005). It must be noted that the importance of culturally related functions such as *lobola* payments and ritual slaughtering varies between regions, but in all areas these are of less significance than other more direct-use functions (Shackleton *et al.* 2001; Shackleton *et al.* 2005).

While cattle do have socio-cultural functions which are important, these generally come second to economic functions (Barrett 1992). Still, cattle usually only get sold for emergency situations such as drought (Barrett 1992; Riethmuller 2003). On the other hand, many livestock owners sell their goats to meet occasional cash requirements such as payment of school fees, purchasing of household items, capital for trading and housing projects, and less often for ceremonies and celebrations (Barrett 1992; Dovie *et al.* 2006).

1.1.10.2 Crop Production

Food crop production is an important livelihood activity for impoverished households in rural and urban South Africa (Andrew *et al.* 2003a; Thornton 2008a). Until fairly recently, most studies found that the sale of crops amounted to less than 10 % of total (rural) household income (Shackleton *et al.* 2000; Andrew *et al.* 2003b). However, due to methodological shortcomings, the real figure (total value) may be as high as between a quarter (25 %) and one half (50 %) of total cash and non-cash income (McAllister 2000; Shackleton *et al*. 2001). At Thorndale in the Limpopo province of South Africa, the annual net direct-use value (per household) of crops were found to contribute approximately 15 % of total livelihood income (Dovie 2001; Dovie *et al*. 2006).

There are two major foci for agriculture in rural areas. The first is the homestead, where households may take part in gardening or cultivation around the house, on a piece of land ranging from a few square meters up to 4 ha (Shackleton *et al.* 2001). The main reason for cropping activities on the homestead plot is for home consumption, while a small percentage of the crop may be given to friends or kin (Shackleton *et al.* 2001; Andrew *et al.* 2003a). Thornton (2008a) found that the large majority of urban residents also rely on (home) intra-urban gardens for home consumption. In terms of home gardens in the study area, Thornton (2008a) suggests that the (Grahamstown) region has the necessary physical characteristics to support low-intensive agriculture. Additionally, the bulk of households have adequate plot

sizes to contain home gardens and substantial peri-urban (commonage) land is available, as is the legislation to allow people to use it.

The second focus is that of arable fields, which may either be close to the house or a few kilometers away (Shackleton *et al.* 2000). The production system usually involves agroforestry (growing of both trees and agricultural crops on the same piece of land) and inter-cropping (cultivating two or more crops in the same space) (Shackleton *et al.* 2000; Dovie 2001). The crop diversity typically includes a variety of fruit trees which are surrounded by the staple cereal crop (e.g. maize or sorghum) (Shackleton *et al.* 2000). The larger the fields are, the larger the degree of commercialisation and disposal of products through formal markets (Makhura *et al.* 1998). However, not all households have access to such fields; this customarily is dependent on the formal land allocation of the relevant area (Shackleton *et al.* 2001).

1.1.10.3 Wild resources

The large majority of rural South Africa utilises, buys or sells natural resources on a regular basis (Andrew *et al.* 2003a). This is because southern African communal areas provide a wide range of natural resource products (Shackleton *et al.* 2000). However, natural resource utilisation is not restricted to rural areas; Cocks & Dold (2006) have shown that urbanised people in the Eastern Cape province of South Africa continue to use wild plants for cultural purposes on a large scale. The reason for this is not fully understood yet, but qualitative results suggest cultural adherence (Hutchings 1989).

Natural resources are used for craft materials such as wooden utensils, grass and twig hand brushes and reeds for weaving (Andrew *et al.* 2003a). Wood is collected for construction (kraals and fencing), making implements as well as for cooking and warmth (fuelwood) (van Wyk 2000; Shackleton & Shackleton 2004). Foods and medicines collected include wild spinaches, edible fruits and insects, bushmeat, wild honey and medicinal plants (Andrew *et al.* 2003a; Cocks *et al.* 2004).

Some resources are collected for everyday needs, such as fuelwood, while others are collected primarily for income generation (Shackleton *et al.* 2000). The use of these so called ‘free’ resources considerably reduces the households need for cash income (Shackleton *et al.* 2001). As indicated by Shackleton (2005), approximately 8 % of the country’s rural savanna population, sell at least one natural resource product on either a regular or *ad hoc* basis. In a

study done by Shackleton *et al.* (2002), it was discovered that communities from three different villages were using between 18 and 27 wild products and 100 – 300 species, excluding medicinal plants. According to Shackleton *et al.* (2000), the most commonly used products and primary contributors to income are fuelwood, construction wood, wild fruits and herbs as well as fodder. They also mention that the value of wild resource harvesting to households has been shown to be in the same contribution range of other land-based livelihood activities and welfare grants.

It should be mentioned that medicinal plants are also very important within a local livelihood context. Mander (1998) estimates that at a national level approximately 20 000 tonnes of indigenous plants are traded in a year. This works out to be roughly R270 million which exchanges hands within a given year. In a study done by Cocks *et al.* (2004), out of 282 respondents in four major towns (Port Elizabeth, East London, Umtata and Queenstown) in the Eastern Cape, plant material was harvested from three different biomes, namely: grassland (82 species), thicket (58 species) and forest (46 species). In that study it was found that of the 220 species collected, 166 were recorded (by the stakeholders) as preferred trading species.

In closing, this introduction has shown that access to any land, from a small plot to a forest or communal grazing land, permits households to uphold a diversified livelihood. Multiple strategies which may include wages, pensions, crop production (for consumption or sale), use of 'wild' natural resources, and the running of livestock (as a form of investment or sale), collectively enhance a households' ability to obtain a livelihood under difficult conditions (Lahiff 2003). The LRP is one way in which government is allowing people access to land, with municipal commonage playing a significant role in the process. However, no one has attempted to measure the contribution of municipal commonage to local livelihoods, despite the fact that it plays such an important part of South Africa's LRP. Additionally, urbanisation rates in South Africa are high, with new urban residents expected to rely on commonage to supplement their livelihoods. Thus, there is an urgent need to understand how many (what proportion) and which type of urban residents use commonage, for what purposes do they use it, and how much it contributes to their livelihoods.

1.2 Objectives and Key Questions

This study forms part of a collaborative research programme funded by the South Africa-Netherlands Research Programme on Alternatives in Development (SANPAD), to determine

the factors influencing the use and management of municipal commonage and their potential for poverty alleviation. To achieve this goal, the study reported here, together with other SANPAD funded projects will examine the contribution of municipal commonage to the livelihoods of (peri) urban residents. The main objective of this particular thesis is to determine the livelihood contribution that municipal commonage makes to its users. In combination with this objective, the research aims to record the proportion of households which rely on or use the commonage; what the users' socio-economic profile is, and how that profile differs from non-users, establish what proportion of commonage using households are living in poverty, and how many more would be doing so if it were not for this resource; as well as establish commonage productivity (in terms of income per hectare) and record the leading livelihood strategies practised by commonage using households.

To address these aims, the following key questions have been set:

1. What proportion of township households use municipal commonage?
2. What are the characteristics of households which use municipal commonage, and do these differ from non-using households?
3. To what extent does municipal commonage contribute to the relevant users' total livelihoods and how do these differ across towns?
4. What proportion of commonage using households are living in poverty, and how many more would be if they were denied access to commonage?
5. How does municipal commonage productivity compare to other land-based systems?
6. What are the dominant livelihood strategies pursued by commonage using households?
7. From the research findings, what recommendations can be made to local municipalities?

1.3 Structure of thesis

The thesis is structured into five chapters as follows:

Chapter one introduces the research problem and the theoretical orientation of the thesis. It highlights the importance of land, and what the LRP is and why it came about. It then introduces the concept of municipal commonage and explains where it fits into the LRP. Municipal commonage is then unpacked in terms of its history, scale, agricultural use and livelihood benefits. Subsequently the valuation method used, is explained and the concept of livelihood strategies is introduced followed by a look at the use of livestock, crops and wild

resources by impoverished people. This is followed by the research objectives and key research questions.

Chapter two provides an introduction to the context of the study sites. A description of each study town is given, in terms of the socio-economic profiles of the relevant district and local municipalities. The climate, vegetation and geology of each study town are also described, followed by an overview of the relevant commonages.

In chapter three, the first phase of the research is dealt with. The methods, results and discussion of phase one is presented here in a paper style format. This chapter reports on a rapid survey of each town and shows what proportion of households use commonage in each case study, and what their household characteristics are and how they compare between user and non-user households and among towns. The discussion examines the resource use among different households and commonage, and the comparison of user and non-user household characteristics.

In chapter four, the second phase of the research is dealt with, and is based on in-depth interviews with 30 commonage using households per town. It also presents the methods, results and discussion of this phase in a paper style format. This chapter shows how much commonage contributes to total livelihoods and what livelihood strategies are used by commonage using households. It also reveals how commonage productivity compares to other systems, and what proportion of user households were living in poverty and what the proportional increase of households living in poverty would be in the absence of commonage. The chapter ends off with a typology of subsistence commonage users, where four livelihood strategies are presented.

Chapter five consists of a general discussion and recommendations followed by the conclusions of the research. The chapter reveals that municipal commonage makes a significant contribution to urban households' livelihoods. However, commonage should not be the one and only solution to alleviate poverty, but rather one of many. It is suggested that due to increasing poverty, food price hikes, and increasing urbanisation, municipalities can expect an increase in commonage use. It is therefore proposed that local municipalities should aim to manage their commonages in a holistic manner whereby new commonage policy is constructed and implemented. The recommendations section presents four main recommendations. These equate to better livestock management, improved natural resource management, the creation of more arable fields, and investment in commonage.

2 Chapter Two

Study area

2.1 Introduction

This chapter provides a general introduction to the study area. Each of the three study towns are described in terms of their socio-economic status with reference to their relevant local and district municipalities. The study towns are described by variables such as its physical location, population size, and primary economic contributors, followed by a description of the climate, vegetation and geology of each area. The relevant municipal commonage of each town is also described in terms of its size, location, use and systems of administration.

2.2 Study sites

Data collection took place in South Africa; within three different Eastern Cape towns, namely: Bathurst; Fort Beaufort; and Grahamstown. These towns were chosen by a panel of academics, who were all involved in the greater SANPAD project. It was generally felt that these three towns gave a good representation of commonage, and could be sampled within a relatively small geographical area. In general, the communities of these towns are considered to be poor, however the exact state of their livelihoods and poverty levels are not recorded. However, it may be assumed that many of the households, especially those who fall below the poverty line, supplement their livelihoods by harvesting natural resources and farming livestock on land such as commonage. The three study towns varied in size. Bathurst was the smallest with 1 760 households, Fort Beaufort was intermediate in size with 4 393 households, and Grahamstown was the largest with 9 120 households. The three towns lie along a gradient of increasing aridity moving inland from the coast (Figure 2.1). The study towns spread across two district municipalities and three local municipalities. Bathurst forms part of the Ndlambe Local Municipality (LM), while Grahamstown falls within the Makana LM. Both Ndlambe and Makana LMs fall within the Cacadu District Municipality (DM). Fort Beaufort lies within the Nkonkobe LM, which is part of the Amathole DM.

2.3 Cacadu District Municipality

The area of the district municipality includes nine local municipalities, of which Makana and Ndlambe are two (Cacadu IDP 2007). The Cacadu DM (DC10) covers an area of 58 243 km². As indicated by the Integrated Development Plan (IDP) (Cacadu IDP 2007), the latest estimate (2004) puts the population at 438 800 people with an average household size of 3.7 persons. The biggest employer is the agricultural sector (32.4 %). However, unemployment is approximately 35 %, while 42 % of households are not economically active (ECDSD 2008). Due to such high unemployment, a significant portion of the population is dependent on social grants (Cacadu IDP 2007). Forty six percent of the district is considered to live in poverty, with 36 % of households earning less than R6 000 a year (ECDSD 2008).

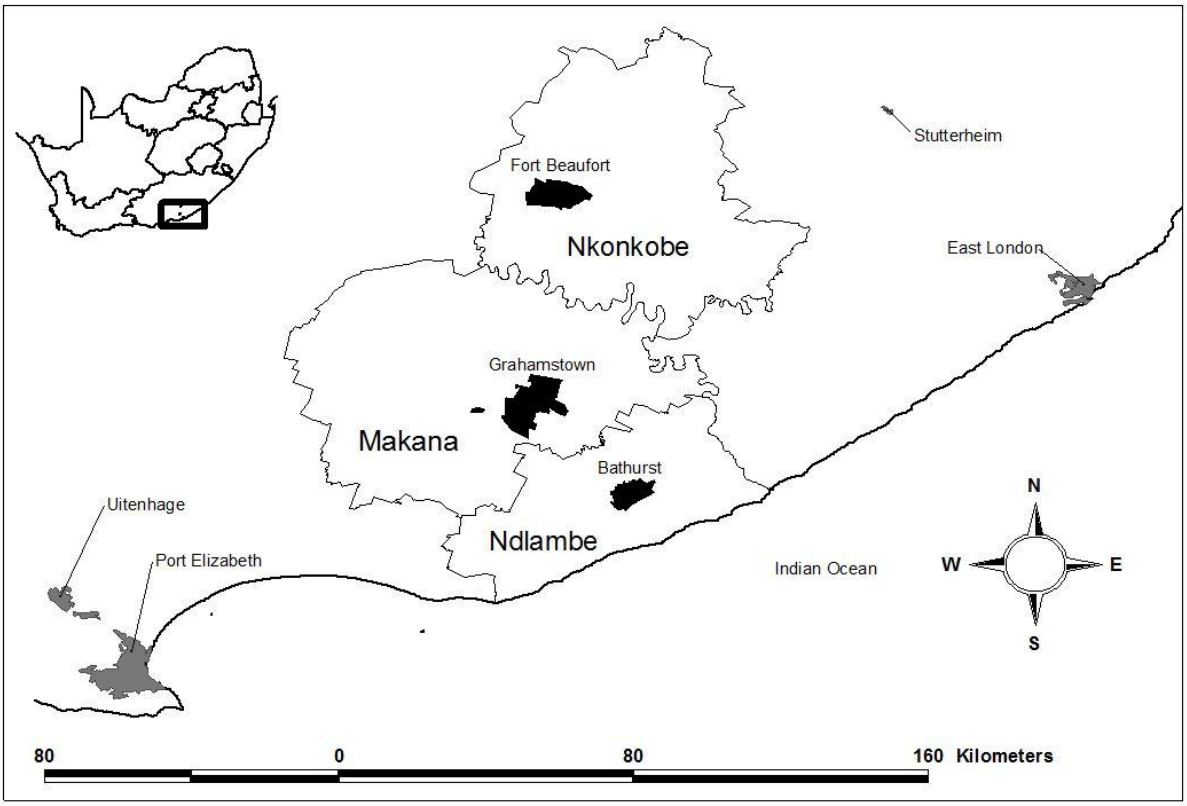

Figure 2.1 Location of the study towns and their commonages

2.3.1 Ndlambe Local Municipality

Ndlambe LM (EC 105) is an administrative region in the Eastern Cape of South Africa, centred in Port Alfred, but also encompassing the towns of Bathurst, Kenton-on-Sea, Bushmans River and Alexandria. Sixty four percent of the Ndlambe LM population live in poverty (Cacadu IDP 2007). The area also has a high dependence on government social

grants, with almost 7 000 beneficiaries recieving either an old age pension (1 689), disability grant (1 544), foster care grant (181), or a child grant (3 927) (Cacadu IDP 2007).

2.3.2 Bathurst

Bathurst (33° 49´ S, 26° 83´ E) is situated within the Ndlambe local municipality (LM) of which sixty four percent of the population live in poverty (Cacadu IDP 2007). The town is considered to be predominantly agricultural; it is the centre of one of the largest pineapple growing areas in South Africa, while chicory and beef farming are also important agricultural industries (Manona 1988; Ndlambe IDP 2007). In terms of population, Bathurst has doubled in size over the last 15 years: 3 023 people in 1986 to 6 929 people in 2001 (Higginbottom *et al.* 1995; Ndlambe IDP 2007). The township consists of roughly 1 760 households.

2.3.3 Bathurst climate, vegetation and geology

The area has a mild subtropical climate with an estimated mean annual precipitation (MAP) of 717 mm (MAFA 2006). The mean monthly temperatures range from 10 °C to 21 °C in winter, while in summer they range from 17 °C to 26 °C (Higginbottom *et al.* 1995; MAFA 2006). Elevation ranges from approximately 200 to 260 m above mean sea level. The underlying geology of the area consists mainly of the Witteberg group of the Cape Supergroup. The lithology of this group consists mainly of quartzite and shales (which are usually made up of clay minerals or muds) (Maud 1996). The majority of the commonage consists of very dense (valley) thicket and (coastal) forest in the deeply incised valleys, while the flatter more elevated areas are covered in Eastern Thorn Bushveld, which consists of grassland with invading thorn trees (*Acacia karroo*) (Higginbottom *et al.* 1995; Low & Rebelo 1996).

2.3.4 Bathurst commonage

The Bathurst commonage falls under the community services directorate of the Ndlambe LM. The local economic development (LED) office is in charge of development on the commonage, and the conservation office is in charge of day to day upkeep (F. Fouche *pers. comm.* 2008). The commonage is roughly 2 900 ha in size, and is registered as municipal land under the Spatial Development Framework (SDF) (Figure 2.2) (Higginbottom *et al.* 1995; MAFA 2006). People have sufficient access to the commonage, which is fenced; however it is not managed effectively due to the lack of municipal capacity (MAFA 2006; Ndlambe IDP 2007). According to MAFA (2006), various user groups utilise the commonage

for a wide variety of uses, which includes direct users, who depend on the commonage for their livelihoods. However, at present there is no prevalent authority, so illegal activities have seemed to increase.

In terms of regulations, no real documentation could be found. The only managerial type text could be found in the Ndlambe IDP (2007), however, this only mentioned expansion of commonages and fencing of existing commonages and no preventative regulations. Apart from the availability of commonages a list of issues are provided. They include: communities refuse to pay nominal fees for the use of commonage facilities; fences get stolen; there is a lack of infrastructure; lack of access roads; and there is insufficient water on the commonage.

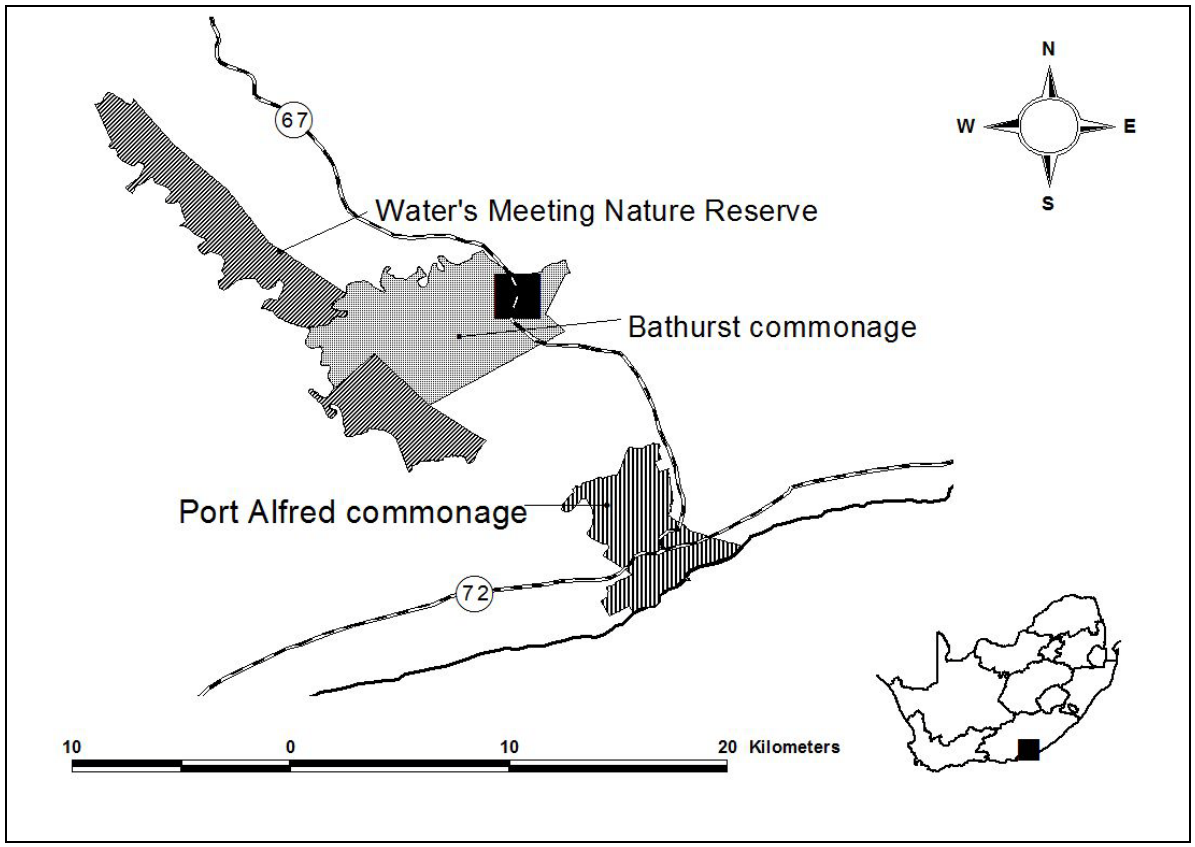

Figure 2.2 The Bathurst commonage

2.3.5 Makana Local Municipality

The Makana LM (EC 104) stretches over 4 376 km² (Makana IDP 2008). Its regional centre is in the city of Grahamstown. It has an estimated population of 140 120 people (Cacadu IDP 2007). Fifty two percent of the Makana LMs population live in poverty (Cacadu IDP 2007). The region has a relatively high reliance on government social grants, with almost 7 500

beneficiaries recieving either an old age pension (1 689), disability grant (1 826), foster care grant (252), or a child grant (3 654) (Cacadu IDP 2007).

2.3.6 Grahamstown

Grahamstown (33° 31´ S, 26° 53´ E) is the seat of the Makana LM (Makana IDP 2008). The area is a mix of rural, peri-urban and urban environment. It has no formal industry to supply employment with the main sources coming from the university, schools, the high court and other service related industries (Seti 2003; USG 2004). The Makana IDP (2008) has however identified commercial avenues, which fall within the realms of tourism, agricultural development, agro-industries and kaolin mining. The Grahamstown region is predominantly agricultural and comprises of privately owned land (80 %) and land owned and managed by the Makana LM (i.e. commonage) (du Plessis 2001). Cattle, sheep, game and goat farming are the main livestock activities in the area (du Plessis, 2001; Parkin *et al.* 2006; Shackleton *et al.* 2007a). Grahamstown has an escalating population of over one hundred thousand people: the continual urbanisation of the city is ascribed to the influx of migrants from the surrounding agricultural areas and the former black homelands (Seti 2003; Lemon 2004; Parkin *et al.* 2006).

Grahamstown's eastern section (Rhini) is dominated by low-income and informal housing areas (Parkin *et al.* 2006). Moller *et al.* (2001) in their survey of Rhini divided up the area into 27 residential areas: the Rhini township consists of approximately 9 120 households. Interviews for this research took place in Rhini, which consists of: Fingo Village (including the old municipal location and Victoria Road); Joza (including Makanaskop and Extensions 1-5,8,9); King's Flats (including extensions 6 and 7); Tantyi, Lingelihle; Vukani, Eluxolweni; Hlalani; Vergenoeg; Hoogenoeg; and Zolani.

2.3.7 Grahamstown climate, vegetation and geology

Grahamstown is situated in a valley which is the headwaters of the Bloukrans River; a tributary of the Kowie River. The altitude ranges from approximately 720 m on the highest ridges in the south, down to approximately 510 m in the valleys. The city falls within the semi-arid region of the Eastern Cape with a MAP of between 550 - 600 mm (Parkin *et al.* 2006; Shackleton *et al.* 2007a). According to Palmer (2004), the winter and summer rainfall systems converge in this region resulting in all-year rainfall, with spring and autumn maxima. However, rainfall reliability is poor and long lasting droughts are not uncommon (Palmer

2004). The mean monthly maximum temperatures range between 29 - 32 °C, while the mean monthly minimum temperature range between four to six degrees Celsius. The underlying geology of the area consists mainly of the Dwyka formation of the Karoo sequence and the Witteberg group of the Cape Supergroup. The lithology of the Dwyka formation consists mainly of (Kaolinised) Tillite (which occur as residual clays from the shales of the Witteberg group) and shales (Johnson & Le Roux 1994).

The region is considered to be biologically diverse because it is situated in an area where four major biomes converge, namely; Fynbos, Grassland, Thicket and Karoo (Mucina & Rutherford 2007). In general the natural vegetation consists of shrubby (Fynbos) grassland on the hilltops and dense woody thicket in the valleys (Parkin *et al.* 2006; Shackleton *et al.* 2007a). However, the majority of the old eastern commonage is made up of Bhisho Thornveld, which lies to the immediate north of town. To the north west of that lies some Albany Broken Veld. Kowie Thicket lies to the extreme north of the city, which leads into Great Fish Thicket. The southern slopes of town consist of Fynbos, namely, Suurberg Quartzite Fynbos, and Suurberg Shale Fynbos. Pockets of Southern Mistbelt Forest may also be found on the south facing slopes of Featherstone Kloof, the valley which lies to the south of the city, where the southern commonage is located.

2.3.8 Grahamstown commonage

The Grahamstown commonage is managed and maintained by the parks and recreation division, which falls under the community and social services directorate of Makana LM (Makana IDP 2008). According to K. Bates (*pers. comm.* 2007), the municipality lacks the capacity to manage the commonage effectively in terms of manpower and (a lack of) funding. The only formal regulations that could be found, was that which dealt with livestock (Palmer 2005). Nothing could be found in terms of natural resource harvesting.

The commonage consists of three sections, namely; southern (a conservancy thus omitted from the survey), eastern and new commonage (Figure 2.3). The eastern commonage is approximately 2003 ha in size, while new commonage surrounds the town in the form of scattered smallholdings and is approximately 4 686 ha in size (K. Bates *pers. comm*. 2007; Puttick 2008). Therefore, any household within the study population had access to approximately 6 689 ha of commonage. There are almost 2 000 head of cattle, with roughly 1 900 small stock units (sheep and goats) and an undetermined amount of donkeys on the commonage (Palmer 2005; K. Bates *pers. comm*. 2007).

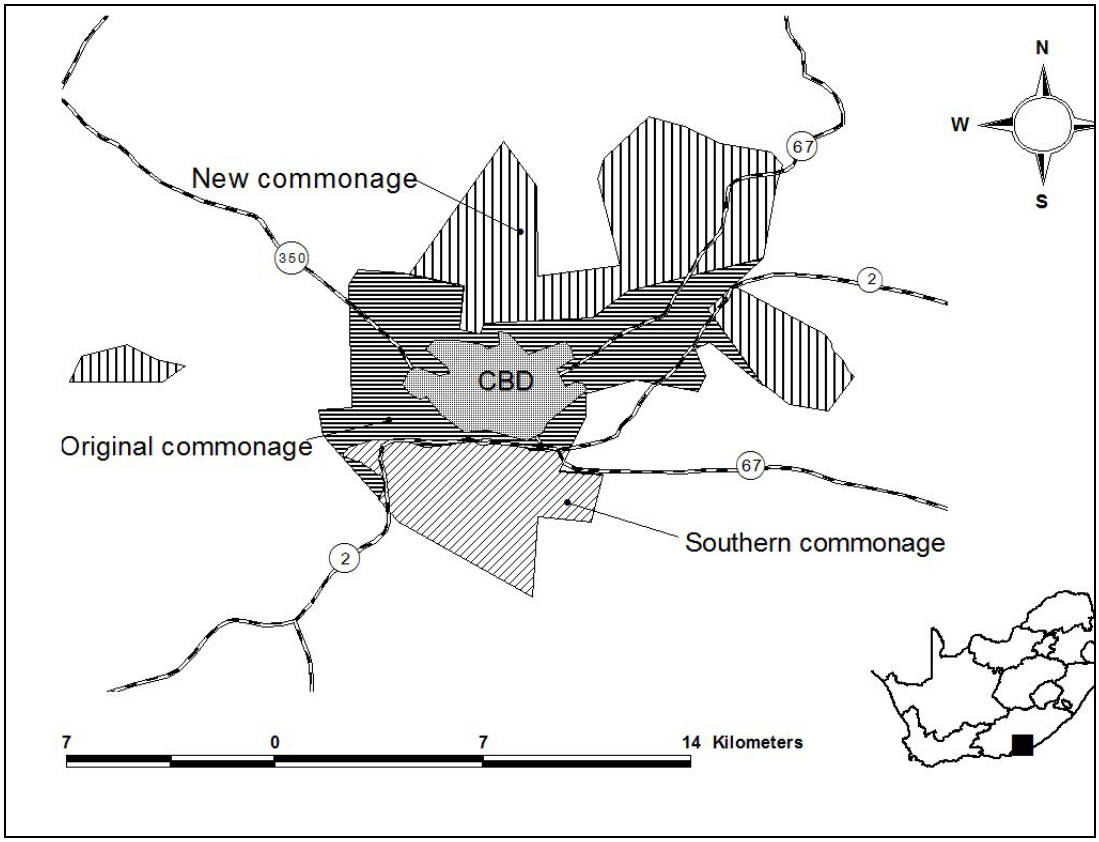

Figure 2.3 The Grahamstown commonage

2.4 Amathole District Municipality

The seat of the Amathole DM (DC 12) is East London. According to the Amathole IDP (2006) the DM covers an area of 26 196 km². The latest estimates put the population at approximately 1 664 260 people with an average household size of 4.1. Education levels are low, with 10 % having no formal schooling and only 16 % having matriculated. Sixty nine percent of the district lives in poverty. Household income levels are low, with 52 % recording income levels of less than R6 000 per annum. Unemployment is high (55 %), and almost half of the economically active population is unemployed (47 %). Community services (42 %) contribute the most to employment, which is followed by manufacturing (18 %) and agriculture (13 %). The area has an under-developed agricultural sector, where household production levels are reportedly declining and the majority of the population now depend on social grants as their primary source of income (Amathole IDP 2006).

2.4.1 Nkonkobe Local Municipality

The Nkonkobe LM (EC 127) falls within the Amathole DM, with its centre being Fort Beaufort. The population of Nkonkobe LM has been estimated to be in the region of 133 434 people with an average household size of 4.0 (Amathole IDP 2006; Nkonkobe IDP 2007). The population in the area is rural in nature, with a rural: urban ratio of approximately 4:1. According to the Amathole IDP (2006), unemployment (68 %) and poverty levels (71 %) are high and are coupled with development and service backlogs. Sixty nine percent of Nkonkobe LM residents do not have an income at all and roughly 74 % of all households have no access to sanitation.

2.4.2 Fort Beaufort

Fort Beaufort (32° 77´ S, 26° 63´ E) is a small town which is situated within the Nkonkobe LM. The town itself is considered to be agricultural in nature and has an approximate population of between 20 000 – 35 000 inhabitants (Ruiters & Bond 2000; Shackleton & Shackleton 2006): the township consists of 4 393 households. The area has concentrations of wealth and economic activity based on large scale citrus farming, forestry and tourism (Shackleton & Shackleton 2006; Nkonkobe IDP 2007). Lack of sanitation is a problem in the area, especially in the townships of Bhofolo, which use the 19th century 'bucket system' (Ruiters & Bond 2000).

2.4.3 Fort Beaufort climate, vegetation and geology

The town is situated at the foot of the Great escarpment, therefore in the lowland areas it varies in altitude between 420 – 480 m, however some of the summits to the north may reach 800 m. Fort Beaufort's MAP is approximately 500 mm (Shackleton & Shackleton 2006). The underlying geology of the area consists mainly of the Beaufort group of the Karoo sequence. The lithology of this group consists mainly of shales, (fine grained) sandstones and mudstones (Maud 1996). There is a successive change in vegetation from Bedford Dry Grassland in the south west to Bhisho Thornveld, which is dominated by *Acacia karroo* around the town, to Eastern Cape Escarpment Thicket, and Great Fish Thicket against the mountains to the north (Mucina & Rutherford 2007).

2.4.4 Fort Beaufort commonage

The Fort Beaufort municipal commonage (Figure 2.4) falls under the social and community directorate of the Nkonkobe LM. No official records of size could be obtained for the commonage, however a GIS approach revealed that the transitional local council (TLC) land (equivalent of original commonage) excluding urban areas added up to 7 622 ha. According to H. Mhlaba (*pers comm.* 2007), the commonage serves an agricultural purpose such as grazing for cattle but there is also potential for citrus and tobacco crops in the area. The Fort Beaufort area does have first generation black commercial citrus and livestock farmers. In terms of local institutions, there is currently an emergent farmers association. In terms of regulations, none could be found. The only place commonage is mentioned is within the IDP (2007). There is at present no infrastructure on the commonage; no fences, dipping tanks, or livestock enclosures; however there are plans in the IDP for such developments to be installed (Nkonkobe IDP 2007).

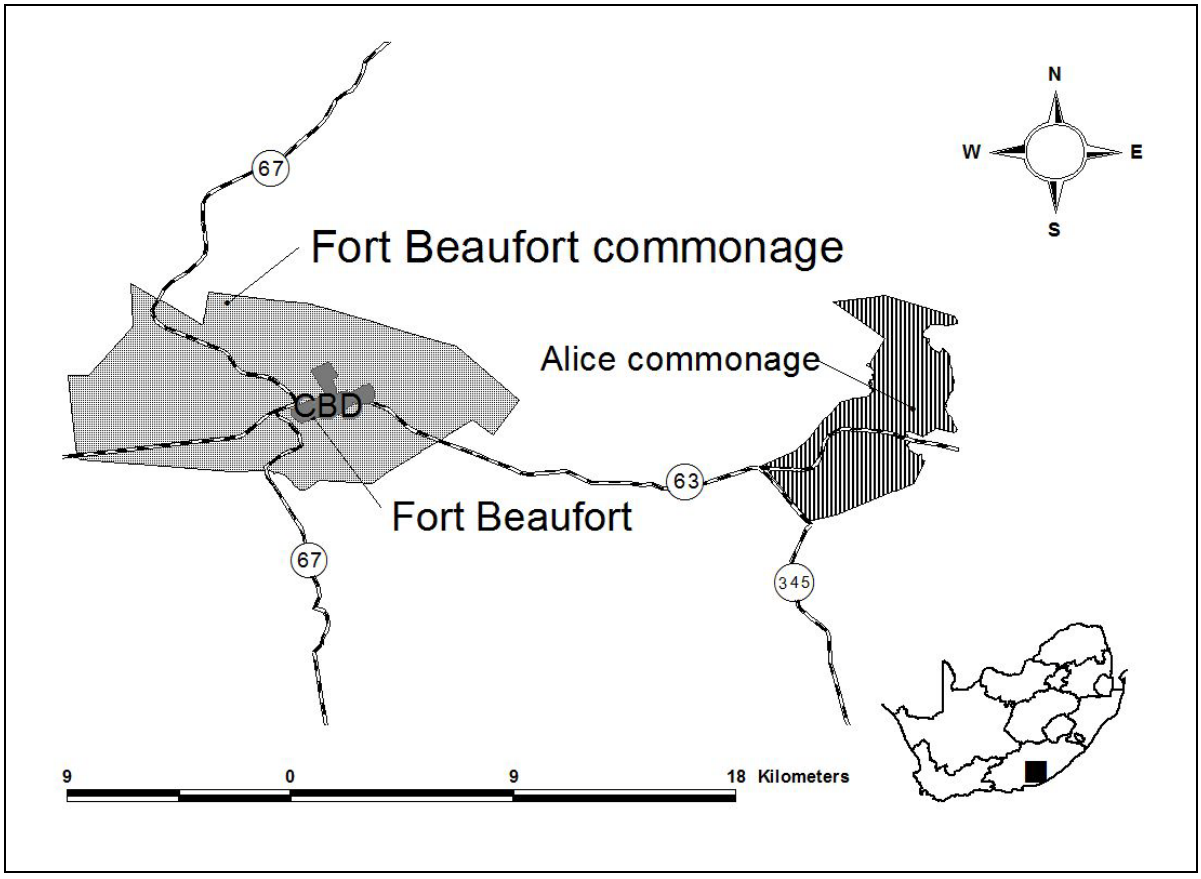

Figure 2.4 The Fort Beaufort commonage

3 Chapter Three

Municipal commonage: household attributes and degree of use in the Eastern Cape, South Africa

3.1 Introduction

This chapter deals with the first phase of this study. The first phase is divided into two parts which each answer a key question, namely the proportion of township households who use commonage, and what the characteristics of those households are, and how they differ from non-using households. The results show that between 27 - 70 % of households used commonage, with the largest town having the lowest proportion of users, and vice versa for the smallest town. Household characteristics are also compared between user and non-user households and among study towns. It was found that, each study town was unique. Both Bathurst and Grahamstown user households were poorer than non-using households, however all Fort Beaufort households were considered poor.

3.2 Methods

In attempting to address the research questions, I used a two phase approach. Both phases involved interviewing respondents via a structured interview schedule. All interviews were conducted in the preferred language of the respondent, namely isiXhosa. The interviews were in accordance with Rhodes University's Ethical Guidelines and Ethical Standards Policy (see Appendix 2).

This study only focused on the former 'black' areas of each town, formerly known as the 'location' or 'township'. This is due to the focus of the LRP on the country's black majority (DLA 1997), who because of the group areas act (Act No. 41 of 1950) reside mostly in townships. Therefore, when mentioning a town (in terms of study towns), the author is in fact referring to the township of that town.

This study was conducted at the household level; therefore making the household the logical unit of measurement and analysis. The household in this study is defined as all of the occupants listed by the household head who reside in the house or send remittances home in the case of migrant labourers. Ardington & Lund (1996) have argued that the *de jure*

household is the most appropriate unit for the study of 'rural' livelihoods. The household is a central unit, consisting of core members who live in the house permanently, and rely on complex socio-economic interdependencies among each other (Ellis 2000). Although there are potential criticisms with regards to wealth distribution within the household (Doss 1996), I refrain myself from any intra-household issues. Also, although this research is observing urban households, it is believed that these same complex socio-economic interdependencies hold true.

3.2.1 Data collection

This part of the study (phase one) consisted of undertaking a rapid survey of 200 random households per study town to determine the proportion of households within the study towns who are considered to be commonage using households. The survey involved the administration of a structured interview schedule (Appendix 3), which took place in July and August of 2007. After a successful pilot run of 10 households in Grahamstown was completed, the interview schedule was deemed appropriate.

The systematic random sampling (SRS) technique was used to select households (Lehtonen & Pahkinen 2004; Schutt 2006). SRS is a variant of simple random sampling (Schutt 2006). The technique involves random sampling with a system; meaning that from the sampling frame, a starting point is chosen at random, and thereafter at regular intervals. Each unit in the population is identified, and each unit has an equal chance of being in the sample. If no one was home or if the potential respondent did not want to be interviewed, the interviewer moved onto the next door house, but would still keep the original sequence after completing that interview.

To calculate the number of houses within each study town, ortho-photographs (2003) were used. All of the houses were counted for each township, or in the case of the larger townships, the suburbs of each study town. To avoid clustering, the relevant suburbs were identified on the map and the SRS technique was employed for each suburb. Thus the number of interviews which took place within a suburb depended on its relevant size. For example, if there were three suburbs which made up 20 %, 50 % and 30 % of the study population, then 40, 100 and 60 interviews would take place in those suburbs, respectively.

User households were defined as households which used the municipal commonage for a significant economic, subsistence and/or ritualistic gain at least annually. Significant being if

the household used any discriminate livelihood resource from the commonage within the same year. Discriminate livelihood resources included: livestock (ownership); fuelwood, medicinal plants, and/or crops from arable fields or gardens on the commonage. These have been highlighted by others as key resources (Cocks *et al*. 2004; Hamilton 2004; Shackleton & Shackleton 2004; Dovie *et al*. 2006).

The respondent or respondents preferably included the head of the household; however, if they were absent, any adult members who were in a position to answer the questions were interviewed. The rapid survey was designed to be no longer than 10 minutes per interview. The data that were gathered from the survey provided information on the households' characteristics and the proportion of households who used the commonage.

Household characteristic data included information on:

1. Gender (household head);
2. Household size (number of individuals in the household);
3. Education (of household head);
4. Number of bedrooms in the house (as a wealth proxy);
5. Frequency of meat consumption (as a wealth proxy);
6. Employment (number of individuals with jobs);
7. Government social welfare grants (pension, disability, and child);
8. Number of years the household had lived in town; and
9. Use of the commonage.

A possible pitfall of this part of the study includes the fact that the sampling technique only identified commonage user households according to my definition of 'user'. This means that households which used the commonage but did not fit my description of a user household would have been overlooked. Thus, the proportion of commonage use may have been higher than recorded in this study.

3.2.2 Data analysis

The proportion of households using commonage was calculated by dividing the number of defined users for each town by 200, the sample size. The number of user households was calculated by multiplying the total number of households in each study town by the relevant proportion of users in each. From this the user populations were calculated by multiplying the number of user households by the relevant mean household sizes of each study town (see

Table 3.4), after which the density of use could be calculated by dividing the user population by the relevant size of each commonage (see sections 2.3.4; 2.3.8; and 2.4.4). For the summary of discriminate natural resources used, proportions of use were calculated by dividing the number of users of each resource by the number of defined users for each town. The number of years commonage using households had been utilising the commonage were recorded and categorised. Some households did not know exactly how many years they had been using the commonage; therefore these were excluded from the analysis.

A multivariate exploratory technique, in the form of the descriptive discriminant analysis was performed to explain the differences in household characteristics between user and non-user households. This analysis reveals the optimal separation of groups by showing which variables are most related to their separation (McGarigal *et al.* 2000). All data analyses were done in STATISTICA (StatSoft, Inc. 2007). In the discriminant analysis performed for this research, the model consisted of nine variables:

1. Number of individuals in the household;
2. Education (of household head);
3. Bedrooms per capita;
4. Frequency of meat consumption;
5. Employment (number of individuals with jobs);
6. Pensions (number of individuals receiving);
7. Disability grants (number of individuals receiving);
8. Child grants (number of individuals receiving); and
9. Years lived in town.

Household characteristics were compared between user and non-user households using t-tests for grouping variables. Variables which did not meet the appropriate assumptions (i.e. normality and homogeneity of variances), were first transformed (square root or log) and if normality was still produced, then the non-parametric Mann-Whitney U test was performed.

Household characteristics were also compared among the study towns within the categories of user and non-user households to test for site variability. A one-way Anova was performed to test for this. If the appropriate assumptions were not met, data were transformed (square root or log). If transformed data still did not meet the assumptions, then the non-parametric Kruskal-Wallis Anova was performed. If significant differences were found, then post hoc

tests were performed. In the case of non-parametric analyses (no post hoc test), Mann-Whitney U tests were performed between each study town.

To test for a gender effect between user and non-user household heads (i.e., commonage use), a Chi square (χ^2) analysis in the form of a contingency (2x2) table was completed. To test for an association between commonage use and: education; study towns; and years resident; as well as between the study towns and the frequency of meat consumption, Pearson Chi square (χ^2) analyses were performed. Where data counts were less than 10, data were pooled.

3.3 Results

3.3.1 Commonage use among the three study towns

There was a significant association between the study towns and the use of commonage (χ^2 = 74.0, df = 2, $p<0.001$). The proportion of commonage users amongst township households increased as the size of the township decreased. In Grahamstown, just over a quarter (27 %) of township residents were considered users (Table 3.1). Whereas in Fort Beaufort, more than half (54 %) of the township dwellers were regarded as users. In Bathurst, the large majority (70 %) of township households used the commonage.

The actual number of user households in each study town ranged from 1 232 households in Bathurst to 2 462 households in Grahamstown (Table 3.1). The user populations of each study town ranged from 5 914 individuals in Bathurst to 13 295 individuals in Grahamstown. This meant that the density of use was two individuals per hectare in Bathurst and Grahamstown, and 1.5 individuals per hectare in Fort Beaufort (Table 3.1), indicating relatively similar intensities of use across the study towns.

Fuelwood was utilised by the large majority of user households across the study towns, and had the highest proportion of use with a range of 65 % (17 % of all households) in Grahamstown to 91 % (64 % of all households) in Bathurst (Figure 3.1). Medicinal plants had the second highest proportions of use, ranging from 39 % (10 % of all households) in Grahamstown to 62 % (33 % of all households) in Fort Beaufort. This was followed by the ownership of livestock, which ranged from 11 % (6 % of all households) in Fort Beaufort to 26 % (7 % of all households) in Grahamstown (Figure 3.1). Very few households used arable fields or community gardens on the commonage.

Table 3.1 Density of commonage use (individuals/ha) across the study towns

	Bathurst	Fort Beaufort	Grahamstown
Total number of households	1 760	4 393	9 120
Proportion (%) of use	70	54	27
Number of user households	1 232	2 372	2 462
Mean household size	4.8	4.7	5.4
User population	5 914	11 148	13 295
Size of commonage (ha)	2 900	7 622	6 689
Density of use (individuals/ha)	2.0	1.5	2.0

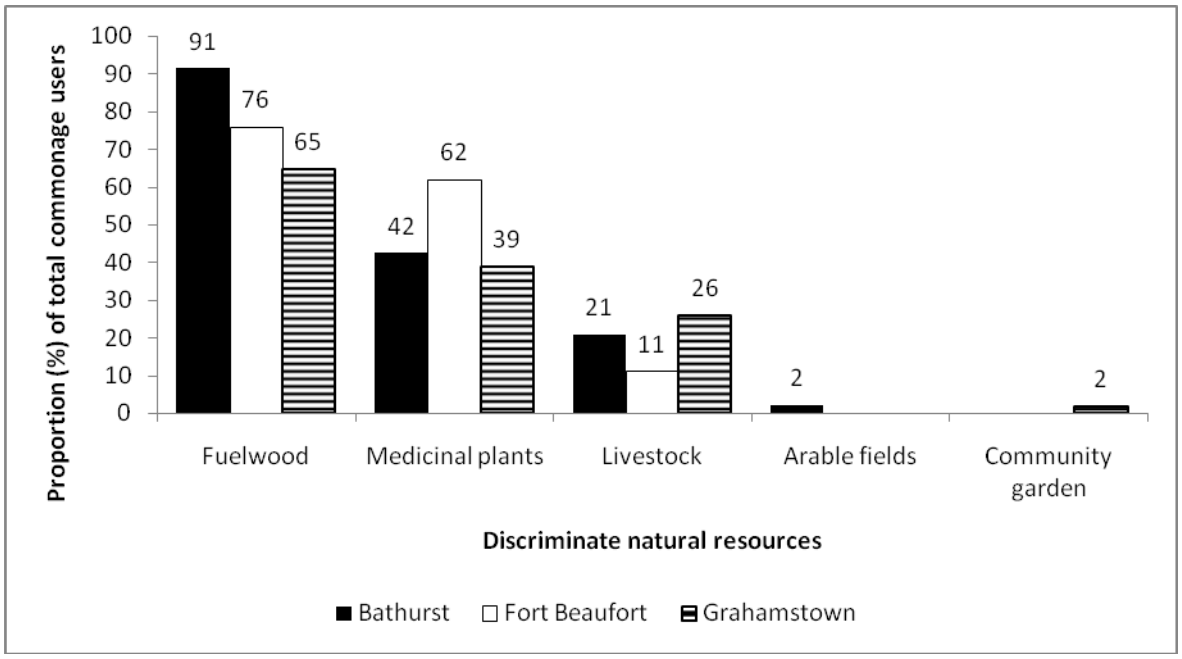

Figure 3.1 Discriminate resources utilised by commonage user households across the study towns (Bathurst: n = 139; Fort Beaufort: n = 108; Grahamstown: n = 54)

The mean number of years households had been using the commonage did not differ significantly across study towns. These ranged from 13.4 (± 13.2) years in Bathurst to 17.8 (± 15.5) years in Grahamstown. A large proportion of households amongst study towns had been using their commonages between one to 10 years (Figure 3.2).

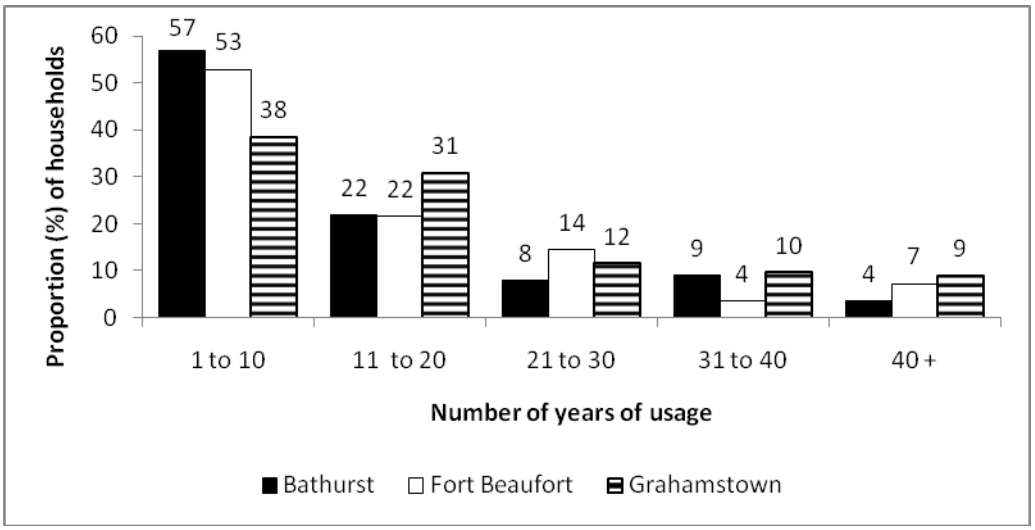

Figure 3.2 Number of year's current municipal commonage users have been using their respective commonages across the study towns (Bathurst: n = 114; Fort Beaufort: n = 83; Grahamstown: n = 52)

3.3.2 Characteristics of user and non-user households

The number of years households had resided in town was a significant discriminator between user and non-user households in all three study towns (Table 3.2). Over and above years in town, education was a significant discriminator between user and non-user households in Grahamstown. In Fort Beaufort, the mean number of employed individuals per household was a significant discriminator between users and non-users (Table 3.2). The nature and magnitude of the discrimination is discussed in the subsequent sections.

Table 3.2 Discriminating variables between municipal commonage users and non-users across the study towns

Variables	Bathurst		Fort Beaufort		Grahamstown	
	Test statistic	p value	Test statistic	p value	Test statistic	p value
Total hh size	F = 0.04	>0.05	F = 1.4	>0.05	F = 1.3	>0.05
Education	F = 3.1	>0.05	F = 2.0	>0.05	F = 4.2	**<0.05**
Bedrooms	F = 0.8	>0.05	F = 0.001	>0.05	F = 0.8	>0.05
Meat eaten	F = 1.4	>0.05	F = 2.6	>0.05	F = 1.6	>0.05
No. Employed	F = 0.3	>0.05	F = 5.1	**<0.05**	F = 0.9	>0.05
Social grants	F = 1.7	>0.05	F = 1.2	>0.05	F = 0.3	>0.05
Years resident	F = 6.5	**<0.05**	F = 6.1	**<0.05**	F = 7.8	**<0.05**

3.3.2.1 Gender of household heads

There were no differences in gender of household heads among study towns for both users and non-users (Table 3.3). Variations between male-and female-headed households were small for both user and non-user households (See Appendix 4 for summary of gender and user households in terms of real numbers).

Table 3.3 Gender of municipal commonage user and non-user household heads across the study towns (Figures are quoted as percentages)

User vs non-user	Gender	Bathurst	Fort Beaufort	Grahamstown	Mean
User	M	53	49	57	53
User	F	47	51	43	47
Non-user	M	45	56	47	49
Non-user	F	55	44	53	51
P value		p>0.05	p>0.05	p>0.05	p>0.05
Test statistic		$\chi^2 = 1.3$	$\chi^2 = 1.0$	$\chi^2 = 2.0$	$\chi^2 = 0.6$

3.3.2.2 Mean household sizes

The mean household size of non-using households in Bathurst was significantly lower than in Fort Beaufort and Grahamstown (Table 3.4), while there was no difference amongst commonage using households. Sizes of households using commonage did not differ significantly from those of non-using households in Fort Beaufort and Grahamstown; however they did in Bathurst (Table 3.4). The mean size of commonage using households ranged from 4.7 (± 2.4) individuals in Fort Beaufort to 5.4 (± 3.4) individuals in Grahamstown, while that of non-using households ranged from 3.6 (± 2.1) in Bathurst to 4.5 (± 2.1) in Grahamstown (Table 3.4).

3.3.2.3 Level of education of household heads

Amongst user households, Bathurst (4.3 ± 3.9 years) household heads had significantly less years of education than those of Fort Beaufort (6.1 ± 3.8 years) (Table 3.4). While amongst non-user households, Grahamstown (7.8 ± 4.2 years) household heads had significantly more years of education than the other two study towns (Table 3.4). Between user and non-user households, in Bathurst and Grahamstown the mean level of education for user household heads was significantly lower than non-user household heads (Table 3.4).

Across categories, households who used commonage mainly had a primary education, while non-user households primarily had a secondary education (Figure 3.3). When categorised, there was a significant association between education of household heads and commonage use in Bathurst (χ^2 = 6.8, df = 2, p<0.05) and Grahamstown (χ^2 = 10.7, df = 2, p<0.05), however not in Fort Beaufort.

3.3.3 The number of household bedrooms per capita (as a wealth proxy)

The mean number of bedrooms per capita of households who used commonage did not differ significantly across the study towns. However, non-using households in Fort Beaufort had significantly less bedrooms than Grahamstown non-user households (Table 3.4). Only in Bathurst, did non-using households have significantly more bedrooms per capita than user households. The mean number of bedrooms per capita of commonage using households ranged from 0.4 (± 0.3) in Fort Beaufort to 0.5 (± 0.3) bedrooms in Grahamstown, while bedrooms per capita for non-using households ranged from 0.5 (± 0.4) in Fort Beaufort to 0.6 (± 0.4) bedrooms in Grahamstown (Table 3.4).

3.3.3.1 Monthly frequency of household meat consumption

There was a significant association between the study towns and the monthly frequency of meat consumed by households (χ^2 = 19.7, df = 4, p<0.001). Across households an inverse relationship between the numbers of days meat was consumed and the proportion of households eating meat was found (Figure 3.4). In Grahamstown, commonage using households ate meat significantly less times per month (Table 3.4). This was, however, not the case in the other two study towns. Across the study towns, Bathurst households who used commonage ate meat significantly fewer times than those from Grahamstown. Meat consumption amongst households who used commonage ranged from 5.6 (± 5.4) times a month in Bathurst to 7.8 (± 8.1) times a month in Fort Beaufort. Non-using households in Grahamstown ate meat significantly more times per month than both Bathurst and Fort Beaufort non-users (Table 3.4). For non-using households, meat consumption ranged from 6.4 (± 5.8) times a month in Fort Beaufort to 11.1 (± 9.3) times a month in Grahamstown.

Table 3.4 Household attributes of user and non-user households across the study towns

Attribute	Town	Users	Non-users	Test statistic	p value
Household size	B	4.8 ± 2.7	3.6 ± 2.1[a]	Z = 3.1	**<0.05**
	F	4.7 ± 2.4	4.6 ± 2.4[b]	Z = 0.5	>0.05
	G	5.4 ± 3.4	4.5 ± 2.1[b]	Z = 1.2	>0.05
Test statistic		H = 0.9	H = 11.6		
p value		>0.05	**<0.05**		
Education of head (number of years)	B	4.3 ± 3.9[a]	5.9 ± 4.3[a]	Z = -2.4	**<0.05**
	F	6.1 ± 3.8[b]	6.7 ± 3.9[a]	Z = -1.0	>0.05
	G	5.1 ± 4.0[ab]	7.8 ± 4.2[b]	Z = -4.1	**<0.0001**
Test statistic		H = 12.7	H = 11.0		
p value		**<0.05**	**<0.01**		
No. of bedrooms per capita	B	0.4 ± 0.3	0.5 ±0.3[ab]	Z = -2.1	**<0.05**
	F	0.4 ± 0.3	0.5 ± 0.4[a]	Z = -1.0	>0.05
	G	0.5 ± 0.3	0.6 ± 0.4[b]	Z = -1.1	>0.05
Test statistic		H = 3.9	H = 6.9		
p value		>0.05	**<0.05**		
No. of times per month consume meat	B	5.6 ± 5.4[a]	6.7 ± 5.3[a]	Z = -1.6	>0.05
	F	7.8 ± 8.1[ab]	6.4 ± 5.8[a]	Z = 0.6	>0.05
	G	7.2 ± 5.0[b]	11.1 ± 9.3[b]	Z = -2.3	**<0.05**
Test statistic		H = 6.3	H = 18.4		
p value		**<0.05**	**<0.001**		
No. of people employed per household	B	0.7 ± 1.1[ab]	0.6 ± 0.7[ab]	Z = 0.2	>0.05
	F	0.4 ± 0.6[a]	0.5 ± 0.6[a]	Z = -1.4	>0.05
	G	0.7 ± 0.9[b]	0.9 ± 0.8[b]	Z = -1.5	>0.05
Test statistic		H = 7.8	H = 10.7		
p value		**<0.05**	**<0.05**		
No. of social grants per household	B	1.5 ± 1.3	0.9 ± 0.9[a]	Z = 2.7	**<0.01**
	F	1.5 ± 1.4	1.4 ± 1.2[b]	Z = 0.2	>0.05
	G	1.7 ± 1.5	1.1 ± 1.0[ab]	Z = 2.1	**<0.05**
Test statistic		H = 0.4	H = 7.2		
p value		>0.05	**<0.05**		
No. of years living in town	B	4.1 ± 1.8	3.4 ± 1.7[a]	t = 2.2	**<0.05**
	F	4.5 ± 1.81	5.2 ± 1.9[b]	t = -2.0	**<0.05**
	G	25.6 ± 17.6	36.5 ± 19.1[b]	t = -3.4	**<0.01**
Test statistic		F = 2.9	F = 25.2		
p value		>0.05	**<0.0001**		

Note: t-tests and nonparametric Mann-Whitney U tests read across, while one way Anova and nonparametric Kruskall-Wallis tests read down. Superscripts are only relevant within their categories' column; unlike superscripts reflect significant differences between study towns at $p<0.05$ or higher. B = Bathurst; F = Fort Beaufort; G = Grahamstown.

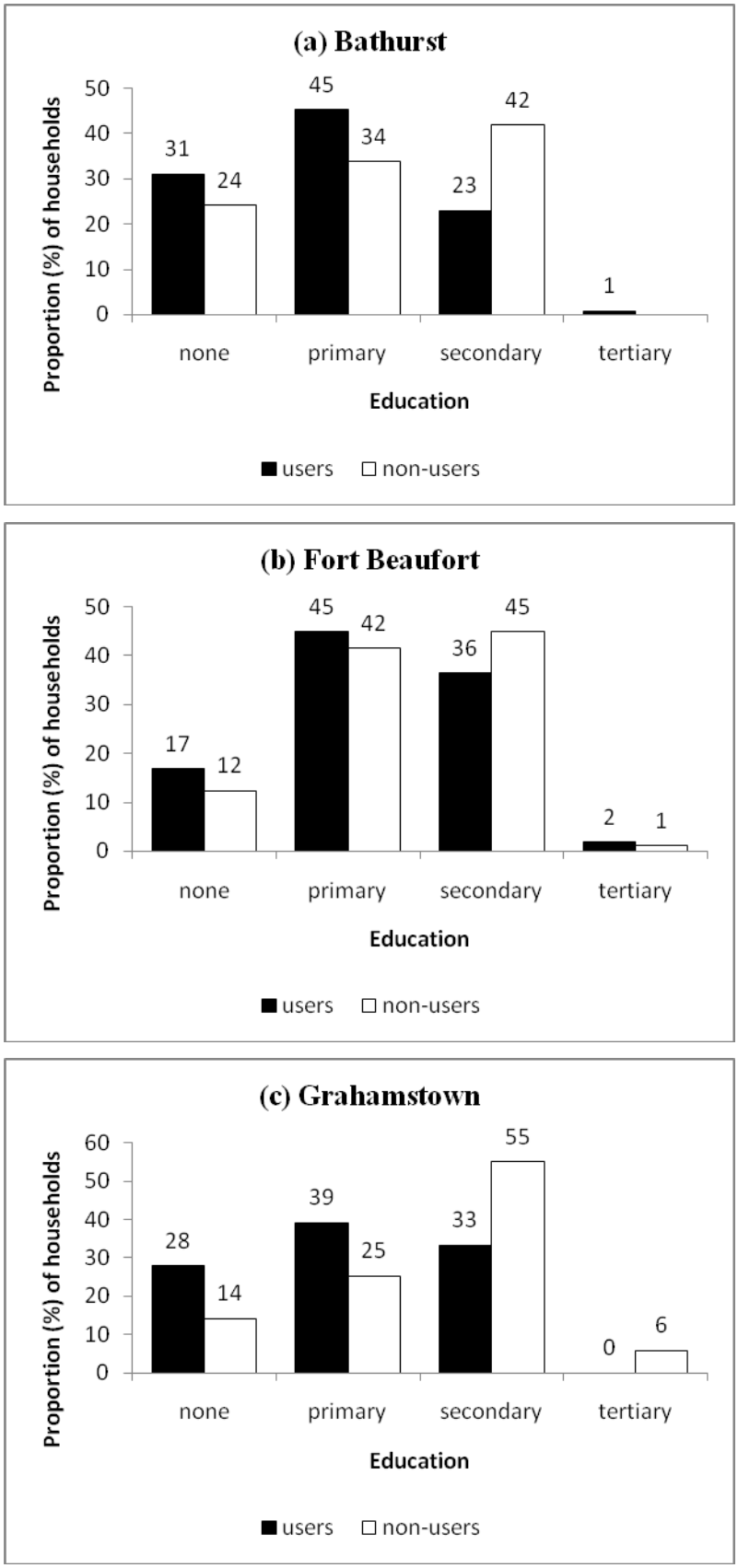

Figure 3.3 Education of household heads

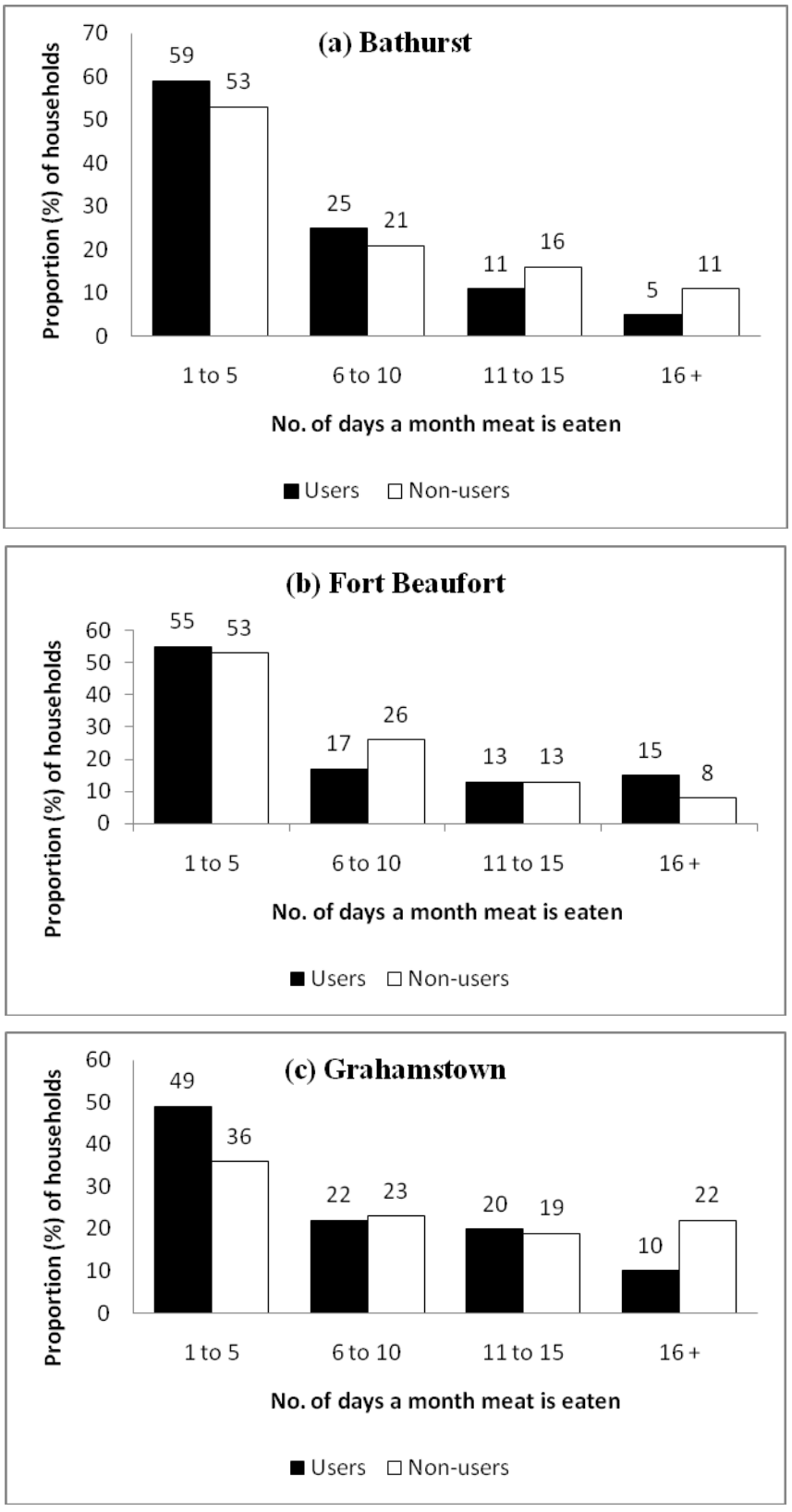

Figure 3.4 Number of times a month households ate meat

3.3.3.2 The number of employed individuals per household

Amongst user households, 33 %, 46 % and 51 % of Fort Beaufort, Grahamstown and Bathurst households, respectively, had at least one individual who was employed compared to non-using households where 47 %, 64 % and 48 %, respectively, had someone who was employed. For both commonage using and non-using households, Fort Beaufort had significantly less employed individuals per household than Grahamstown (Table 3.4). The mean number of employed individuals amongst households who used commonage did not differ from non-using households at any of the study towns (Table 3.4). For user households, these ranged from 0.4 (± 0.6) people in Fort Beaufort to 0.7 (± 1.1) people in Bathurst (Table 3.4). The mean number of employed people for non-using households ranged from 0.5 (± 0.6) people in Fort Beaufort to 0.9 (± 0.8) individuals in Grahamstown.

3.3.3.3 The number of social welfare grants per household

Seventy six percent of households who used commonage in Bathurst and Grahamstown relied on social welfare grants compared to 63 % and 68 % of non-using households, respectively. Seventy nine percent of Fort Beaufort households who used commonage relied on government social welfare grants, compared to 78 % of non-using households. Households who used commonage had significantly more social welfare grants than non-using households in Bathurst and Grahamstown, but not so in Fort Beaufort (Table 3.4) (see Appendix 5 for a summary of the number of pensions, disability grants and child grants). There were no significant differences in the number of social welfare grants received by commonage using households amongst the study towns. The mean number of social welfare grants received by these households ranged from 1.5 (± 1.3) in Bathurst to 1.7 (± 1.5) in Grahamstown (Table 3.4). Bathurst non-using households relied significantly less on social welfare grants than those from Fort Beaufort. The mean number of social welfare grants received by these households ranged from 0.9 (± 0.9) in Bathurst to 1.4 (± 1.2) in Fort Beaufort (Table 3.4). When considered in conjunction with the number of people in the household, user households in Bathurst and Grahamstown receive a significantly higher cash income per capita via social grants than do non-user households.

3.3.3.4 The number of years households have lived in town

There was a significant association between the use of commonage and the number of years households had been living in town amongst all study towns: Bathurst (χ^2 = 9.0, df = 3, $p<0.05$), Fort Beaufort (χ^2 = 10.1, df = 3, $p<0.05$), and Grahamstown (χ^2 = 21.1, df = 3, $p<0.001$). Amongst Bathurst households, 31 % of all user households had resided in town for less than 10 years, as opposed to half (50 %) of non-users who had done so (Figure 3.5 a). In Fort Beaufort, there was an even spread in categories up to 30 years (23% - 25 %) for user households. Fort Beaufort non-user households also had a relatively balanced spread ranging from 13 % to 22 % across categories (Figure 3.5 b). In Grahamstown 35 % of user households had lived in town for 11 to 20 years, and 22 % for less than 10 years. Conversely, only nine percent of non-using households had lived in town for less than 10 years with an even spread in all the other categories, ranging from 16 % to 20 % (Figure 3.5 c).

The number of years households had lived in town did not differ significantly among commonage using households. In Bathurst, households who used commonage averaged 4.1 (± 1.8) years of residence, compared to those from Grahamstown who averaged 25.6 (± 17.6) years (Table 3.4). Non-using households in Bathurst (3.4 ± 1.7) had resided in town for significantly less years than non-user households in both Fort Beaufort (5.2 ± 1.9) and Grahamstown (36.5 ± 19.1). In Grahamstown and Fort Beaufort, households who used commonage had resided in town for significantly less years than non-using households (Table 3.4). This was reversed in Bathurst, where non-using households had resided in town for significantly less years than commonage using households.

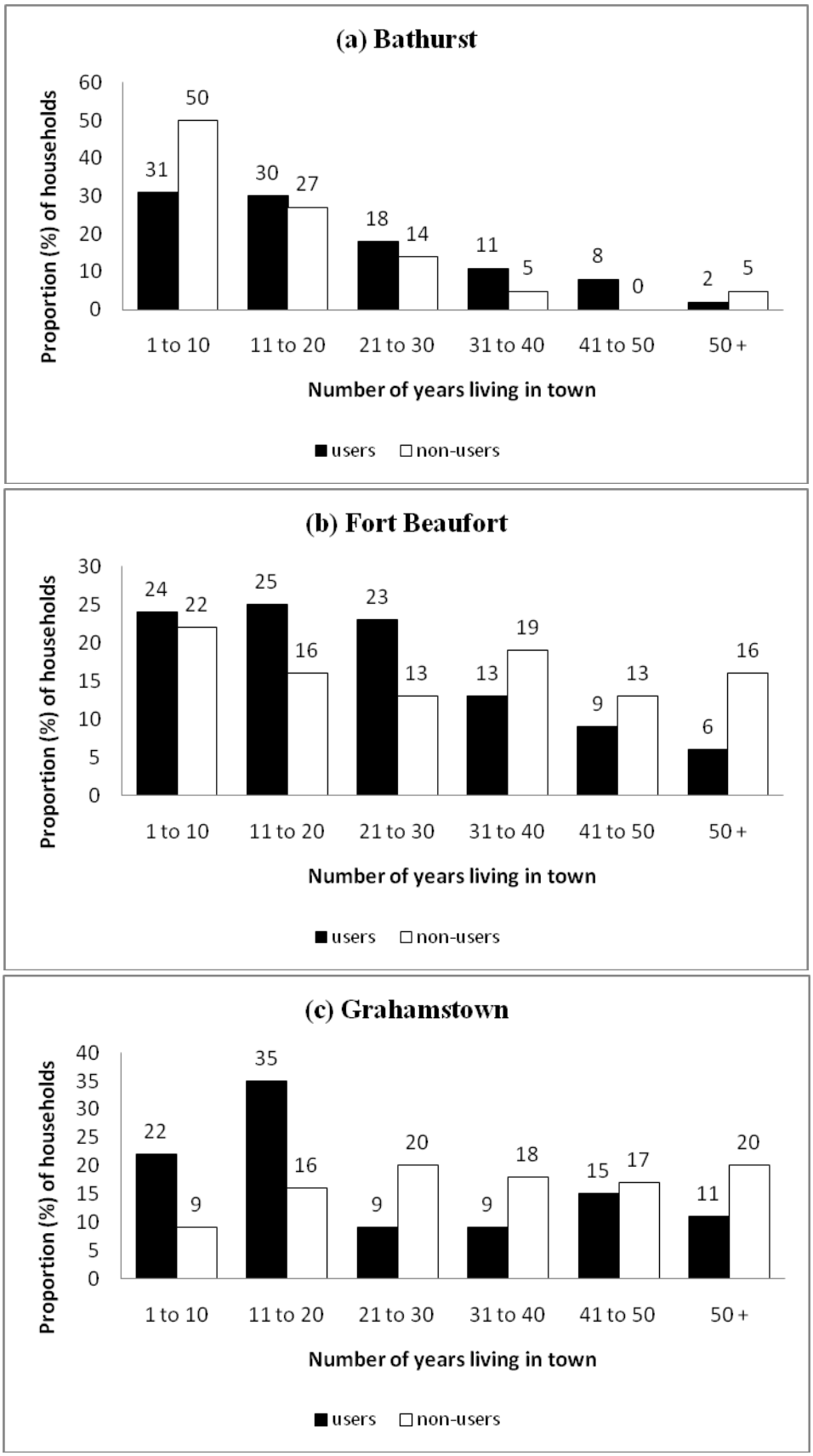

Figure 3.5 Number of years households have lived in the study towns

3.4 Discussion

3.4.1 Resource use among different households and commonages

Most authors who refer to commonage users normally refer to its formal use, in the form of livestock owners who make up an established local institution (i.e., a livestock owners association) (Lebert 2004; Atkinson & Buscher 2006; Davenport & Gambiza 2009). With regards to formal commonage use (i.e., livestock), if one looks at Grahamstown for example, only 0.33 % of the township uses the commonage (Davenport & Gambiza 2009), not dissimilar from Phomolong in the Ventersburg district of the Free State, where 0.31 % of the township uses the commonage (DLA 2007b). However, there are numerous urban households (informal users) who rely on commonage to supplement their livelihood, i.e. those who harvest natural resources. When combined with informal users, the use of commonage is substantially higher; the research findings have shown that between 27 % and 70 % of township households use commonage depending on the size of the town.

Attempts to calculate the proportion of township households who rely on municipal commonage are thus far unknown, thus comparisons to urban and peri-urban agriculture (UPA) will be made. This is tolerable because the purpose of commonage is to alleviate poverty, which includes its use for UPA, i.e., agricultural activities practiced on intra-urban and peri-urban land (Rogerson 2003; Rugege 2004; Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b; Thornton 2007; Thornton 2008b). In Kenya and Tanzania, where UPA has always been prevalent, estimates of the proportion of the populations engaged in such activities range up to two-thirds (Smit & Nasr 1992). Approximately 20 % of Nakuru, and 30 % of Nairobi engage in agriculture in the immediate urban or peri-urban area (Mougeot 2005). In Dar es Salaam approximately 15 - 20 % of households produce crops (Mougeot 2005). In Durban (Kwa-Zulu Natal), 25 % of households on the urban fringe farm (Rakodi 1999). These figures suggest that between a one-fifth and two-thirds of urban households rely on UPA. These figures seem to be at the lower end of the scale in comparison to the research findings; however, most of the above mentioned figures are for large cities and not small towns which this research focused on.

Research findings showed that the smaller the town was, the greater was the proportion who used commonage, i.e., the more urban a town is, it seems the less households are interested in agricultural activities. In terms of commonage use, across all of the study towns, a large

proportion of users had been using their commonages for less than 10 years. Similarly Mougeot (1999) indicates that urban farmers tend to come from smaller towns and most are not recent arrivals.

To make sense of the size/usage trend, one needs to look at the logistics of a township and the surrounding commonage. In a small town such as Bathurst, a resident does not need to walk far to access the commonage, thus making it easy to utilise. However, in a larger town such as Grahamstown, if a household is situated near the centre, the distance to access the commonage is far greater. Also, larger towns have a greater number and diversity of opportunities, services and chances to acquire skills. Therefore residents of large towns are more likely to be wealthy (which is what the wealth proxies have shown in this study; see section 3.4.2.2). Wealthy residents are also more likely to engage in the formal sector and cash economy, and less likely to engage in the informal sector and take part in subsistence activities.

In general, findings showed that the smaller the town was the less mean number of years households had used their respective commonage. As a consequence, a small town would be expected to have a high proportion of use with many having used the commonage for a relatively short while and vice versa for a large town. Interestingly, although most users in each town had lived in town for longer than 10 years, a large proportion of user households had only been using the commonage within the last 10 years. This suggests that commonage use has increased for these towns, not only from new urban residents but from old ones as well. Moreover, due to urbanisation (see section 1.1.4) the use of municipal commonage is expected to increase for all towns in South Africa (Atkinson 2005; Atkinson & Buscher 2006; Atkinson 2007b). With an increase in pressure on commonage, there is a need for solid governance structures to be put in place, and a need for comprehensive management plans to be formulated.

Out of the five discriminate natural resources, far more households used fuelwood than those who owned livestock or used medicinal plants. Fuelwood is important because it provides many people, especially the poor, with a primary source of energy (Campbell *et al.* 2003; Dovie *et al.* 2004; Madubansi & Shackleton 2007). In 1990, approximately two thirds (59%) of South African households relied on fuelwood collected from natural woodlands in South Africa (Gandar 1991; Dovie *et al.* 2004). Research findings from this study have shown that approximately 17 - 64 % of all township households and between 65 and 91 % of

commonage using households utilised fuelwood. This raises concerns about the supply of fuelwood on commonage and the sustainability of such a high demand, although I have not considered quantities extracted per household.

Government policy has thus far been focused on supplying households with electricity (DME 2003; Madubansi & Shackleton 2006). However, the high cost of electricity has caused limited uptake, especially to poorer households, and has not affected the rate of fuelwood harvesting (Madubansi & Shackleton 2007; Shackleton *et al.*, 2007a). Therefore, it is important for municipalities to take cognisance of this, ensuring that there is a sufficient mix of other energy options available, of which fuelwood is a key one (Shackleton *et al.*, 2007a). Planning at the municipal level should incorporate an integrated approach considering a full mix of energy forms, rather than solely on electricity (Shackleton *et al.*, 2007a). Additionally, in planning urban infrastructure, wooded areas need to be avoided and where possible satisfactory additional stocks need to be provided, e.g. managed woodlots (Shackleton *et al.*, 2007a; Shackleton *et al.*, 2007b). Shackleton *et al.* (2007a), highlight that there is currently no such strategy in South Africa, or other countries in the region. Hence, it is suggested that municipalities should investigate planting woodlots on their respective commonages, so as to decrease the pressure on the standing stock of fuelwood species on commonage.

Cocks & Dold (2006) have shown that urbanised Xhosa people (amaXhosa) in the Eastern Cape province of South Africa continue to use wild plants for cultural purposes on a large scale. Research findings reiterate this, with commonage medicinal plant harvesting ranging from 39 % to 62 % of user households (across the study towns). The upper end of these figures show a relationship with Mander's (1997) estimates of 27 million medicinal plant users in South Africa; 67 % of the population at that time (StatsSA 1998).

The medicinal plant trade industry has the potential to be unsustainable, due to the informal and unregulated nature of harvesting activities together with the high degree of commercialisation and increasing numbers of gatherers (Cunningham 1997; Dold & Cocks 2002; Sims-Castley 2002; Botha *et al.* 2004; Cocks & Dold 2006). In many instances medicinal plants are harvested regularly with little or no management, especially in communal areas and state-owned land (i.e., commonage) (Sims-Castley 2002). Furthermore, very few plants are cultivated, with the majority of material being harvested from the wild. If medicinal plant harvesting should continue in its current fashion, without supplementation from alternative sources, such as through cultivation (which should not be considered light

heartedly (Wiersum *et al.* 2006)), numerous plant species will be seriously threatened (Sims-Castley 2002). This has severe livelihood implications for traditional healers who rely on commonage for harvesting and selling medicinal plants for their livelihoods.

3.4.2 Characteristics of user and non-user households

In terms of household characteristics, commonage using households differed across the study towns in education, meat consumption and employment. Non-using households, across the study towns, differed in all categories. In all instances, user households were less than non-users, indicating that user households were significantly poorer than non-user households.

For the most part, Bathurst commonage using households were generally poorer households who had a greater reliance on government social grants than those from non-using households. These households were also living in more cramped conditions with larger families than non-using households. Using household heads also had lower education levels than non-using households. However, the only discriminator between user and non-user households was that of the number of years households had resided in town. User households had lived in the township for longer than non-using households, indicating that in this instance, households who move to a small town such as Bathurst don't necessarily rely on commonage as much as those households who have lived in town for a while.

The rationale for the Bathurst scenario could be due to the fact that it is such a small town. A small community is more socially integrated than those from large towns. Thus new residents need to get to know the locals before feeling comfortable enough to use the commonage. Also, 'gatekeeping' practices of the more established users, who control access to resources, could potentially exclude newcomers (Reuther & Dewar 2006). Additionally, the Bathurst commonage is better regulated than the other two study towns; there is a commonage ranger and a permit system in place (F. Fouche *pers comm.* 2008). Moreover, crime could be an inhibiting factor with regards to using the commonage; in more than one instance respondents reported that there were poachers on the Bathurst commonage and that if found they would be robbed.

Grahamstown commonage using households were generally poorer households who relied on social grants more than non-using household. Using household heads also had lower levels of education than non-using household heads, which was also a discriminator between the two types of households. Conversely to Bathurst, user households had lived in town for shorter

than non-using households, which was also a discriminator between user and non-user households. The rationale for this could be the opposite for that of small towns: a large town's commonage is not regulated as well or as easily, thus new residents can use the commonage and not get noticed.

The only variable which separated Fort Beaufort commonage using households from non-using households was that they had lived in town for a shorter time period. This discriminated between user and non-user households. However, the number of people employed per household, despite not being significantly different, was also a significant discriminator between user and non-user households. The reason behind such indifference between the two types of households could be because all Fort Beaufort households were generally poor. Therefore, due to all households being equally poor, it would be expected that there would be fewer differences between using and non-using households.

The research findings have shown that each study town was unique. Therefore in terms of commonage governance, it is important for municipalities to acknowledge this when considering policy and management interventions to support urban livelihoods and promote sustainable resource use on commonage. This means that they (municipalities) should not rely solely on broader national policies, but rather on local level initiatives that have been investigated thoroughly and adapted to local conditions. Despite this, certain generalisations can be made from the research findings, in terms of the differences between commonage user and non-user households, as well as the size of towns.

3.4.2.1 General differences between user and non-user households

Generally commonage using households had lived in town significantly shorter than non-using households. Also, user households were less educated and relied on social grants more than non-using households. By the same token, Davenport & Gambiza (2009) found that in Grahamstown, commonage users' were associated with low levels of education, and had a high dependence on social grants. Conventionally, areas which are highly dependent on state welfare grants are associated with high poverty, due to lack of formal employment opportunities (Andrew *et al*. 2003b; Shackleton *et al*. 2000; Shackleton *et al*. 2008).

Pauw (2005) found in Tanzania, that the education of the household head is a factor which accounts highly for the incidence of household poverty. From this, together with the wealth proxies used in this study, it may be deduced that user households were in fact poorer than

their non-using counterparts. This is not surprising, because households which use commonage are in effect those who depend more on natural capital, which is a known attribute of poor people; they depend significantly more on natural capital than do other parts of the population (USAID 2006). Additionally, it has been shown that urban households who farm or take part in land-based strategies are by and large low income men and women who undertake such activities for self-consumption (subsistence) (Rogerson 1993; Drakakis-Smith et al. 1995; Mougeot 1999). Moreover, many do so on plots that they do not own (similar to commonage tenure) with little support and claim that they would starve without the products of their agriculture (Stren 1991; Drakakis-Smith *et al*. 1995; Mougeot 1999).

3.4.2.2 General differences between smaller and larger towns

As has already been shown, the size of a town has an effect on its proportion of commonage use, as well as the number of years of use. However, the size of a town also affects household characteristics. The difference in these characteristics equate to all households in large towns being wealthier than those from small towns.

Amongst user households, Fort Beaufort household heads were more educated than those from Bathurst. Grahamstown user households ate meat more often than those from Bathurst, and had more employed individuals per household than those from Fort Beaufort. As a result, commonage using households in large towns generally had higher educated household heads, ate meat more often, and had more employed individuals per household than those who come from smaller towns. Thus, according to the wealth proxies, it may be deduced that commonage using households in large towns were wealthier than those from small towns.

In terms of non-using households, those from large towns ate meat more often, had more bedrooms per capita, and had more employed individuals per household than those from small towns. Thus, it may be deduced that large towns also had wealthier non-using households than those from small towns. These findings help explain the size/usage trend mentioned earlier (see section 3.4.1). Wealthier households are expected to have a greater engagement in the formal economy and a lower reliance on subsistence activities, which helps explain why larger towns had lower proportions of commonage use than those from small towns.

4 Chapter Four

The value of municipal commonage to urban households in the Eastern Cape, South Africa: livelihood contributions and strategies

4.1 Introduction

This chapter deals with the second phase of this study. The second phase is divided into four parts which each answer a key question. These include the contribution commonage makes to total livelihoods; whether or not commonage is being used productively or not; what proportion of user households were living in poverty; and what the various livelihood strategies are amongst commonage user households. Commonage contributions to total livelihoods ranged between 14 - 20 %, with social grants being the primary contributor to total livelihoods. If the contributions from commonage were excluded, over 10 % of households in each study town would drop to living below the poverty line. Additionally, commonage was being used productively, with the productivity at each study town being worth over R1 000 per hectare and over R4.7 million per commonage. Finally, a typology of subsistence/survivalist commonage users is presented, with four types being identified.

4.2 Methods

4.2.1 Data collection

This part of the study (phase two) was undertaken from October to December 2007. It involved an in-depth interview process of 30 structured interviews per town (see Appendix 6). To test the questionnaire schedule, a pilot of five interviews was completed in Grahamstown. Again, all interviews were conducted in the preferred language of the respondent, namely IsiXhosa. The interviews were in accordance with Rhodes University's Ethical Guidelines and Ethical Standards Policy (see Appendix 2).

Thirty households per study town (90 in total) were selected at random from the list of users created from phase one (Chapter 3). If household members refused to be interviewed or if no one was home, the next house on the random list was visited. A house would be visited no less than three times, after which if no one was available for interviewing the house was omitted. Respondents included everyone in the household who was present at the time. The aim of the in-depth survey was to collect information on the socio-economic profile

(household data) of the household as well as the direct-use value of livestock, natural resources, and gardens and fields. Monetary values were calculated in South African Rand which at the time of data collection had an exchange rate of US $1 = R7.96.

In addition to phase one's household attributes, the second phase gathered information on each household's socio-economic profile. This provided data for off-commonage household income such as employment, remittances, and social grants and natural resources. Double counting was not an issue; because respondents were questioned on where they harvested their resources, either from commonage (on-commonage), or from alternate land (off-commonage). The second phase livelihoods' survey questionnaire schedule covered the following (see Appendix 6):

- Household data
    - Employment of household members (job type and income);
    - Number of government social welfare grants;
    - Number and amount of remittances received by household;
    - Size of gardens
- Household income (cash and direct-use values) from;
    - Formal income (wages from employment, social grants)
    - Informal income (remittances)
    - Crops (arable fields and gardens)
    - Livestock (cattle and goats)
    - Wood (fuelwood, poles, and tools)
    - Wild foods (herbs/spinach and fruits)
    - Medicinal plants
    - Earth (clay and sand)
    - Sweepers (grass and twig)

Some pitfalls of this part of the study included the fact that although every commonage user household had an equal chance of being identified, livelihoods of elite (outliers) commonage users may not have been captured. This is because the study took a random approach and did not single out large commonage users. Thus, the study reports on the average user

households' commonage income and not that of the so called 'proto-capitalist' (see Table 1.1) commonage farmers.

4.2.2 Data analysis

Since this research is dealing with the contribution of municipal commonage to local people's lives, all data gathered had to differentiate between on-commonage and off-commonage income streams. On-commonage income streams included livestock and primary natural resources, while off-commonage income streams included formal and informal income as well as household gardens and off-commonage resources.

Commonage using households used varying proportions of an array of resources. Thus, when calculating the mean total livelihood from all the "income" streams, I had to give the mean Rand value out of the total population for each resource at each study town. This is because these figures, when added up gave the mean total livelihood for each household. However, I also felt that it was necessary to show the mean Rand value for users who harvested/used a specific resource only. Thus, two figures are given for each resource. The first is the mean value received from a resource across all commonage user households, and the second is the value received by user households from that resource only. For example, if five out of 30 households collected resource "x", at the following values: R65, R74, R89, R59, and R67; the mean value received from resource "x" across all user households would be R12 (± R27). However for resource "x" user households only, the value would be R71 (± R11).

4.2.3 Calculating total household income

This component attempted to calculate the extent that municipal commonage contributes to users' total livelihoods, by investigating the various income sources at the household level. Data were collected so that the proportion of the households' total livelihoods derived from municipal commonage could be calculated. To do this, total household income was calculated by adding up the declared cash contribution and direct-use values from commonage resources for each household in the past year. Associated costs were incorporated, so that net values could be calculated. Opportunity costs of labour were not incorporated into calculations: deducing these costs in such environments of low earning skills and negligible labour opportunities can be misleading (Shackleton *et al*. 2002).

Total household income included four categories:

1. Formal and informal cash income (wages, grants, and remittances)

2. Crops (direct-use value of arable fields and gardens around the house)
3. Livestock (direct-use value of cattle and goats)
4. Natural resources (direct-use values of various primary natural resources)

4.2.3.1 Calculating formal and informal cash income

Data on the formal and informal cash income of each household were collected. All household members' income was included for the analysis. For the formal income of the household, respondents were questioned on the households' pooled wages and social grants. Informal income included remittances from migrant labour. Informal income from natural resources was not included here, but recorded under the direct-use values received from the resource in question (see section 4.2.3.2; 4.2.3.3; and 4.2.3.4). The relevant number of household members who had social welfare grants was multiplied by the following values (Manuel 2007):

- R870 (pensions, disability grants and care dependency grants)
- R620 (foster care grant)
- R200 (child support grant)

4.2.3.2 Calculating the direct-use value of gardens

There were no on-commonage gardens or arable fields encountered in any of the study towns; however, off-commonage homestead gardens were encountered in all three study towns. Garden sizes were estimated at all the homesteads included in the survey which had a garden. This involved walking down the length and breadth of the garden, counting the number of one-metre strides taken. Thus, the size of each garden was calculated as the product of its length and breadth. To be consistent all gardens were measured by the same individual. Not many gardens were absolutely rectangular; therefore a certain amount of adjustment had to take place with respect to estimating garden sizes. Once the size of each garden had been calculated, a figure of R1.20 per m^2 per month (= R14.40 per m^2 per year) was taken from Fleming's (2003) research in Khayelitsha, Cape Town. That study calculated the net profit of garden produce: income minus costs (water, fertiliser and seeds). Although this method does not account for different garden crops (products), it does help in acquiring a rough monetary value for gardens.

4.2.3.3 Calculating the direct-use value of livestock goods and services

Details of the livestock (cattle and goat) goods and services used per household were captured following Shackleton *et al*. (2005) and Dovie *et al*. (2006). This included the amount used, frequency of use, associated costs and local unit prices of livestock products (i.e., milk, meat, hides, dung, etc.). There was an emphasis on daily, weekly and monthly use within the context of changing seasons. The monetary values of products were computed from the mean price quoted from each interviewee. The annual direct use value was determined as the mean unit price for the good or service (i.e., farm gate prices) multiplied by the mean rate of production or consumption for that good or service. This was then summed across all livestock goods and services to provide a net total value for livestock. The value of sheep, horses, donkeys, chickens and pigs were not incorporated due to low numbers.

The annual net value (benefits) for the goods and services rendered by goats and cattle for each livestock owner was calculated using the following equation (Davenport & Gambiza 2009):

$$V_{an} = (C_{vgc} + B_a) - (L_{vgc} + C_a),$$

where V_{an} is the annual net value; $(C_{vgc} + B_a)$ is the annual gross value of production which consists of the current value of goats and cattle (C_{vgc}) and the annual benefits value (B_a); $(L_{vgc} + C_a)$ is the annual cost of production input which consists of last year's mean value of goats and cattle (L_{vgc}) and the annual value of costs and losses (C_a). To calculate the value of herd growth, the previous year's value of livestock (L_{vgc}) had to be subtracted from the present value of the livestock (C_{vgc}).

By adding all values of each farmer's current goats and cattle (C_{vgc}) and each farmer's annual benefits (B_a), an annual gross value for each farmer was calculated, from which a mean annual gross benefit ($C_{vgc} + B_a$) could be calculated. For cattle, bulls were valued at R5 400, cows at R2 800, oxen at R3 450 and calves at R900. For goats, billies were valued at R800, does at R520, wethers at R700 and kids at R100. These figures were obtained from Davenport & Gambiza (2009), who calculated the mean price farmers were getting for their animals in Grahamstown. The annual benefits were calculated by adding each farmer's individual cash sales from livestock, skins, meat and milk, as well as adding all values of the benefits they received from their animals in terms of milk, meat and dung. Milk was valued at R4 a litre which was the mean selling price and dung was valued at $R0.23.kg^{-1}$ which was

obtained from Dovie *et al*. (2006). In terms of mass, it was assumed that a bakkie (colloquial for pick-up truck) load of dung weighed 300 kg; a wheel barrow 40 kg and a 5ℓ bucket 2.2 kg (Dovie *et al*. 2006).

The mean cost of production (L*vgc* + C*a*) was calculated in a similar fashion to the mean annual gross benefit (C*vgc* + B*a*). For simplicity, inflation was ignored when calculating the value of the previous season's livestock (L*vgc*). The annual costs (C*a*) were calculated for each farmer by adding the money they spent on hired help, veterinary medicines, commonage fees, feed, camp erection and maintenance, treatment of skins as well as the value of stock that they lost through stock theft and deaths.

4.2.3.4 Calculating the direct-use value of natural resources

The values of natural resources which are consumed by local populations are often ignored when accounting for people's livelihoods (Andrew *et al.* 2003a). Therefore, I included natural resources when calculating the total livelihoods of municipal commonage users. The analysis included calculating the commonage users' natural resource 'direct-use values'. Direct uses of ecosystems normally consist of hunting, harvesting and gathering of various goods (Aylward & Barbier 1992).

To limit the time taken per interview, natural resources were divided into primary (PNR) and secondary natural resources (SNR) (Table 4.1). These were separated on the basis of their potential contribution. PNR were considered resources which could potentially contribute appreciably to local livelihoods within the context of the study towns. SNRs were those that were used, but based on my prior knowledge, were considered to contribute a negligible amount to local livelihoods within the local context. Direct-use values were calculated for PNR, whereas for SNR only usage statistics were collected.

According to Cavendish (2001), when respondents are asked to provide information on the prices of goods, it is referred to as the 'own reported values' approach. Admittedly, there is a risk in the reliability of the figures. However in Cavendish's (2001) benchmark valuation study in southern Zimbabwe, it was found that there was 'remarkable congruence' in estimates given, suggesting that figures were reliable. Therefore the annual direct-use values of PNRs were determined from the data as the product of quantity used per household per year and the quoted (reported) local trading prices. If no price was quoted or the respondent in question did not sell the resource in question, then the mean value from all quoted or

selling prices was used (Table 4.2). For the few resources without any local trade, and hence no local price, values were taken from the most up to date relevant literature: inflation was not taken into account. Each type of resource's direct-use value was calculated in this manner, after which all the resource values were summed for each respondent household.

Table 4.1 Primary (PNR) and secondary natural resources (SNR)

Resource type	Category	Sub-category
Primary	Wood	Fuelwood
		Poles: housing and fencing
		Tools, utensils and carvings
	Wild food	Wild herbs/spinach (imifino)
		Wild fruits (edible)
	Medicinal plants	-
	Earth	Clay
		Sand
	Sweepers	Grass
		Twig
Secondary	Mushrooms	-
	Honey	-
	Insects (edible)	-
	Eggs (wild birds)	-
	Grass	Thatch
	Leaves and branches	Ceremonial
		Livestock
	Reeds	Construction
		Weaving
	Plant resins	-
	Seeds	Rattles
	Rope	-

Associated costs and seasonality were incorporated in calculating net direct-use values of natural resources harvested. Each respondent household was asked about any costs incurred while collecting a resource, and these were subtracted from the gross direct-use value of the resource. For seasonality, the usages of resources were calculated either in terms of winter (March to August) or summer (September to February) harvesting patterns.

For fuelwood, the average selling price across the study towns was $R0.61.kg^{-1}$($\pm$ $R0.17.kg^{-1}$) (Table 4.2). In terms of mass of fuelwood in local measuring units, it was assumed that a

wheel barrow weighed 39.2 kg; an inyanda (head load) 31.1 kg; a 'bakkie' (one ton truck) load 382.5 kg; a donkey cart load 101 kg; and a tractor trailer 1 147.5 kg (3 x 382.5 kg (bakkie load)). These are mean figures obtained from an array of literature (Gandar 1983; Spears 1987; Bembridge & Tarlton 1990; Griffin *et al*. 1992; Shackleton *et al*. 1999; Twine *et al*. 2003; Dovie *et al*. 2004; Shackleton *et al*. 2006).

In terms of medicinal plants, one kilogram was valued at R23 (Table 4.2). The local measuring unit of medicinal plants was quoted in packets. With regard to the mass of medicinal plants, it was assumed that one packet weighed 216 grams (the average mass of medicinal plant material dispensed per person at each visit to a traditional healer; Dold & Cocks 2002).

Table 4.2 Mean prices (R) of natural resources used in the analysis

Category	Sub-category	Price (Rand)	Unit
Wood	Fuelwood	0.6 ± 0.2	Kg
	Housing poles	0.6 ± 0.2	Kg
	Fencing Poles	7.1 ± 3.8	Pole
	Axe handle	22.3 ± 17.4	Handle
	Hoe handle	11.6 ± 6.4	Handle
	Walking stick	22.6 ± 20.2	Stick
Wild food	Wild herbs/spinach	5.8 ± 4.9	Packet
	Wild fruits (edible)	1.7 ± 0.9	ℓ
Medicinal plants	-	23*	Kg
Earth	Clay & sand	1.8 ± 1.1	ℓ
Sweepers	Short grass	4.7 ± 0.6	Sweeper
	Long grass	15**	Sweeper
	Twig	5.9 ± 3.1	Sweeper

* Mean figure from Cocks *et al.* (2004) and Cocks & Bangay (2006).
**Only one user

4.2.3.5 Analysis of household income streams

Direct-use values from the various natural resources harvested as well as cash income from formal and informal sources had to be tested across the study towns to test for site variability. These analyses were executed by using a one-way Anova. Total livelihoods, as well as its two sub-components, namely on and off-commonage income totals were also tested for site variability. Again this was done by performing a one-way Anova for each.

The proportional contributions each income stream made were tested. Two types of analyses were carried out for this. Firstly a multivariate exploratory technique in the form of a joining cluster analysis and secondly a one-way Anova (StatSoft, Inc. 2007). Livelihood income stream proportions were grouped to reduce complexity for these analyses. Thus, on-commonage resources were grouped into the following categories: wild food, earth, sweepers, and wood. The remaining on-commonage resources which were not grouped were livestock and medicinal plants. Off-commonage income streams were grouped into social grants, employment, remittances, gardens, and (natural) resources. For the cluster analysis, income streams were considered separate if the linkage distance between groups was greater than 100.

In all cases of the one way Anova, if significant differences were found, then post hoc tests were performed (Scheffe test). Where normality and homogeneity of variances assumptions were not met, and transformed data did not meet the assumptions, then the non-parametric Kruskal-Wallis Anova test was performed. In this case assumptions were normality and homogeneity of variances. In the case of non-parametric analyses, there are no post hoc comparisons, therefore Mann-Whitney U tests were performed for this between each variable.

4.2.4 Calculating commonage productivity

Commonage productivity was classified as the entire commonage annual returns (in Rand) per hectare. This was calculated by dividing the total commonage income by the relevant size of each study town's commonage (Table 3.1). Total commonage income was calculated as the product of the total number of user households in each study town (see Table 3.1) and the relevant mean (on-mc) commonage income per household (see Table 4.7). The number of user households was calculated in phase one of this study (Table 3.1).

4.2.5 Methods used in developing a typology of livelihood strategies

A typology is a classification and conceptual design that groups the responding households with similar characteristics together according to their practices and strategies (Patton 2002). To achieve this there was a need to classify commonage users into different livelihood strategy categories. This was done by using a clustered dendrogram of all the households in the study population (PC Ordination version 4.25, 1999). Input data consisted of eleven variables from all 90 households across the study towns. These variables were the primary

contributors to households' livelihoods and were broken up into proportions so that if added up for each household the result would be 100 %. Once clusters were identified, each variable was tested for differences among the clusters, by using a one-way Anova.

The variables used were as follows:

1. Livestock
2. Wood
3. Wild Food
4. Medicinal plants
5. Earth
6. Sweepers
7. Employment
8. Social grants
9. Remittances
10. Gardens
11. Off-commonage resources

4.3 Results

4.3.1 Number of resources used by commonage using households

At both Bathurst and Fort Beaufort, most (± 60 %) households used between two and four resources, although some used as many as eight or nine. In contrast, households in Grahamstown used slightly more resources, with 64 % using between three and six resources (Figure 4.1). However, with regard to the mean number of resources used, across the sites, the majority (65 %) of households used between two and five resources (Figure 4.1).

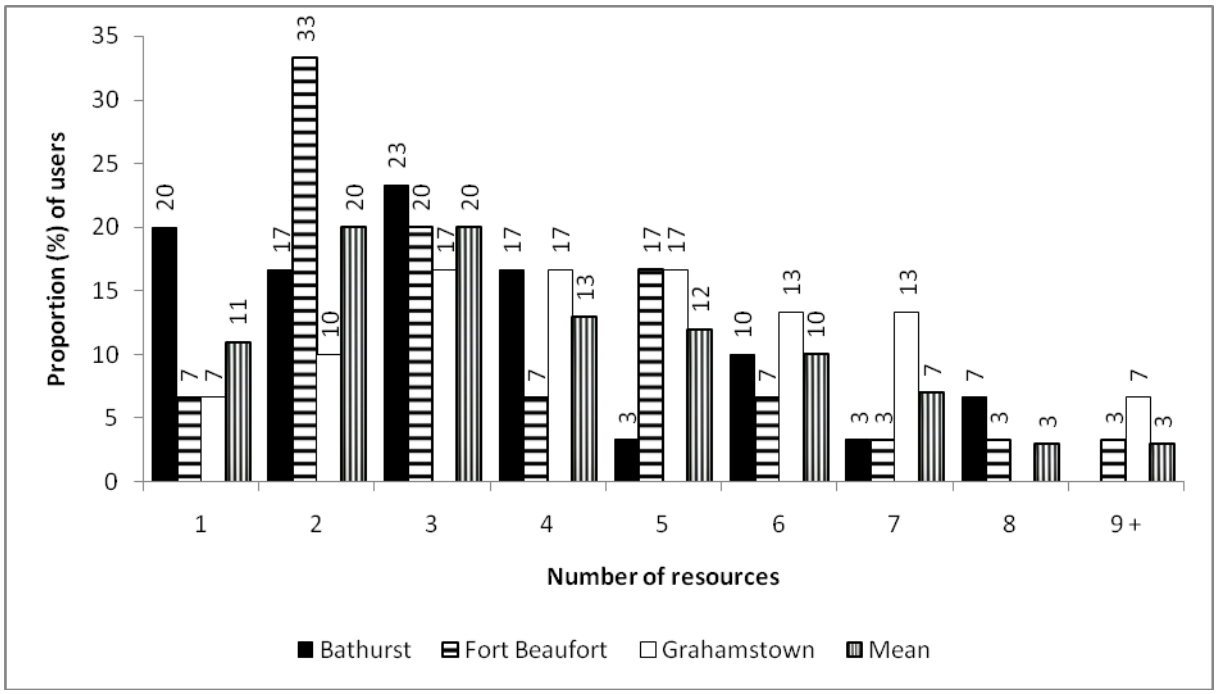

Figure 4.1 Number of resources utilised per household, in each study town (n = 30) and across towns (n = 90)

4.3.2 Off-commonage cash income and direct-use values

4.3.2.1 Formal and informal cash income

Twenty three percent of households received cash via remittances in both Fort Beaufort and Grahamstown, compared to 27 % of households in Bathurst. Fifty seven percent of households in Bathurst received cash income from employment, compared to 60 % and 70 % of Fort Beaufort and Grahamstown households respectively. Social grant dependence was high across the study towns, with 77 % of Bathurst and Grahamstown and 87 % of Fort Beaufort households receiving cash from pensions, child grants and/or disability grants. Across all three study towns, households relied proportionately more on social grants (80 % ± 6 %) than employment (62 % ± 7 %) or remittances (24 % ± 2 %).

Across all households amongst the study towns, there were no significant differences in the cash contributions from social grants ($p>0.05$; $H = 0.8$), employment ($p>0.05$; $H = 3.2$), or remittances ($p>0.05$; $H = 4.7$). Mean annual social grant contributions to all households ranged from R8 288 (± R9 142) in Fort Beaufort to R11 044 (± R9 805) in Grahamstown. Mean annual cash income from employment ranged from R4 955 (± R7 102) in Fort Beaufort to R11 711 (± R14 719) in Grahamstown. Mean annual cash contributions from remittances ranged from R78 (± R340) in Grahamstown to R580 (± R 1 142) in Fort Beaufort. Amongst

study towns, total cash income did not differ significantly ($p>0.05$; $H=0.4$) (see Appendix 7 for a summary of social grants). The mean total formal and informal cash income ranged from R13 823 (± R12 709) in Fort Beaufort to R22 833 (± R15 332) in Grahamstown (see Table 4.3).

Table 4.3 Commonage using households' mean formal and informal annual cash income (R) (Figures are quoted with standard deviations)

	Bathurst	Fort Beaufort	Grahamstown	Mean
Social grants	9 416 ± 8 778	8 288 ± 9 142	11 044 ± 9 805	9 583 ± 9 217
Employment	8 225 ± 10 242	4 955 ± 7 102	11 711 ± 14 719	8 297 ± 11 354
Remittances	457 ± 978	580 ± 1 142	78 ± 340	372 ± 905
Total cash income	18 097 ± 9076	13 823 ± 12 709	22 833 ± 15 332	18 252 ± 13 029

4.3.2.2 Home garden direct-use values

There were no significant differences between the towns in mean annual direct-use values received from gardens amongst all users ($p>0.05$; $H = 7.9$). Amongst all user households, the mean annual direct-use value received from gardens ranged from R76 (± R269) in Fort Beaufort to R267 (± R383) in Bathurst (Table 4.4). There were no significant differences ($p>0.05$; $H = 4.8$) among study towns in terms of values received from gardens. Of the gardening households, mean annual values received ranged from R378 (± R531) in Fort Beaufort to R535 (± R388) in Bathurst (Table 4.5). The proportion of households who utilised a vegetable garden ranged from 20 % in Fort Beaufort to 50 % in Bathurst (Table 4.6). The mean garden size amongst gardening households ranged from 26 m^2 in Grahamstown (26 m^2 ± 46 m^2) and Fort Beaufort (26 m^2 ± 37 m^2) to 37 m^2 (± 27 m^2) in Bathurst.

Table 4.4 Summary of annual direct-use values (in Rand) for all municipal commonage users for each resource

	Bathurst	Fort Beaufort	Grahamstown	Mean
Home gardens	267 ± 383	76 ± 269	177 ± 479	173 ± 390
Off-commonage resources	170 ± 367	104 ± 258	71 ± 264	115 ± 300
Livestock	1 836 ± 7 341	202 ± 771	855 ± 1871	964 ± 4399
Fuelwood	1 641 ± 2 781	2 556 ± 3 398	1 301 ± 1 131	1 833 ± 2643
Fencing poles	49 ± 110	64 ± 211	36 ± 113	50 ± 151
Wood tools	16 ± 49	43 ± 90	12 ± 48	24 ± 66
Wild herbs	20 ± 71	105 ± 233	81 ± 177	68 ± 176
Wild fruit	196 ± 530[a]	75 ± 394[a]	330 ± 513[b]	200 ± 489
Medicinal plants	28 ± 93	332 ± 1416	69 ± 196	143 ± 829
Clay	8 ± 33	0.3 ± 1.6	48 ± 246	19 ± 143
Sweepers	34 ± 108	1 ± 7	2 ± 10	12 ± 64

Unlike superscripts reflect significant differences among study towns (rows) at $p<0.05$ or higher; where superscripts do not occur, study towns do not differ significantly.

Table 4.5 Summary of annual direct-use values (in Rand) for users only of each resource

	Bathurst	Fort Beaufort	Grahamstown	Mean
Home gardens	535 ± 388	378 ± 531	379 ± 655	445 ± 523
Off-commonage resources	509 ± 492	519 ± 355	533 ± 586	517 ± 450
Livestock	4 590 ± 11327	1 512 ± 1763	2 848 ± 2510	3 479 ± 7919
Fuelwood	1 790 ± 2724	2 950 ± 3491	1 654 ± 1012	2 142 ± 2740
Fencing poles	163 ± 151	241 ± 368	121 ± 186	173 ± 242
Wood tools	70 ± 84	129 ± 118	86 ± 118	101 ± 106
Wild herbs	257 ± 210	298 ± 308	314 ± 274	293 ± 261
Wild fruit	829 ± 708	381 ± 1132	659 ± 559	783 ± 700
Medicinal plants	166 ± 184	1422 ± 2808	185 ± 308	536 ± 1562
Clay	61 ± 80	9	288 ± 594	155 ± 400
Sweepers	253 ± 195	40	56	185 ± 185

None of the study towns differed significantly at $p<0.05$.

Table 4.6 Summary of resource utilisation by commonage users across the towns

On or off commonage	Resource category	Proportion of households utilising each resource category			
		Bathurst	Fort Beaufort	Grahamstown	Mean
Off	Home gardens	50	20	47	39
	Natural resources	33	20	13	38
On	Livestock	40	13	30	28
	Fuelwood	90	87	80	86
	Housing poles	0	0	20	7
	Fencing poles	30	27	30	29
	Wood tools etc	23	33	13	23
	Wild herbs	27	37	37	33
	Wild fruit	33	27	50	37
	Medicinal plants	17	23	40	27
	Clay	13	3	17	11
	Sand	0	20	7	9
	Sweepers	13	3	3	7

4.3.2.3 Off-commonage natural resource direct-use values

The mean annual off-commonage resource direct-use values for all users did not differ significantly amongst study towns ($p>0.05$; $H = 4.8$). These values ranged from R71 (± R264) in Grahamstown to R170 (± R367) in Bathurst (Table 4.4). There were no significant differences in the mean annual direct-use values received from off-commonage resources ($p>0.05$; $F = 0.2$). These values ranged from R509 (± R492) out of 33 % of users in Bathurst to R533 (± R586) out of 13 % of users in Grahamstown (Table 4.5; 4.6). In Bathurst, 23 % of off-commonage direct-use values came from livestock, 29 % came from wild herbs and 48 % came from wild fruit. In Fort Beaufort 91 % of off-commonage direct-use values came from wild fruit, while in Grahamstown 32 % came from fuelwood and 48 % came from wild herbs (Figure 4.2).

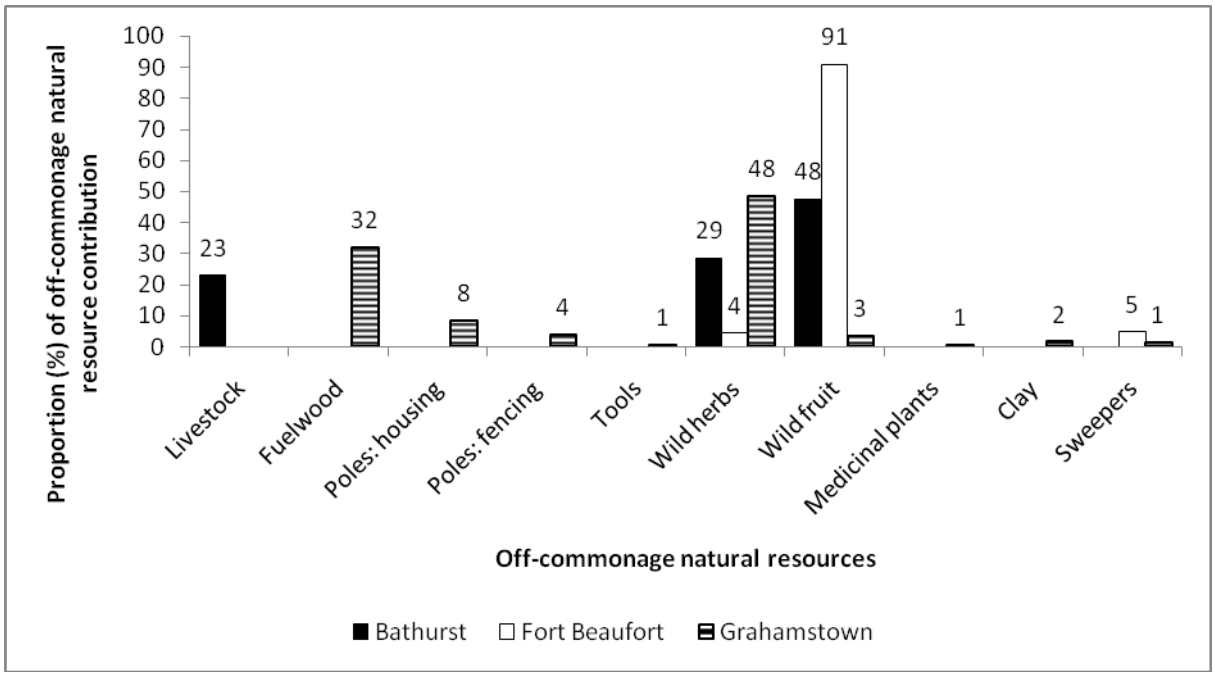

Figure 4.2 Proportional (%) annual contributions from off-commonage resources across the study towns (Values are rounded off to the nearest whole number)

4.3.3 On-commonage direct-use values

4.3.3.1 Livestock direct-use values

There were no significant differences ($p>0.05$; $H = 1.1$) among study towns in terms of mean annual direct-use values received from livestock across livestock owners only. About 40 % of Bathurst user households owned livestock, compared to 13 % in Fort Beaufort (Table 4.6; see Appendix 8 for a summary of total livestock ownership). The mean annual direct-use values received from livestock, ranged from R1 512 (± R1 763) in Fort Beaufort to R4 590 (± R11 327) in Bathurst (Table 4.5). When looking at the mean direct-use values received from livestock across all users, there were no significant differences among study towns ($p>0.05$; $H = 5.0$). These values ranged from R202 (± R771) in Fort Beaufort to R1 836 (± R7 341) in Bathurst (Table 4.4).

4.3.3.2 Fuelwood direct-use values

Fuelwood direct-use values received by households who used commonage, did not differ significantly among the study towns ($p<0.05$; $H = 1.0$). These values ranged from R1 301 (± R1 131) in Grahamstown to R2 556 (± R3 398) in Fort Beaufort (Table 4.4). Between 80 % (Grahamstown) and 90 % (Bathurst) of households across the study towns utilised fuelwood

(Table 4.6; see Appendix 9 for a visual summary of PNR and SNR usage). The mean annual mass of fuelwood harvested by these households ranged from 2 725 kg (± 1 657 kg) in Grahamstown to 4 835 kg (± 5 723 kg) in Fort Beaufort. Bathurst fuelwood harvesters averaged 2 986 kg (± 4 463 kg). Mean annual direct-use values from fuelwood, did not differ significantly among the study towns ($p<0.05$; $H = 1.8$). These values ranged from R1 654 (± R1 012) in Grahamstown to R2 950 (± R3 491) in Fort Beaufort (Table 4.5).

4.3.3.3 Housing poles direct-use values

No one in Bathurst or Fort Beaufort collected poles for housing construction. However 20 % (Table 4.6) of Grahamstown users, harvested housing poles to the value of R206 (± R318) per annum. This figure dropped to R41 (± R156) for the mean direct-use value contribution across all Grahamstown commonage using households.

4.3.3.4 Fencing poles direct-use values

Poles were harvested for fencing and kraals (livestock enclosures) across all three study towns; 30 % of Bathurst and Grahamstown and 27 % of Fort Beaufort commonage using household's utilised wood for fencing poles (Table 4.6). On average, per household per fence, 28 (± 36) poles were used in Fort Beaufort, 32 (± 35) poles were used in Grahamstown, and 48 (± 46) poles were used in Bathurst. There were no significant differences among study towns ($p>0.05$; $H = 1.0$) with regard to the mean annual direct-use value received from fencing poles. Of the households that harvested fencing poles, the benefits received ranged from R121 (± R186) in Grahamstown to R241 (± R368) in Fort Beaufort. When looking at the mean direct-use value contribution across all commonage users, there were also no significant differences among study towns ($p>0.05$; $H = 0.1$). These values ranged from R36 (± R113) in Grahamstown to R64 (± R211) in Fort Beaufort (Table 4.4).

4.3.3.5 Wood tools direct-use values

Wood was harvested for making handles (mainly axe and hoe) as well as walking and fighting sticks, for own use and/or selling purposes in all three study towns. Amongst households who made axe handles, the average number made per year was 1.8 (± 0.4) in Fort Beaufort, 2.0 (± 1.2) in Grahamstown, and 2.2 (± 2.2) handles in Bathurst. Those households who utilised wood for making hoe handles, made on average 1.0 (± 0.0) handles per year in Bathurst and 9.3 (± 9.3) handles per year in Fort Beaufort. Households who made (walking

and fighting) sticks, made on average 3.0 (one user) sticks per year in Grahamstown, 4.0 (± 2.2) sticks per year in Bathurst, and 16 (± 12) sticks per year in Fort Beaufort.

The proportion of commonage using households who harvested wood for making wooden tools ranged from 13 % in Grahamstown to 33 % in Fort Beaufort (Table 4.6). There were no significant differences among the study towns with regards to the mean direct-use value received from wooden tools ($p>0.05$; $H = 2.8$). These values ranged from R70 (± R84) per annum in Bathurst to R129 (± R118) per annum in Fort Beaufort (Table 4.5). There were no significant differences among study towns ($p>0.05$; $H = 4.1$) in terms of the mean direct-use value received from wooden tools across all commonage using households. These values ranged from R12 (± R48) in Grahamstown to R43 (± R90) in Fort Beaufort (Table 4.4).

4.3.3.6 Wild herbs (imifino) direct-use values

Wild herbs were harvested for eating across all three study towns. The preferred species for harvesting were 'Ihlaba' (*Taraxacum officinale*), 'Utyutu' (*Amaranthus hybridus*), 'Mbikilicane' (*Chenopodium album*), and 'Umsobosobo' (*Solanum* spp.) (see Appendix 10). The number of packets of wild herbs collected per year by households who harvested such herbs averaged 44 (± 36) packets in Bathurst, 51 (± 53) packets in Fort Beaufort, and 54 (± 47) packets in Grahamstown.

Twenty seven percent of Bathurst and 37 % of Fort Beaufort and Grahamstown user households harvested wild herbs (Table 4.6). The mean annual direct-use values received from wild herbs did not differ significantly among study towns ($p>0.05$; $H = 2.4$). These values ranged from R257 (± R210) in Bathurst to R314 (± R274) in Grahamstown (Table 4.5). The mean annual direct-use values received from wild herbs for all user households did not differ significantly among study towns ($p>0.05$; $H = 4.9$). These values ranged from R20 (± R71) in Bathurst to R105 (± R223) in Fort Beaufort (Table 4.4).

4.3.3.7 Wild fruit direct-use values

Wild fruit were harvested for selling and own consumption across all three study towns. The fruit from the alien invasive species 'Itdlofiya' (*Opuntia ficus-indica*) was the preferred wild fruit harvested (see Appendix 11). Annually wild fruit harvesting households collected on average 600 ℓ (± 871 ℓ) in Bathurst, 655 ℓ (± 583 ℓ) in Grahamstown and 986 ℓ (± 819 ℓ) of fruit in Fort Beaufort.

Wild fruit usage on commonage ranged from 27 % in Fort Beaufort to 50 % in Grahamstown (Table 4.6). Of those households who harvested wild fruit, there were no significant differences among study towns ($p>0.05$; $H = 0.8$) in terms of the mean annual direct-use values received. These values ranged from R381 (± R1 132) in Fort Beaufort to R829 (± R708) in Bathurst (Table 4.5). Grahamstown commonage using households received significantly more ($p<0.05$; $H = 13.9$) from wild fruit than the other two study towns (Table 4.4). Amongst all commonage using households, mean annual direct-use values received from wild fruit ranged from R75 (± R394) in Fort Beaufort to R330 (± R 513) in Grahamstown.

4.3.3.8 Medicinal plant direct-use values

Medicinal plants were harvested across all three study towns. Across the study towns, the species most harvested was 'Umhlonyane' (*Artemisia afra* or *Marrubium vulgare*), followed by 'Iperepes' (*Clausena anisata*) and 'Uyakayakana' (*Bulbine abyssinica*) (See Appendix 12). The mean annual mass of medicinal plants collected by households who used medicinal plants, averaged 4.9 kg (± 5.1 kg) in Bathurst and 7.5 kg (± 12.4 kg) in Grahamstown, compared to 47.2 kg (± 116.4 kg) in Fort Beaufort.

Medicinal plant utilisation ranged from 17 % in Bathurst to 40 % in Fort Beaufort (Table 4.6). Direct-use values received from medicinal plants did not differ significantly across study towns ($p>0.05$; $H = 2.3$). The values ranged from R166 (± R184) in Bathurst to R1 422 (± R2 808) in Fort Beaufort (Table 4.5). The mean annual direct-use values received from medicinal plants to all user households did not differ significantly among study towns ($p>0.05$; $H = 3.6$). The values ranged from R28 (± R93) in Bathurst to R332 (± R1 416) in Fort Beaufort (Table 4.4).

4.3.3.9 Clay direct-use values

Clay was collected at all three study towns. Annually households who collected clay averaged 34 ℓ (± 45 ℓ) in Bathurst and 118 ℓ (± 279 ℓ) in Grahamstown. Clay utilisation amongst households was low, and ranged from 3 % in Fort Beaufort to 17 % in Grahamstown (Table 4.6). Of those households who collected clay, there were no significant differences among study towns ($p>0.05$; $H = 1.1$) in terms of direct-use values. These values ranged from R9 (one user) in Fort Beaufort to R288 (± R594) in Grahamstown. With regards to the mean direct-use value received from clay across all user households, there were no significant

differences among study towns ($p>0.05$; $H = 4.0$). These values ranged from R0.3 (± R1.6) in Fort Beaufort to R48 (± R246) in Grahamstown (Table 4.4).

4.3.3.10 Sand direct-use values

Annually, households who collected sand averaged 64 ℓ (± 117 ℓ) in Fort Beaufort and 160 ℓ (± 198 ℓ) in Grahamstown. No one collected sand in Bathurst, whereas 7 % of Grahamstown and 20 % of Fort Beaufort user households did (Table 4.6). Of those who collected sand, there were no significant differences among study towns ($p>0.05$; $F = 0.7$) with regards to mean annual direct-use values received. Fort Beaufort collectors received R131 (± R205), whereas Grahamstown collectors received R78 (± R59). In terms of the mean direct-use value received from sand across all commonage users, there were no significant differences among study towns ($p>0.05$; $H = 7.4$). Across all commonage using households, mean annual direct-use value received in Grahamstown was R5 (± R23), and in Fort Beaufort it was R26 (± R101).

4.3.3.11 Sweeper direct-use values

Three percent of households in Fort Beaufort and Grahamstown, and 10 % of Bathurst households used sweepers (Table 4.6). Mean annual direct-use values received from sweepers did not differ significantly among study towns ($p>0.05$; $F = 0.5$). These values ranged from R40 in Fort Beaufort to R253 (± R195) in Bathurst. The mean direct-use value of sweepers across all users did not differ significantly among study towns ($p>0.05$; $H = 3.3$). These values ranged from R1 (± R7) in Fort Beaufort to R34 (± R108) in Bathurst.

4.3.4 Total livelihoods

Mean off-commonage income values differed significantly among study towns ($p<0.05$; $F = 3.9$): Fort Beaufort (R14 003 ± R12 819) commonage using households made significantly less off-commonage income than those from Grahamstown (R23 081 ± R15 310). Mean on-commonage direct-use values did not differ significantly among study towns ($p>0.05$; $F = 0.1$). These values ranged from R2 780 (± R2 256) in Grahamstown to R3 828 (± R7 581) in Bathurst. Mean annual total livelihoods did not differ significantly across study towns ($p>0.05$; $F = 2.7$). Total livelihood values ranged from R17 407 (± R 14 017) in Fort Beaufort to R25 861 (± R14 932) in Grahamstown (Table 4.7; see Appendix 13).

Table 4.7 Total livelihoods (R) of commonage using households (Where relevant standard deviations are given)

On/off mc	Income /resource	Bathurst	Fort Beaufort	Grahamstown	Mean
Off	Social grants	9 416	8 288	11 044	9 583
	Employment	8 225	4 955	11 711	8 297
	Remittances	457	580	78	372
	Garden yields	267	76	177	173
	Off-mc resources	170	104	71	115
Off-commonage sub-total		18 535 ± 9 008	14 003 ± 12 819	23 081 ± 15 310	18 540 ± 13 048
On	Wood	1 706	2663	1 390	1 920
	Livestock	1 836	202	855	964
	Wild Food	216	180	411	268
	Medicinal plants	28	332	69	143
	Clay and sand	8	26	53	29
	Sweepers	34	1	2	12
On-commonage sub-total		3 828 ± 7 581	3 404 ± 4 027	2 780 ± 2 256	3 336 ± 5 085
Total	Total livelihood	22 363 ± 13 382	17 407 ± 14 017	25 861 ± 14 932	21 876 ± 14 394

Six different income stream classes (clusters) were identified, each contributing varying amounts toward commonage using households' total livelihoods. These included: (1) social grants; (2) employment; (3) wood; (4) remittances; and (5) livestock. The sixth cluster consisted of a host of resources which contributed roughly the same proportion toward total livelihoods. These resources were: wild food, medicinal plants, earth, sweepers, household gardens and off-commonage resources (Figure 4.3).

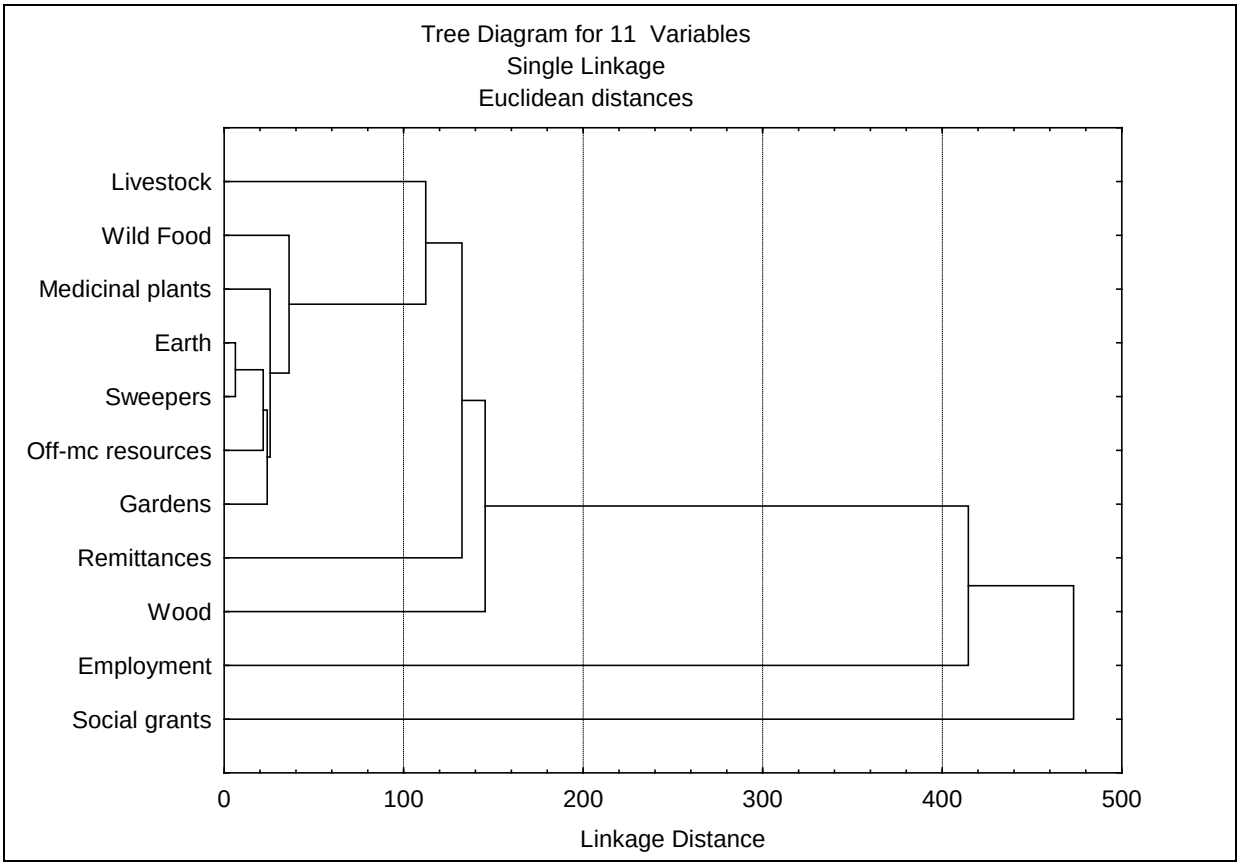

Figure 4.3 Tree diagram showing the six different income categories which contribute towards user households' total livelihoods (mc = municipal commonage)

In terms of total livelihoods the largest contributor of the clustered income classes was social grants (44.8 % ± 33.5 %), which contributed significantly more ($p<0.05$; $Z = -2.6$) than employment (32.0 % ± 33.1 %), the second largest contributing income cluster. However, employment did not contribute significantly more ($p>0.05$; $Z = -1.6$) than wood resources, which was the third largest contributor (10.7 % ± 12.2 %) (Table 4.8).

Regarding the mean on-commonage proportional contribution to total livelihoods, Fort Beaufort's commonage contributed 20.2 % to user households' total livelihoods, followed by Grahamstown (15.6 %) and Bathurst (14.4 %) (Table 4.8). Overall, off-commonage income sources contributed 83.3 % of total accruals, while on-commonage income sources accounted for the remaining 16.7 %.

Table 4.8 Summary of the on and off-commonage proportional (%) contributions to total livelihoods (mc = municipal commonage)

Rank	On/off mc	Resource/income	Bathurst	Fort Beaufort	Grahamstown	Mean
1	Off	Social grants	46.6 ± 37.3	44.4 ± 29.0	43.4 ± 34.8	44.8 ± 33.5
2	Off	Employment	30.5 ± 33.4	26.4 ± 29.6	39.2 ± 35.7	32.0 ± 33.1
3	On	On-mc resources	10.3 ± 14.0	17.9 ± 24.8	10.9 ± 15.4	13.0 ± 19.4
		- Wood	8.7 ± 9.2	14.9 ± 15.3	8.6 ± 10.7	10.7 ± 12.2
		- Wild food	0.9 ± 2.0	1.5 ± 5.0	1.9 ± 3.2	1.4 ± 3.6
		- Medicinal plants	0.4 ± 1.7	1.4 ± 4.1	0.2 ± 0.6	0.6 ± 2.6
		- Sand and clay	0.1 ± 0.3	0.1 ± 0.4	0.2 ± 0.9	0.2 ± 0.6
		- Sweepers	0.2 ± 0.7	0.0 ± 0.0	0.0 ± 0.1	0.1 ± 0.4
4	Off	Remittances	5.4 ± 15.0	8.1 ± 17.9	0.8 ± 3.2	4.7 ± 13.8
5	On	Livestock	4.1 ± 11.1	2.2 ± 9.9	4.6 ± 13.1	3.7 ± 11.4
6	Off	Gardens	1.8 ± 3.4	0.3 ± 0.8	0.9 ± 1.9	1.0 ± 2.4
7	Off	Off-mc resources	1.4 ± 3.5	0.5 ± 1.5	0.3 ± 1.2	0.8 ± 2.3
Total off-mc			85.6	79.8	84.4	83.3
Total on-mc			14.4	20.2	15.6	16.7

4.3.5 Commonage productivity

Total commonage income ranged from R4.7 million in Bathurst up to R8.0 million in Fort Beaufort per year (Table 4.9). Despite this, the Bathurst commonage was the most productive (R/ha); R1 626 per hectare per year, compared to Fort Beaufort and Grahamstown commonages where productivity was R1 059 and R1 023 per hectare per year, respectively (Table 4.9).

Table 4.9 Annual productivity (R/ha) of commonage in each study town (hh = household; mc = municipal commonage)

	Bathurst	Fort Beaufort	Grahamstown
Mean on-commonage income (R/hh)	3 828	3 404	2 780
Total commonage income (R/mc)	4 716 096	8 074 288	6 844 360
Size of commonage (ha)	2 900	7 622	6 689
Productivity (R/ha)	1 626	1 059	1 023

4.3.6 A typology of livelihood strategies

The clustered dendrogram categorised households into three primary clusters (Figure 4.4). Each cluster made up roughly a quarter of all households. Cluster one accounted for 26 % of all households, cluster two 22 % of all households and cluster three 28 % of all households. The remaining 24 % of households did not form any clusters and had varying linkage

distances among themselves and with the three primary clusters, thus these were considered separate 'outliers'. Clusters only differed significantly with regard to the contributions from social grants ($p<0.05$; $F = 260.0$) and employment ($p<0.05$; $F = 316.3$). Post hoc analyses (Scheffe test) revealed that households from cluster three (86.5 % ± 9.4 %) relied significantly ($p<0.05$) more on social grants than those from cluster one (52.9 % ± 13.7 %) and two (10.1 % ± 9.9 %), while households from cluster two had the largest contributions from employment (80.9 % ± 13.2 %), significantly ($p<0.05$) more than the other two clusters (Table 4.10).

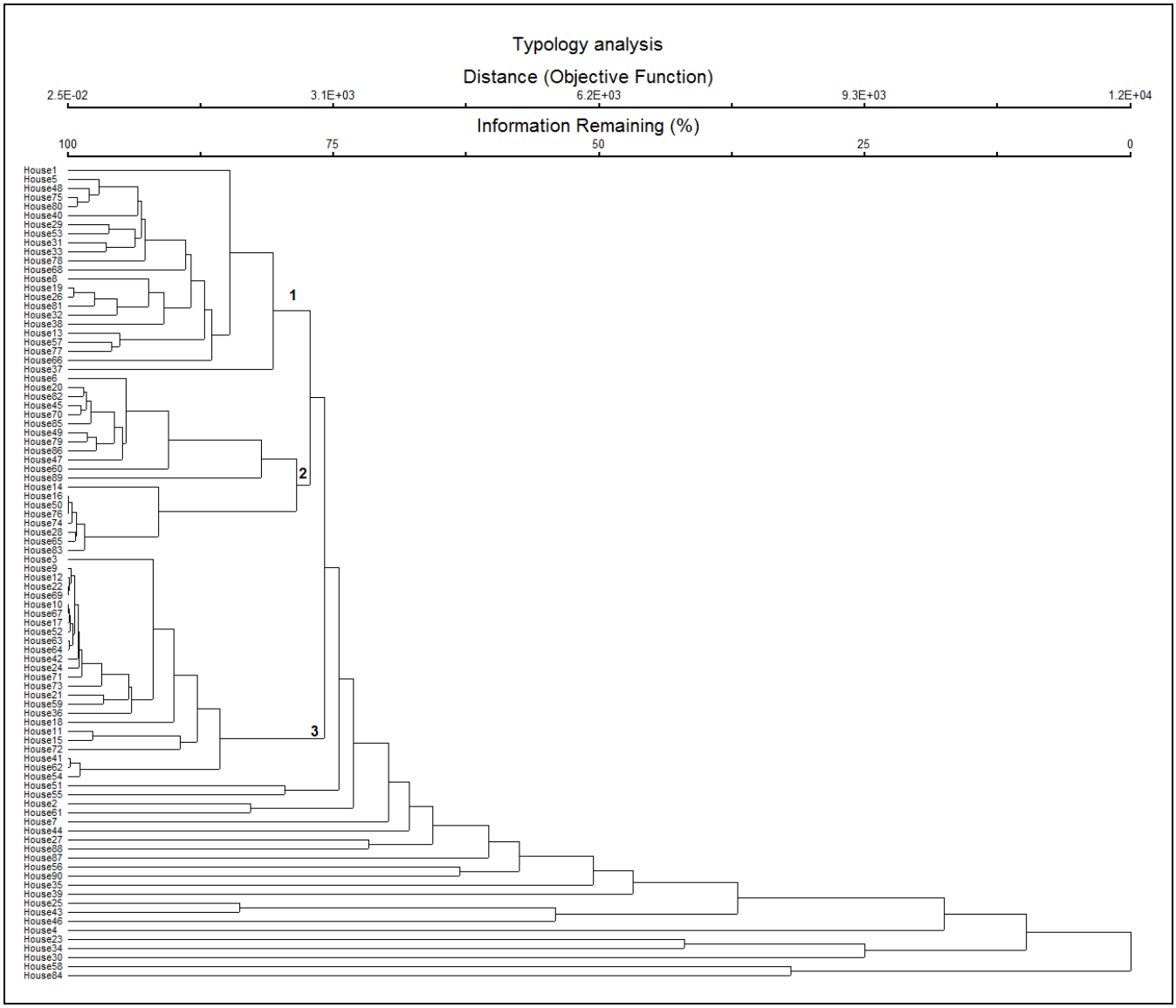

Figure 4.4 Clustered dendrogram of households according to the eleven livelihood contributors, showing the three primary clusters and the remaining outlier households

Table 4.10 Summary of livelihood contributions (%) for the various household clusters

	Cluster 1	Cluster 2	Cluster 3	Outliers*
Social grants	$52.9^{a} \pm 13.7$	$10.1^{b} \pm 9.9$	$86.5^{c} \pm 9.4$	20.3 ± 21.6
Employment	$33.8^{a} \pm 13.7$	$80.9^{b} \pm 13.2$	$0.0^{c} \pm 0.1$	21.9 ± 26.1
Remittances	1.2 ± 4.3	0.7 ± 2.2	0.4 ± 2.0	17.1 ± 23.8
Off-mc resources	0.2 ± 0.6	0.5 ± 1.4	0.7 ± 1.3	1.8 ± 4.1
Gardens	0.5 ± 0.8	0.3 ± 0.7	1.2 ± 2.2	2.0 ± 3.9
On-mc resources	11.4 ± 8.9	7.5 ± 6.3	11.2 ± 9.8	36.9 ± 20.0

* Outliers did not form a cluster and were therefore not included in analyses. Unlike superscripts reflect significant differences among clusters (rows) at $p<0.05$ or higher; where superscripts do not occur, clusters do not differ significantly.

As can be seen in Table 4.10 households from all three clusters rely predominantly on formal income, whereas outlier households relied more on other sources of income. Households with the maximum contributions from remittances (72 %), wood (68 %), livestock (65 %), wild food (27 %), medicinal plants (19 %), gardens (15 %) and off-commonage resources (15 %) were all outlier households. The maximum contribution (100 %) from employment came from cluster two, and the maximum (100 %) contribution from social grants came from cluster three. Together with the three clusters and the outlier group, a typology of four subsistence user groups may be presented, these include; resource dependent households, social grant dependent households, employment/social grant dependent households, and employment dependent households (Table 4.11).

Table 4.11 Typology of subsistence commonage users

Strategy	Description
Resource dependent households	Households are dependent on the commonage. They utilise a suite of resources, however certain resources supplement their livelihood substantially. E.g. Livestock (65 %), Wood (68 %).
Social grant dependent households	Households use the commonage (± 10 %), but rely largely on social grants (± 85 %) for livelihood contributions.
Employment/social grant dependent households	Households use the commonage (± 10 %), but rely largely on social grants (± 53 %) and cash income from employment (± 34 %) for livelihood contributions.
Employment dependent households	Households use the commonage (± 8 %) but rely largely on employment (± 81 %) for livelihood contributions with minor contributions from social grants (± 10 %).

4.4 Discussion

4.4.1 Municipal commonage contribution to local livelihoods

4.4.1.1 Off-commonage income

None of the three formal and informal cash income sources differed across study towns. At each of the three study towns there were similar patterns of dependence on cash income from social grants, employment and remittances. Of the formal and informal income sources across all study towns, households relied proportionately more on social grants (80 %) than employment (62 %), which was relied on more than remittances (24 %) (see Table 4.3). The mean formal and informal annual cash income across study towns was R18 252. In comparison to rural households, Timmermans (2004) found that households earned R8 891 per annum (at 5 % inflation per annum) in Ntubeni on the Wild Coast, while Dovie *et al.* (2007) found that villagers in Thorndale (Limpopo province) earned R13 649 in formal and informal income per annum. Thus, commonage using households earned more cash from formal and informal income than their rural counterparts. This could be due to more employment opportunities, higher wage rates, higher education and more skilled jobs in urban areas, compared to rural areas.

Home gardens were cultivated in all three study towns with the proportion of households who had such gardens varying across study towns. Research findings showed that households who had a home garden received on average between R378 and R535 from their gardens. Although slightly high, these figures are comparable to what others have found in the area. In Thornton's (2008a) study, Grahamstown township households estimated that they saved between R100 and R150 a year in food costs, while Peddie households estimated these figures to be between R150 and R300. Similarly Moller & Seti (2004) recorded that gardeners in Grahamstown could save anywhere between R150 to R300 on fresh produce from their gardens.

Household use of off-commonage natural resources varied amongst study towns; with the smallest town (Bathurst) having the highest reliance and Grahamstown the largest of the three study towns having the lowest. The most harvested off-commonage resources were wild fruit and wild herbs. Overall, contributions from off-commonage natural resources were relatively low, considering that they comprised of a suite of resources. However, these values would

have been expected to be low because only a limited amount of township households would have access to private land.

4.4.1.2 On-commonage livestock direct-use values

Livestock ownership and income varied considerably among study towns. Mean annual direct-use values from livestock resulted in an average of R3 479 across study towns. This is to some extent less than what others have found, but not substantially so. Shackleton *et al.* (2005) and Dovie *et al.* (2006) found that livestock contributed R4 972 and R4 027 respectively to rural livestock owning households. However, Davenport & Gambiza (2009) did a study which focused on livestock farmers on the Grahamstown commonage; they found that old commonage livestock farmers received R6 308, and new commonage farmers received R9 707 per annum from their livestock. This is considerably larger than what this study found for Grahamstown livestock owners (R2 848), suggesting that the average livestock farmer encountered in this study was most probably a survivalist/subsistence livestock farmer, compared to emerging and proto-capitalist farmers which must have been encountered in that study (see Table 1.1). The reason for this could be due to the sampling approach used in either study. Davenport & Gambiza (2009) used the snowball technique to identify potential livestock farmers after random farmers were chosen in a given suburb, whereas in this study, a random approach was used. This meant that every commonage user household had an equal chance of being identified and that livelihoods of elite (emerging and proto-capitalist) commonage users may not have been captured, which the Davenport & Gambiza (2009) study focused on.

4.4.1.3 On-commonage natural resource direct-use values

At each of the three study towns households made use of a wide range of resources from their surrounding commonages, although there were variations in patterns of use. Across the study towns, the number of commonage resources used by the majority of households ranged from two five resources, with peaks at two resources per household in Fort Beaufort, three resources per household in Bathurst, and between three and five resources per household in Grahamstown (Figure 4.1). Despite variations in patterns of use, study towns did not differ in terms of direct-use values received from commonage resources, in any way other than with wild fruit, where Grahamstown households received more in direct-use values than the other two towns. This, despite the fact that Fort Beaufort fruit harvesters collected more fruit per year, they did not make as much profit due to the high travel costs involved. In Grahamstown

this was not the case because the prickly pear fields are situated close to the township, whereas in Fort Beaufort they are further afield.

Across all three study towns, fuelwood (86 %) was the most widely used natural resource, followed by wild fruit (37 %), wild herbs (33 %), fencing poles (29 %) and then medicinal plants (27 %). Studies which have dealt with rural households have found that fuelwood, wild fruit and wild herbs were among the top five most used natural resources (Shackleton & Shackleton 1998; Shackleton *et al*. 1999; Shackleton & Shackleton 2004; Shackleton & Shackleton 2006). Although, rural households seem to have a much higher dependency on these resources; Shackleton & Shackleton (2004) show that among South African rural households, 95.6 % use wild herbs, 95.5 % use fuelwood, and 88.2 % use wild fruit.

In terms of the mean direct-use values all commonage using households across study towns received from natural resources, the research findings agree with previous literature. Fuelwood ranged between R1 301 and R2 556 per annum, which compares favourably with the literature (R510 – R3 377) (Shackleton *et al*. 2001; Shackleton *et al.* 2004; Dovie *et al.* 2005). Housing poles across study towns amounted to R14 per annum, which agree with the findings of Dovie *et al.* (2005) (R10). The values of fencing poles (R36 - R64) were similar to what others have found (R47 – R66) (Twine *et al.* 2003; Shackleton *et al.* 2004). Wood tool values across study towns ranged between R12 and R43 per annum, which is similar to other findings (R15 – R36) (Shackleton *et al*. 2001; Twine *et al.* 2003). Wild herbs averaged R68 across study towns, slightly less than what Shackleton *et al.* (2005) found (R102). Wild fruit values (R75 - R330) compared favourably with other findings (R16 – R594) (Shackleton *et al*. 2001; Shackleton *et al.* 2006). Medicinal plant values (R28 - R332) related with those from Shackleton *et al*. (2001) (R37 – R282). Sweeper values averaged R12 per annum across study towns, comparing favourably to the literature (R5 – R21) (Shackleton *et al*. 2001; Shackleton *et al*. (2004).

If one takes the combined value of all the on-commonage resources (excluding livestock), the mean annual direct-use value received across study towns by commonage using households is equal to R2 373 (± R719). Although near the lower end of the scale, this is in accordance with the summary findings of Shackleton & Shackleton (2004) who found that the annual direct-use values averaged across households ranged from approximately R1 600 to R7 200.

4.4.1.4 Total livelihoods

Households depended on multiple sources of income with six different income classes being identified. However, direct-use values from the majority of land-based activities, with the exception of wood and livestock contributed a relatively minor part compared to income from social grants and employment. Findings show that for commonage using households, social grants (45 %) were the primary source of income across households, contributing significantly more than employment (32 %) which was the second largest contributor. Others have found similar results. In the Northern Cape, data collected by FARM-Africa on eight land reform beneficiary groups showed that the bulk of their livelihoods was derived from two sources; namely government grants and waged income (Bradstock 2006). Thornton (2008a) found that amongst urban households in small towns in the Eastern Cape, social grants were the primary contributor to household income and food security, and that UPA did not play a major role in food security for UPA households.

Even in the former homeland areas of the Eastern Cape, households rely predominantly on formal and informal income and less on land-based strategies (May *et al*. 2000; Lahiff 2003; 2005). Rural households rely predominantly (60 - 80 %) on wages (migrant and non-migrant) and then pensions (10 - 20 %), with between 10 - 25 % of their income provided for by agricultural sources (Nattrass & Nattrass 1990; Lahiff 2005). This compares favourably with the research findings, where 17.5 % (16.7 % from commonage, plus 0.8 % for off-commonage resources) of households' total income came from commonage land-based activities. These results suggest that commonage using households' livelihood dependencies are in fact similar to rural households in the Eastern Cape, bar their reliance on remittances. In this case urban households who use commonage, rely on social grants more, and rural households rely on wage income (especially remittances) more.

Despite the majority of households depending on income from employment, results from phase one showed that on average only between 18 - 29 % of adults across study towns were employed. Thus it is not surprising to see with such low rates of employment, there was such a high dependence on social grants. This trend of high unemployment leading to a high dependence on social grants has been recorded elsewhere (Chalmers & Fabricius 2007; Makana 2007; Ndlambe 2007). Consequently, Thornton (2008a) suggests that should the social welfare system in South Africa break down, the scarcity of alternative means to secure a livelihood (especially in small towns) could lead to a dramatic deterioration in the quality of

life of urban poor households, to levels resembling households in low-income African countries. The typology presented in this study (Table 4.11) also reinforces this, showing that the large majority of commonage using households is dependent on social grants.

The overall contribution from municipal commonage to local livelihoods ranged from 14 to 20 %, which is a significant livelihood contribution. The question that should be asked then is, if resources from municipal commonage make up such a significant proportion of livelihoods, should they not be considered as a possible vehicle for poverty alleviation interventions? The consequences of this question are that if the use of commonage resources becomes ecologically unsustainable at a particular study town, then poverty amongst those resource users will intensify (Ngwenya & Hassan 2005). Therefore, the state of commonage land needs to be maintained, so as not to decrease the standard of living amongst all commonage users. To do this, commonage management plans need to be put in place so as to prevent the unsustainable use of commonage resources. The aim of this thesis was not to identify which management plans need to be implemented. However if municipalities don't protect their commonages and they become unusable due to whatever reason, then for each town, they would be required to fund alternative support systems to the value of R4 – 8 million per annum.

4.4.2 Commonage using households' poverty levels

A large proportion of commonage using households can be considered to be living in extreme poverty. This can be shown by comparing households' income against various benchmark poverty line measures. If one considers the US $2 international poverty line or municipal indigence line, and compares it against the research findings, the large majority of households at each study town are living below the poverty line (Table 4.12). However, on average across all poverty benchmarks, between 41 - 57 % of households across the study towns were considered to be living in poverty. If the contributions from commonage are excluded from households' livelihoods across the study towns, between 11 - 13 % more households would be living below the poverty line. This shows that access to commonage makes a critical difference to over 10 % of households in each study town.

From the above, it can be concluded that a substantial amount of commonage users are in fact as intended by commonage policy, 'poor' households who are supplementing their livelihoods. Consequently, in terms of the commonage policy (DLA 2002), one of the primary aims of commonage is being met: providing access to land for supplementing

income (subsistence user system). Due to the random selection of households, this research cannot conclude anything about the emergent farmer system.

Overall, the findings suggest that while commonage may not be the principal source of livelihood for the great majority of urban households, it does provide an important supplementary income (and savings) for commonage using households, albeit with a high degree of variation among households. Thus access to commonage allows households to maintain a diversified livelihood strategy which may include wood harvesting, the keeping of livestock as a form of investment, and other natural resource harvesting (for consumption or sale), which together enhances their ability to obtain a livelihood under difficult conditions.

Table 4.12 Proportion of households which are considered to be living in poverty, including how many would be living in poverty without commonage contributions

Benchmark	Value (R)	Proportion of households considered poor					
		Bathurst		Fort Beaufort		Grahamstown	
		Total income	excl. mc	Total income	excl. mc	Total income	excl. mc
International poverty line – $1 pppd*	R2 905 pppa	17	27	43	57	17	33
International poverty line – $2 pppd*	R5 811 pppa	63	73	80	87	63	77
Poverty line (Carter & May 1999)	R4 654 pppa**	17	23	37	50	20	33
Poverty line (BMR 2003)	R5 806 pppa**	33	47	40	60	33	50
Indigence line (StatsSA 2007)	R30 240 phpa	80	93	87	90	70	77
Mean		42	53	57	69	41	54
Standard deviation		29	30	24	18	25	22

Note: *Shackleton 2005; **per adult equivalent; excl. mc = excluding income from municipal commonage; pppa = per person per annum; phpa = per household per annum; US $1 = R7.96; dated poverty lines are adjusted to 5 % inflation per annum.

4.4.2.1 Municipal commonage: Productively used or not?

Commonage productivity (in terms of income per hectare), which includes the annual productive output from natural resources and livestock, was considered to be worth approximately R1 023 per hectare in Grahamstown, R1 059 per hectare in Fort Beaufort, and R1 626 per hectare in Bathurst (Table 4.9). A pattern emerges, with the largest town having

the lowest productivity, and the smallest town the highest. This could be due to the smallest town having the highest use (%), on the smallest commonage.

The production values calculated in this study are comparable to the annual returns per hectare for natural resources along the Wild Coast, a coastal area of the former Transkei where Le Roux & Nahman (2005) give estimations of R300 - R400 per hectare for grassland, and R2 000 - R12 000 per hectare for forest. Although the forest returns in that study are higher than the returns per hectare calculated in this study, one must keep in mind that most of the vegetation in all of the study towns' commonages consisted of either grassland or Bhisho Thornveld (grassland interspersed with *Acacia karroo*), with thicket only in the mountains or incised valleys. Also, the study towns lay on a gradient of increasing aridity moving inland from the coast.

The production values calculated in this study may be referred to as multiple resource-use values. These multiple resource-use values are high compared to the single resource-use values Davenport & Gambiza (2009) found for the Grahamstown commonage, where livestock farmers' annual productive output ranged from R134 per hectare to R473 per hectare. In comparing these values to commercial systems, commonage productive output was even higher; the average annual livestock returns in the area (net profit) equal R92 per hectare for beef, and R178 per hectare for goats (du Plessis 2001). Regardless of the fact that commonage users' annual productive output was derived from multiple resources, they were higher than those of commercial systems in the area. Despite the fact that commercial systems have deducted the cost of labour, which has not been done in this study (thereby not making these values directly comparable), the point made is still valid. Thus, it may be deduced that commonage using households are using their commonages productively (or at least more so than the average commercial farm in the area). This reiterates what Andrew *et al.* (2003b) suggest; that resource poor households do in fact use the land productively and resourcefully even though their livelihoods are limited to survivalist mode.

Consequently it can be said that multiple resource-use systems are more profitable than single resource-use systems. A similar finding to that of Tipraqsa *et al.* (2007), who found that in Thailand integrated farming systems, outperformed the normal or commercial farming systems. In this case commercial livestock farmers earn less money per hectare than the combined income per hectare from commonage; the difference being profit on commercial farms usually goes to one farmer, whereas commonage profits need to be shared amongst

many. Similarly, USAID (2006) explain that rich and poor people use natural resources in different ways. The rich frequently gain more environmental income, in absolute terms, from natural resources than the poor, but the poor derive a higher proportion of their income from natural resources.

From the research findings, commercial farmers could be encouraged to increase their profit margins by diversifying their farming to include natural resource utilisation such as wood or medicinal plant harvesting. However this does raise sustainability concerns, because for example on the Grahamstown commonage plant communities have been altered due to heavy utilisation (Puttick 2008). Also in eastern Australia, House *et al.* (2008) found that depending on the specific agricultural activity mix and ecological condition of farms, small changes to the production base can cause substantial opportunity income losses.

4.4.3 Municipal commonage livelihood strategies

The research findings show that three primary strategies (clusters) were identified together with outlier households. The primary difference between clusters was the reliance on income from social grants and employment. Households used a combination of activities and income sources, which lead them to be placed into one of four livelihood strategies. Households from cluster one relied on cash income from a combination of social grants and employment, households from cluster two relied predominantly on cash income from employment and households from cluster three relied primarily on cash income from social grants. These clustered households' livelihoods depended largely on formal cash income, whereas some of the outlier (specialist) households seemed to focus their livelihoods on one resource (specialists), for example livestock or wood.

As has already been shown, according to commonage policy, the households which were encountered in this study were largely considered subsistence users, as opposed to commercial 'stepping stone' farmers. Subsistence commonage users are comparable to what Cartwright *et al.* (2002) and Atkinson & Buscher (2006) refer to as survivalists. Cartwright *et al.* (2002) define survivalists as, "households with few alternative sources of income (perhaps other than social grants or pensions), and who are likely to continue using livestock to fulfil basic food security needs." Atkinson & Buscher (2006) expand on this by defining survivalist farmers as those who, "want to keep a few livestock units for supplementing household food provision and for special occasions. These people are not necessarily interested in expanding their current number of livestock as they are sufficient for their current needs."

Both sets of authors (Cartwright *et al.* 2002; Atkinson & Buscher 2006) focus on livestock ownership among (survivalist) commonage users, whereas this research has extended the understanding of these survivalist households from the original typologies presented by these authors (see Table 1.1). Households which use commonage rely on various sources of income which might not include livestock at all. Four livelihood strategies amongst households who use commonage were identified, each of which made up approximately a quarter of all households. These were presented as four types of subsistence/survivalist commonage user types (Table 4.11). Thus, from the research findings it may be concluded that, in general, a quarter of commonage using households depended extensively on commonage for their livelihood by utilising a particular resource, another quarter relied predominantly on social grants, another quarter relied on a mixture of social grants and employment, and the last quarter relied largely on employment for their livelihood income (Table 4.11).

5 Chapter 5

General discussion, recommendations and conclusion

5.1 Introduction

In this chapter, findings from both the first and second phase are discussed. The chapter is divided into a general discussion which presents recommendations and is followed by a conclusion. The previous chapters have shown that municipal commonage contributes up to one fifth of households' total livelihoods and that if these contributions are excluded from total livelihoods, over 10 % of households would drop to living below the poverty line. In addition, it was shown that commonage productivity is worth over R1 000 per hectare and over R4.7 million per commonage. Moreover, results suggest that commonage use has increased over the last decade. The general discussion of this chapter highlights that due to increasing poverty, food price hikes and increasing urbanisation, municipalities can expect a further increase in commonage users and a greater reliance on commonage from current users. Thus, local municipalities should aim to manage their commonages in a holistic manner whereby new commonage policy is constructed and implemented. This new policy should come in the form of a holistic commonage management plan which not only deals with livestock, but with sustainable natural resource utilisation as well. The recommendations section presents four main recommendations. These equate to better livestock management, improved natural resource management, the creation of more arable fields, and investment in commonage. This is then followed by the conclusion.

5.2 General Discussion

From the research findings, it is suggested that due to the high dependency on state welfare grants coupled with the high rate of unemployment and the lack of arable land, the extent of alternative locally based livelihood options are limited. Therefore, the contributions from natural resources harvested on the commonage are significant to local livelihoods. This is a scenario which can also be found in South African communal areas (Vollan 2006; Shackleton *et al*. 2007b; Shackleton *et al.* 2008).

Whilst access to commonage contributes to local livelihoods and maintains households with diversified livelihood strategies, authorities should not overestimate its potential to alleviate poverty or supplement incomes. An emphasis on commonage as people's main livelihood strategy can lock them into a cycle of poverty by denying them the skills required in a modern economy (Reuther & Dewar 2006). While commonage should not be considered the sole solution to impoverished urban households, it should be considered as one of many possible ones. According to USAID (2006), there are at least two ways households can get out of poverty traps. Firstly, households can move above the poverty line by accessing microfinance, credit, insurance, or other programmes that provide steps out of a temporary condition. Secondly, government interventions can move the entire poverty threshold down through macro policies that institute more favourable terms of trade, protect land rights, or create conditions of greater public welfare.

If research findings are extrapolated, a large proportion of South Africa's urban population rely to some extent on municipal commonage for either livestock or natural resources for direct subsistence use or indirectly for generating income. However, a rapidly growing population coupled with increasing poverty and urbanisation (see section 1.1.4) will have a compound impact on the commonage resource base. Although urbanisation in South Africa is occurring at a more rapid rate in the larger centres such as Johannesburg and Cape Town; smaller centres (such as Grahamstown) are also receiving rural migrants due to massive layoffs from the game farm industry. If the predictions that urban areas in Africa are to double their populations over the next 25 years are correct, then commonage density of use (Table 3.1) will jump from 1.5 – 2 individuals per hectare to 3 – 4 individuals per hectare. With an increase in pressure on commonage, together with the uncertainty of the effect climate change will have on food production, the sustainability of commonages may be in jeopardy. The ecological state of commonage needs to be maintained, so as not to decrease the standard of living amongst all commonage users. Thus, better management plans are needed for the insecure future of this valuable resource. The other option, in conjunction with better management, is to supply households with more land, in the form of new commonage.

The world is facing its worst food shortage in over three decades, and South Africa is no exception (Dlamini 2008). In South Africa, food price inflation accelerated to 14.1 % in February (2008), helping to steer overall inflation to a five year high which has provoked a series of interest rate hikes (Thomas 2008). The prices of basic food items such as bread, milk, eggs, maize, pasta, soya, meat and chicken have soared with some having gone up at a

rate higher than inflation (IOL 2007; Dlamini 2008). Maize, a staple diet for millions of South Africans, went up by 40 % in one year (IOL 2007). The price of rice increased by 75 % in two months, and wheat over 120 % in the last year (Bechert 2008; Dlamini 2008). Economists cite a number of factors for the spiralling prices. These include price hikes in fuel (high oil prices) and fertiliser, as well as interest rate hikes, an increased demand for a richer diet by the new middle class, and the diversion of crops to biofuels and crop failure due to climate change (IOL 2007; News24 2008; Thomas 2008). Some even blame South Africa's failed land reform programme (Hamlyn 2008).

Some economists have noticed a squeeze on household income because of increased food and fuel costs (IOL 2007). The hardest hit by this burden, are poor communities who can already spend as much as 62 % of their disposable income on food (IOL 2007; Dlamini 2008). This trend is predicted to continue; economists have warned that South Africa's consumers should prepare themselves for an increase in food and transport costs in addition to more fuel price shocks (Xinhua 2008). These price hikes will have massive implications for impoverished people, who will eventually not be able to purchase enough food or other basic necessities. However, it has been recorded that households who are pushed into poverty are associated with increases in natural resource dependence such as substitution of electricity with fuelwood (de Sherbinin 2008). As a result of the above combination, impoverished households will have to rely more and more on natural resources to supplement their livelihoods. For urban households, these natural resources will need to be harvested on commonage areas, because this is the only land to which the majority of households have access.

5.2.1 Recommendations

The aim of municipal commonage is twofold; (1) providing access to land for supplementing income (subsistence user system), and (2) as a stepping stone for emergent farmers (emergent farmer system) (DLA 2002). Therefore, commonage policy should target agricultural activities such as grazing projects and small arable/garden initiatives and also cater for poor households who wish to use the commonage for household consumption (DLA 1997; 2002); for example, fuelwood and building material collection (Anderson & Pienaar 2003; Cartwright *et al*. 2002; Ingle 2006). However, in reality municipalities only focus on commonage management committees (CMC), which are in effect livestock owners' committees (LOA) who consist of emerging livestock farmers (aim two) (Martens 2008).

Proof of this can be seen when looking at the definitions of commonage, where grazing rights are highlighted (DLA 1997). Additionally, the majority of municipalities are only concerned with managing their formal commonage users (CMCs) by for example documents which discuss the management of livestock on commonage (IDS 2005; Palmer 2005). However, research findings have shown that the majority of households who use commonage use between two and five resources, therefore it is essential to incorporate the informal sector (i.e. subsistence user system) as well.

The reason government has only focused on promoting emerging farmers is not only because it is easier to do so, but because there is pressure on government for a successful LRP, which is currently being measured in producing productive emergent livestock farmers. Another important factor is that emergent farmers are the non-poor elite minority, whereas other users make up the poor minority who have no clout (power); therefore they make no impact and are forgotten about.

Commonage policy should focus on their first aim by incorporating management systems for subsistence users. This may be done by including the informal use of commonages into management plans. This is not the first time that it is suggested that municipalities create a commonage plan (Hall *et al*. 2007). There is a need for better livestock management and rangeland management which includes Natural resource management (NRM). Therefore, municipalities should develop holistic commonage management plans, which should include innovative livestock management plans which rotate the use of vegetation by humans and animals. These management plans should also include NRM plans, which according to this study's findings, should especially cover fuelwood and medicinal plant harvesting. Municipalities should also encourage the creation and use of arable fields.

From the issues identified above, four main recommendations are presented here. Firstly, despite governments' one sided approach to commonage management, municipal commonage is poorly managed in terms of rangeland and livestock management (Martens 2008). Livestock management is poor because of poor rangeland management, overstocking, and the lack of infrastructure (Martens 2008). Therefore livestock management needs to be improved. This can be done by providing better infrastructure such as feedlots, as well as introducing indigenous breeds and marketing them and even by purchasing more land. Ainslee (2005) found that a key intervention in the livestock sector in communal lands is the promotion of markets and encouragement of livestock owners to regularly sell animals. These

strategies apply to commonage as well, because they have many benefits for rangelands and animal condition as well as productivity and local livelihoods.

In terms of a livestock management plan, Palmer (2005), in the livestock and commonage management part of the Makana LEAP, suggests a two camp grazing system for the Grahamstown commonage. Such a system requires fencing, but as Davenport & Gambiza (2009) have shown, fencing is an immense problem on municipal commonage due to theft. Over and above this, Atkinson & Benseler (2004) feel that the rapidly increasing usage of commonage in general suggests that overgrazing is taking place. As a result it is not surprising that Puttick (2008) found that parts of the Grahamstown commonage are in a degraded state. Therefore, innovative grazing regimes should be implemented on commonages. Unique strategies may be employed to overcome hurdles. For example, among others, livestock owners can make a joint decision to employ shepherds to graze all the livestock in areas which have forage, and keep them away from areas which need a rest. Although it is accepted that municipalities lack capacity (Anderson & Pienaar 2004), they need to devise a strategy to restrict the overuse of the land by preventing too many farmers from using the same piece of land and then implementing such a strategy.

Secondly, although commonage policy caters for poor households to supplement their income, there is a very limited focus on sustainable natural resource utilisation. The Letsemeng Local Municipality is one of few examples known which has a goal to ensure the sustainable utilisation of all commonage natural resources (IDS 2005). However, even in this so called best case scenario (D. Atkinson *pers comm.* 2008), there are no suggestions as how to achieve this goal, except for, “working in accordance with the Department of Agriculture’s prescriptions on the utilisation of the natural resources” (IDS 2005).

In some instances commonage by-laws and policy as well as environmental legislation cater for the sustainable utilisation of natural resources. For example, the Bathurst commonage uses a permit system to harvest material from the commonage (F. Fouche *pers. comm.* 2008). However, resource management planning and sustainable resource utilisation required in terms of environmental policy and law are often neglected in the development and business plans commonly created for land reform projects (SDC 2007). As a result in a number of projects, serious environmental concerns have emerged. Municipal commonage which forms part of the LRP is not excluded from the above.

This research has shown that commonage contributes significantly to not only livestock owners, but also to natural resource harvesters who supplement their income (aim one). Thus, NRM is important, however, currently non-existent within municipal policy. Therefore, there is a need for NRM within the context of commonage policy. NRM can be implemented and/or improved by planting woodlots to supply fuelwood, propagating medicinal plants for traditional healers, better monitoring of natural resource commercialisation, educating users on sustainable harvesting techniques and encouraging stewardship.

Thirdly, commonage policy and management plans should also target small arable/garden initiatives. Research findings have shown that over one third of households across the study towns had home gardens, however no arable fields were encountered (other than in Bathurst, see Figure 3.1). Therefore, municipalities should invest in creating arable fields for urban households to farm. With such a high proportion of households who rely on home gardens, surely households would also use arable fields to increase their produce, not only for home consumption but for sale as well. In so doing, municipalities will also be creating a diversity of emergent farmers, by encouraging crop farmers as well as livestock farmers.

Lastly, there is currently no investment in commonage, other than water points for livestock and at times fencing. If municipalities wish to optimise the benefits of commonages to users, subsistence and commercial alike, such a lackadaisical approach will not work. Optimisation requires investment of time, infrastructure, expertise and finances to actively manage commonage land. But the fact that commonage yields over R1 000 per hectare per year, and over R4.5 million per annum for each town, should be sufficient argument that this resource needs to be secured and managed effectively. If these values were to decrease due to degradation from mismanagement, then municipalities and the state would have more households on their lists of the indigent seeking grants and free services. Setting up viable institutions and management structures and processes will not be easy, but can be done.

5.3 Conclusions

Up until now, no one has attempted to calculate the proportion of township households who rely on municipal commonage. The research findings have shown that between 27 - 70 % of township households rely on commonage depending on the size of the town. Findings showed that the smaller the town was the more commonage users there were. Also, the smaller the town was the fewer mean number of years households had used their respective commonage. Consequently, a small town would be expected to have a high proportion of

users with many having used the commonage for a relatively short while and vice versa for a large town.

In terms of household characteristics, commonage using households differed across the study towns in education, meat consumption and employment. Non-using households differed in all categories across the study towns. It was shown that each study town was unique, and therefore in terms of commonage governance, it is important for municipalities not to rely solely on broader national policies, but rather on local level initiatives that have been investigated thoroughly and adapted to local conditions.

Bathurst commonage using households were generally poorer households with larger households living in more cramped conditions which had a greater reliance on government social grants, and had household heads with lower education levels than non-using households. However, the only significant discriminator between user and non-user households was that user households had lived in the township for longer than non-using households. Grahamstown commonage using households were generally poorer, relied more on social grants, and had household heads with lower levels of education than non-using households. Also, user households had lived in town for shorter than non-using households. Education and the number of years lived in town, discriminated significantly between Grahamstown user and non-user households. In Fort Beaufort user households had also lived in town for a shorter time period. The number of employed individuals within the household and the number of years lived in town, were significant discriminators between user and non-user households.

Despite each town being unique, certain generalisations could be made from the research findings, in terms of the differences between commonage user and non-user households, as well as the size of towns. Generally, commonage using households had lived in town significantly shorter than non-using households. Also, user households were less educated and relied on social grants more than non-using households which meant that they were poorer than non-using households. Additionally, commonage using households in large towns generally had higher educated household heads, ate meat more often, and had more employed individuals per household than those who came from smaller towns. Thus, it was deduced that commonage using households in large towns were wealthier than those from small towns.

Households at each study town made use of a wide range of resources from their surrounding commonages, although there were variations in patterns of use. Despite this, study towns did not differ in any way other than with wild fruit. Across the study towns, fuelwood (86 %) was the most widely used natural resource, followed by wild fruit (37 %), wild herbs (33 %), fencing poles (29 %) and then medicinal plants (27 %).

Research findings showed that households were dependent on multiple sources of income with six different income classes being identified. Findings show that for commonage using households, social grants (45 %) were the primary contributor to total livelihoods across households, contributing significantly more than employment (32 %) which was the second largest contributor. It was suggested that due to the high dependency on state welfare grants coupled with the high rate of unemployment and the lack of arable land, the extent of alternative locally based livelihood options are limited, thus contributions from natural resources harvested on the commonage are significant to local livelihoods.

Fort Beaufort commonage using households made significantly less off-commonage income (R14 003) than those from Grahamstown (R23 081). Mean on-commonage direct-use values did not differ significantly among study towns and ranged from R2 780 in Grahamstown to R3 828 in Bathurst. Mean annual total livelihoods did not differ significantly across study towns. Total livelihood values ranged from R17 407 in Fort Beaufort to R25 861 in Grahamstown. This equated to the overall contribution from municipal commonage to local livelihoods ranging between 14 - 20 %, which is a significant livelihood contribution.

A fair proportion of commonage using households were considered to be living in extreme poverty. If the contributions from commonage were excluded from households' livelihoods, between 11 - 13 % more households would be living below the poverty line, indicating that access to commonage makes a critical difference to over 10 % of households at each study town. Thus, commonage users were in fact as intended by commonage policy, 'poor' households who are supplementing their livelihoods.

Commonage productivity (in terms of income per hectare), which includes income from natural resources and livestock, was considered to be worth approximately R1 023 per hectare per year in Grahamstown, R1 059 in Fort Beaufort, and R1 626 in Bathurst. Overall commonage income per town amounted to between R4.7 million and R8.0 million. In comparison to other systems, commonage using households can be said to be using their commonages productively. Additionally, it could also be said that multiple resource-use systems are more profitable than single resource-use systems.

This research has extended the understanding of subsistence/survivalist commonage households from the original typologies presented in previous literature. Households which use commonage rely on various sources of income which might not include livestock at all. Four types of subsistence/survivalist commonage user types were identified. Commonage using households used commonage but either depended on it for their livelihood by utilising a particular resource, relied predominantly on social grants, relied on a mixture of social grants and employment, or relied largely on employment for their livelihood income (Table 4.2).

Results suggest that commonage use has increased over the last decade, not only from new urban residents but from old ones as well. Moreover, due to urbanisation the use of municipal commonage is expected to increase for towns in South Africa. It is suggested that food inflation together with urbanisation will result in impoverished urban households relying more and more on commonage. Thus, it is suggested that municipalities should attempt to manage their respective commonages in a holistic manner. Four recommendations were presented in order to do so. Firstly, holistic commonage management plans should include the implementation of better livestock management through sustainable grazing regimes. Secondly, they should focus more on the sustainable utilisation of natural resources, and should explore the feasibility of planting woodlots to supplement wild fuelwood harvesting and cultivating medicinal plants to supplement the harvesting of natural stocks. Thirdly, commonage policy should investigate the creation of arable fields so as to create emergent crop farmers. Lastly, municipalities should invest more (financial and human resources) in their commonages so as to better manage them, and reduce the risk of increasing indigent grant seekers. The other option, in conjunction with these strategies, was to supply households with more land, in the form of new commonage.

Overall, findings suggested that while commonage may not be the principal source of livelihood for the large majority of urban households, it does provide an important supplementary income (between 14 – 20 % of total livelihoods) for commonage using households, albeit with a high degree of variation among households. Thus, access to commonage allows households to maintain a diversified livelihood strategy which may include social grants, employment, wood, the keeping of livestock as a form of investment, and other natural resource harvesting (for consumption or sale), which together enhances their ability to obtain a livelihood under difficult conditions.

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Appendices

Appendix 1 Legal framework for land reform (Adapted from Hall *et al.* 2007)

Law	**Details**
Provision of Land and Assistance Act 126 of 1993	Empowers the Minister of Land Affairs to disburse grants to individuals or to institutions to promote access to land.
Restitution of Land Rights Act 22 of 1994	Entitles the dispossessed to restoration of their property or to equitable redress and establishes a commission and a court to oversee restitution.
Development Facilitation Act 67 of 1995	Empowers local government to resolve land development conflicts and provides a means to speed up land development while securing tenure, particularly in the context of informal settlements.
Land Reform (Labour Tenants) Act 3 of 1996	Regulates and secures land rights of labour tenants and provides mechanisms to upgrade these rights to ownership.
Extension of Security of Tenure Act 62 of 1997	Prohibits the eviction of farm dwellers without a court order and requires that a notice of eviction be served on the municipality and DLA prior to court proceedings commencing / Requires that suitable alternative accommodation be provided for people facing eviction, through monies to be disbursed by the Minister of Land Affairs.
Transformation of Certain Rural Areas Act 94 of 1998	Provides for the upgrading and securing of tenure rights in the former 'coloured' reserves.
Traditional Leadership and Governance Framework Act 41 of 2003	Spells out a process of transformation of the institution of traditional leadership, to partially democratise tribal councils.
Communal Land Rights Act 11 of 2004	Empowers the Minister of Land Affairs to transfer land from the state to communities in communal areas, to be held by land administration committees (or traditional councils if they exist).

Appendix 2 Information to interviewees

My name is Nic Davenport and I am a student at Rhodes University. We are doing research on Municipal commonage, namely in Grahamstown, Bathurst and Fort Beaufort. The research is trying to identify what proportion of the township uses the commonage, and also how much the commonage contributes to those users livelihoods. The information that is given in this interview will be strictly protected and all data collected will remain absolutely confidential. It is illegal for us to distribute this household's information. Once the project has been completed, relevant policies may be written to enhance the well-being of township households. We would therefore like to ask you a few questions dealing with this household's employment, livestock usage and/or use of natural resources. No harm will be inflicted on this household due to this questionnaire. You are still free to withdraw from the project at any time, even after giving consent and after the project commences.

If you have any further questions about this project please contact the project supervisor:

James Gambiza (0765328424) or; the head of department (Environmental science):

Charlie Shackleton (0838571987).

Now that you know about the project, is your household willing to take part in it and answer a few questions?

INGXELO NGOMBA

Igama lam ngu Nic Davenport, ndingumfundi kwiyunivesiti yase Rhodes. Senza uphando ngamahlathi kamasipala, kwezindawo zilandelayo E Rhini, Batisi nase Bofolo. Oluphando luzama ukujongana nomnyinge wabantu abasebenzisa lamahlathi, kwakunye nomthamo abowufumanayo kulamahlanthi kuzebaphile. Incazelo ke oyakuthi uyinikeze yokhuseleka ingaziwa ngu wonke-wonke. Asivumele kanga ukusasaza okosikuxoxe nawe. Emveni kokuba iProject igqibile, kungabhaleka imikhombandlela ebonakalisa intlalo yabahlali. Kungoko sinomdla wokubuza malunga nendlela ekwenziwa ngayo ingeniso ekhayeni, ubumengemfuyo okanye ukusetyenziswa kwezinto zendalo. Anizoku ufumana nisengxakini ngokuthi nithathe inxaxeba ekuphenduleni lemibuzo. Unelungelo loku roxa nani apha kulenqubo yale project.

Imibuzo ethe yeshe nge project qhagamishelana nentloko yayo engu:

James Gambiza (0765328424); okanye intloko yecandelo lencali kwezendlalo:

Charlie Shackleton (0838571987)

Njengoko ngokuninolwazi nge project, ingaba apha ekhaya ninga nomdla ekuphenduleni imibuzwana?

Appendix 3 Phase one rapid survey

Name of town: _____Interview no._____ Date:_____

House address_____ Interviewer:_____

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1. What is the gender of the head of the household? **M [ ] F [ ]**
2. What is the head of the household's level of education? _____
3. How often does your household eat meat? _____
4. How many people live in this household: **Men [ ] Women [ ] Children (under 18) [ ]**
5. How many bedrooms in the household? _____
6. How many people are employed in this household? _____
7. Do any of the household members earn an old-age **pension** (*Ikamkam*), **disability grant** (*Ikamkam yokukhubazeka*) or **child grant** (*Ikamkam yabantwana*)? If so, how many?

   Pension:_____, Disability grant:_____, Child grant:_____
8. How long has your household lived in town?_____

---

1. Does your household use the commonage? **Yes [ ] No [ ]**
2. If yes, what do you use it for? (use checklist)_____
   Checklist of key resources (activities).

Resource	Yes	No	Frequency (if applicable)
Fuelwood			
Medicinal plants			
Livestock (grazing)			
Arable field(s) for cultivation			
Vegetable garden (only if on mc)			

3. When did you start using the commonage? _____
4. If no, why not? No livestock [ ] rules don't allow us to [ ] don't need to [ ] use other land [ ]

   other:_____
5. Are there any constraints to your use of the commonage? **Yes [ ] No [ ]**

6. If yes, what are these?_____

7. Would you mind if we came back later in the year to ask you some more questions? **Yes [ ] No [ ]**

Appendix 4 Summary of gender and commonage usage across the study towns

Status	Gender	Grahamstown	Fort Beaufort	Bathurst	Row Totals
user	male	31	53	74	158
user	female	23	55	65	143
Total		54	108	139	301
non-user	male	69	51	28	148
non-user	female	77	41	33	151
Total		146	92	61	299
Column Total		200	200	200	600

Appendix 5 Summary of the mean number of government social welfare grants per household between users and non-users across the study towns

	Bathurst		Fort Beaufort		Grahamstown	
	Users	Non-users	Users	Non-users	Users	Non-users
Pensions	0.49 ± 0.66	0.32 ± 0.5	0.48 ± 0.63	0.35 ± 0.52	0.5 ± 0.72	0.41 ± 0.58
Child grants	0.81 ± 1.08	0.52 ± 0.8	0.93 ± 1.12	0.86 ± 1.03	0.87 ± 1.17	0.62 ± 0.82
Disability grants	0.17 ± 0.39	0.1 ± 0.3	0.09 ± 0.29	0.18 ± 0.44	0.3 ± 0.54	0.08 ± 0.28

Appendix 6 Phase two Livelihoods survey

Name of commonage: _____Interview no._____

Date:_____ House address_____Interviewer:_____

1.HOUSEHOLD CHARACTERISTICS AND INCOME

1. Number of people resident in the household: Men [ ] Women [ ] Children (under 18) [ ]
2. Number of years resident in town: _____

a. If less than 5 yrs, where from:_____ and

b. Why? _____

3. Educational levels of household members?

Name (*Igama*)	Age (*Ubudala*)	Level of Education (*iskolo*)
(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

4. Which people in this household have a full-time, part-time or casual job? (*list by name and job type*)

Name no.	Job type (*Imise benzi cacisa*)	Full-time/part-time/casual	Self employed (describe)	R/month
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

5. Do any of the household members earn an old-age **pension** (*Ikamkam*), **disability grant** (*Ikamkam yokukhubazeka*) or **child grant** (*Ikamkam yabantwana*)

No. of grants	P/DG/CG	R/month

6. Does the household receive any remittances (*Ukhona umntu okuthuhelela imali*)? **Y [ ] N [ ]**

If Y:

a. How many people send money to the household? _____

b. How much: 1:R_____2: R_____3: R_____

c. -Frequency:1:W [ ] M [ ] Y [ ] Other_____;2:W [ ] M [ ] Y [ ] Other_____;3:W [ ] M [ ] Y [ ] Other_____

7. Does your household have access to land? **Y [ ] N [ ]**

a. If Y, Then which land?_____

8. Does your household have a garden? (ngaba unayo igadi) **Y [ ] N [ ]**

9. Does your household have a field? (ngaba unayo intsimi) **Y [ ] N [ ]**

a. If Y, then, Where is your field?_____

10. Does your household know where the commonage boundaries are? **Y [ ] N [ ]**

2. LIVESTOCK

1. Does your household own any livestock? **Y [ ] N [ ]**

If Y, fill out table, if N, go to section 3 (Natural resources).

Animal	Number	Kept where?	Animal	Number	Kept where?
Cattle (*inkomo*)			Sheep (*igusha*)		
Donkeys (*undlebende*)			Pigs (*ihagu*)		
Goats (*ibokhwe*)			Chickens (*inkuku*)		
Ducks (*ikewu*)			Geese (*irhanisi*)		

If own cattle or goats, go to q3 or q4, if not, but own other livestock go to q5.

2. What benefits (uses) does your household get from the livestock? (*PROMPT*)

Resource/activity	Get/use	Resource/activity	Get/use
Milk		Lobola payments	
Meat		Cash (when selling)	
Skins		Savings	
Dung for manure		Ceremonies/rituals/parties	
Dung for fires		Reciprocal lending	
Dung for floors		Other:	
Ploughing		Other:	
Transport		Other:	

Livestock herd composition:

3. Cattle

2007		2006	
Class	No.	Class	No.
Bulls		Bulls	
Cows		Cows	
Oxen		Oxen	
Calves		Calves	

a. How many calves were born last year? _____

b. How many of these have died? _____

c. How many adult animals died last year? _____

d. How many were stolen in the last year?_____

4. Goats

2007		2006	
Class	No.	Class	No.
Rams		Rams	
Ewes		Ewes	
Whether		Whether	
Lambs		Lambs	

a. How many kids were born last year? _____

b. How many of these have died? _____

c. How many adult animals died last year? _____

d. How many were stolen in the last year?_____

5. Where do you let your animals graze: _____

Old commonage [ ] Township [ ] Commonage Farm [ ] Commercial farm [ ] Other:_____

6. Who looks after your livestock during the day? Self [ ] Family member [ ] Friend [ ] No one [ ]

Hired help [ ] Join with other herds [ ]

7. If you hire somebody, how much do you pay them (per month/year)?_____

8. Do you have to pay for fencing, medicine (dip & dose) or grazing fees? **Y [ ] N [ ]**

If N, go to q9.

If Y, how much and how often?

a. Fencing: R_____frequency_____

b. Medicine: R_____frequency_____

c. Grazing fee: R_____frequency_____

9. How much time do you spend looking after your livestock and gathering benefits such as milk, dung or meat (slaughter)(per week)?_____

_____

2.1. Milk

1. How much milk does your household get from your [cows] or [goats] per day? (***if none, move on 2.2.meat***)

2. Cows:_____ Goats: _____

3. What do you do with the milk?

	Tick answer	How much/ proportion of total?
Consume at home		
Give away/share		
Sell		
Other (specify)		

4. If you sell or give away (share) milk complete table below:

	Amount?	How often?	Who to?	Which months of the year?	Payment?
Sell					
Give					[redacted]

2.2. Meat

1. How often do you slaughter any of your livestock?_____ (***if don't slaughter move onto 2.3. Skins***).
2. What type of livestock do you usually slaughter? _____
3. How many do you usually slaughter at a time?_____
4. How many animals have you slaughtered in the last year?_____
5. Do you ever sell or give away some of the meat from a slaughtered animal? **Y [ ] N [ ]**

	Amount?	Who to?	Price? (per kg/animal)
Sell			
Give			[redacted]

2.3. Skins

1. What does your household do with the skins of slaughtered animals (or, of animals that die)?
(***If owner slaughters, if not move onto 2.4. dung***)

Keep		Throw away	
Sell		Other?	

2. If the skin is kept:

a. What do you use it for? _____

b. Are there any costs? **Y [ ] N [ ]**

i. if Y, how much?_____

3. If the skins are sold:

a. How often do you sell skins?_____

b. What do you get for the skins? R_____ (other)_____

2.4. Dung

1. Do you ever use your animals' dung? **Y [ ] N [ ]**

If Y, go to q2, if N, move onto next section

(PROMPT FOR MANURE, BURNING, & FLOORS)

2. If Y, - what do you use it for?_____
- where do you collect it?_____
- how often do you collect?_____
- how much do you collect each time?_____

3. Do you ever sell or give away dung from your animals? **Y [ ] N [ ]**

	Amount?	How often?	Who to?	Payment?
Sell				
Give				[redacted]

2.5. Transport

1. Do you ever use your livestock for transport? **Y [ ] N [ ]**

If N, go to 2.6. Cash sales

2. Do you ever hire or lend out your animals for transport? **Y [ ] N [ ]**

If Y, fill out table.

	How often?	Who to?	Who drives the span?	Payment?
Hire				
Lend				

2.6. Cash sales

1. Do you ever sell your livestock for cash? **Y [ ] N [ ]**

If N, go to Natural Resources

a. If Y, - how often?_____

- which type of animal?_____

b. -how many?_____

c. at what price?_____

Notes:_____

_____

_____

3. NATURAL RESOURCES

1. Can you please tell us what natural resources your household uses at home or to sell to others?

Resource	Collect own	Collect where: Commonage/other	Buy	Sell to others
Wood for household items e.g. a handel or spoon				
Wood for furniture				
Wood for carvings to sell				
Mushrooms				
Honey				
Insects for food				
Bird eggs				
Thatch grass				
Reeds for construction				
Grass for livestock				
Tree leaves for livestock				
Plant dyes				
Plant resins				
Seeds for rattles or decorations				
Other:				

3.1.1.Wood (Fuelwood)

1. Does your household use any fuelwood (*ikuni*) **Y [ ] N [ ]**

If Y, then go onto q2, if N then go to q7.

2. Where do you collect it? _____

3. Please show us or tell us how much fuelwood your household uses:

Frequency	Amount (weight or volume of container)	Estimated value
Per day		
Per week		
Per month		

4. Are there some periods of the year that you use more or less than this? **Y [ ] N [ ]**

If Y, when?_____ &

How much more or less?_____

5. How many trips a week/month do you do?_____

6. How long does each trip take?_____

7. Does anyone in the household ever sell any fuelwood: **Y [ ] N [ ]**

If N move onto next section. *If Y, complete table below:*

	Amount?	How often?	Who to?	Which months of the year?	Payment?
Sell					
Give					[redacted]

8. Are there any costs involved when collecting fuelwood? **Y [ ] N [ ]**

a. If Y, What?_____

b. How much?_____

3.1.2. Wood (Construction material)

1. Do you have any fences/kraals made with indigenous poles or branches? **Y [ ] N [ ]** *If N, q8.*

a. If Y, how long is the fence(s)? (1)_____(2)_____(3)_____

2. Number of poles used, and year it was erected?

Fence/kraal no.	Year made	Component	Number	
			Total	Per 15 meteres
1		Poles		
		Branches		
2		Poles		
		Branches		
3		Poles		
		Branches		

3. How often do you have to replace old or damaged poles or branches? _____

Poles (no. Per time)_____ Branches (no. Per time)_____

4. Did you buy or collect the poles/branches? Collected [ ] Bought [ ]
5. If collected, then where did you collect them?_____
6. How many times do you collect poles/branches in a week/month/year?_____
7. How long does each trip take?_____
8. Does someone in the household ever sell poles for fencing/kraals? **Y [ ] N [ ]**

If N, go to next section.

a. If Y, how many (number per day, week, month, year)_____
9. How much do you sell it for? R_____

3.1.3. Wood for Housing

1. Do you collect poles for Housing? **Y [ ] N [ ]** ***If N, go to next section.***
2. How much wood,_____, How often:_____,
3. How much is that wood worth? R_____
4. Where do you collect it:_____
5. How much time do you spend collecting these poles in a month?_____
6. Do you ever sell that wood: **Y [ ] N [ ]**

a. If Y, for how much:R_____ &

b. How often:_____

3.1.4. Wood (household utensils, tools, & carvings)

1. Do you ever make your own utensils? **Y [ ] N [ ]** ***If N, go to next section.***

2. Where do you collect the material to make the utensils?_____

3. Which utensils do you make, how many do you make, do you sell any items, and how much do you think they are worth?

Item	Make it	Amount made per year	Number sold/month or year	Value (Rand)
Spoons				
Plates				
Bowls				
Mortars				
Axe handles				
Hoe & Pick handles				
Walking sticks (kierie)				
Statues (sculptures)				

4. How much time do you spend on making these items in a month?_____

5. Does it cost you anything to make these items? **Y [ ] N [ ]**

a. If Y, How much?_____

3.2.1. Wild herbs/spinach

1. Do you collect wild spinach (*imifino*) or any plant similar to it? **Y [ ] N [ ]** ***If Y go to q2, if N, go to q8.***

2. How much “wild herbs" does your household use?

Frequency	Amount (size of unit or volume of container)	Value (R) (if known)
Per day		
Per week		

3. Are there times in the year when you collect more or less wild herbs? **Y [ ] N [ ]**

a. If Y then when, More:_____ Less:_____

b. How much more or less?_____

4. What types of wild herbs do you collect?_____
_____

5. Where do you collect these herbs?_____

6. How many times do you collect herbs in a week/month?_____

7. How long does each trip take?_____

8. Do you ever sell any of the herbs that you collect? **Y [ ] N [ ]** ***If Y, go to q9, if N, move onto next section.***

9. How much do you sell?_____, at what price do you sell: R_____ and

How often do you sell?:_____

10. Does it cost you anything to collect or use these wild herbs? **Y [ ] N [ ]**

a. If Y, how much?_____

3.2.2 Wild fruits

1. Do you collect any wild fruit? **Y [ ] N [ ]** ***If Y go to q2, if N, go to q8.***

2. How much wild fruit does your household use?

Frequency	Amount (size of unit or volume of container)	Value (R) (if known)
Per day		
Per week		

3. Are there times in the year when you collect more or less wild fruit? **Y [ ] N [ ]**

b. If Y then when, More:_____ Less:_____

c. How much more or less?_____

4. What types of wild fruit do you collect?_____

_____

5. Where do you collect these fruit?_____

6. How many times do you collect fruit in a week/month?_____

7. How long does each trip take?_____

8. Do you ever sell any of the fruit that you collect? **Y [ ] N [ ]** ***If Y, go to q8, if N, go to next section.***

9. How much do you sell?_____, at what price do you sell: R_____ and

How often do you sell?:_____

10. Does it cost you anything to collect or use these wild fruit? **Y [ ] N [ ]**

a. If yes, how much?_____

3.3. Bushmeat

1. Does your household eat any wild animals that are caught or hunted (not venison from butcher)? **Y [ ] N [ ]**

if Y, go to q2, if N go to q4.

2. Please tell us what wild animals your household commonly eats and where you catch it?

Animal type	Frequency (number per ....)			Where caught/hunted
	Per week	Per month	Per year	

3. Are there some periods of the year that you use more or less than this? **Y [ ] N [ ]**

a. If Y then when, More:_____ Less:_____

b. How much more or less?_____

4. Does anyone in your household ever sell bushmeat? **Y [ ] N [ ]** ***If N, go to next section.***

a. If Y, What kinds? _____

5. How often? (times per week/month/year) _____

6. How much do they usually sell? (Record unit weight or volume) _____

7. How much do they sell it for (per unit)? _____

8. At what price did they sell it last year? _____

9. From where do you collect the bushmeat? _____

10. How often do you collect/hunt for bushmeat? _____

11. How long does each trip take?_____

12. Are there any costs involved? **Y [ ] N [ ]**
a. If Y, how much? _____

3.4. Medicinal plants (Muthi)

1. Does anyone in the household ever use medicinal plants to heal or treat themselves or others? **Y [ ] N [ ]**

If Y, go to q2, if N, go to q4.

2. How often do you use muthi plants? Weekly [ ] Monthly [ ] Yearly [ ]

If unsure, when was the last time your household used muthi plants?_____

3. What are the dominant types of muthi plants that this household uses?_____

_____

4. Where do you get your muthi plants? Collect [ ] Buy [ ] Don't use muthi [ ]

If collect go to q5, if buy, q10.

5. Where do you collect muthi plants?_____

6. How often do you go and collect muthi plants?_____

7. How long does it take you to collect the muthi plants each time?_____

8. How much do you collect each time you need to use a muthi plant?_____

9. Does it cost you anything to collect muthi plants and use them?_____

10. Who do you buy your muthi plants from?_____

11. What does it cost per unit?_____

12. Does someone in your household ever sell muthi plants? Often [ ] Sometimes [ ] Never [ ]

13. How much do you usually sell? (kg per week/month/year)_____

14. How much do you sell it for (per unit)_____

3.5.1. Brooms (Grass hand brushes)

1. How many grass brooms does your household have? (if none, move onto next section)

   - Short grass broom with no wooden handle _____

   - Long grass broom with a wooden handle _____

2. Do you normally buy them or make them yourself? Buy [ ] Make own [ ] Both [ ]

3. How long do they normally last? _____

4. Does someone in your household ever sell grass brooms? **Y [ ] N [ ]**

   If N, go to next section.

   If Y, how many do they usually sell? (per week/per month/year) _____

5. How much do they sell it for?

   - Short broom with no wooden handle_____

   - Long broom with a wooden handle _____

6. Where do they get the brooms to sell? _____

7. If they make them, how long does it take to

- collect the grass _____

- sell the brooms _____

8. Are there any costs involved (e.g. Transport)? If Y, how much? _____

9. If you make brooms yourself, where do you collect the grass to make brooms?_____

10. How often do you collect?_____

11. How long does it take to collect? _____

3.5.2. Brooms (Twig hand brushes)

1. How many twig hand brushes does your household have?_____ ***if none, go to next section***

2. Where do you get the twigs from to make the brush?_____

3. How long does each one last before replacement?_____

4. Does someone in your household ever sell twig hand brushes? Often [ ] Sometimes [ ] Never [ ]

5. How many do you usually sell? (Per week/per month)_____

6. How much do they sell it for (per unit)?_____

7. Where do you get the twig hand brushes to sell?_____

8. If collected, How often do you collect?_____

9. How long does it take to collect?_____

10. Are there any costs involved? **Y [ ] N [ ]**

a. If Y, How much?_____

3.6 Weaving reeds

1. Does your household have any reed or grass items/products? **Y [ ] N [ ]** (***if no, go to next section***)

2. What reed/grass items do you have in your household, and how many bundles are needed for each item?

Item	Approx. size	No. owned	Lifespan	No. made yourself	No. of bundles used per item?	Hours needed to make	No. bought	Price per item
Sleeping mats								
Place mats								
Grain baskets								
Beer strainers								
Other								

3. What is the average diameter of a bundle?_____

4. When last did you make one of these items? (year)_____

5. Where did you get the reeds from?
   - Nature reserve [ ]
   - Commonage [ ]
   - Bought from somebody [ ]
   - Other _____

6. Did you have to pay for the reeds? **Y [ ] N [ ]**

7. If Y, what did they cost you? (per unit)_____

8. Does someone in your household ever sell reeds or the finished product? **Y [ ] N [ ]**

9. If yes, how many bundles or products do they sell per month/year?

Item	Number sold		Selling price		How many hours do they take to make
	per month	per year	Last year	This year	

10. Where do they get the reeds or items to sell? _____

11. How often do you collect?_____

12. How long do they take to collect each time? _____

13. Do they have to pay for the reeds/grass? If yes, how much? _____

14. Do they have to pay for labour? If yes, how much? _____

15. Do they have to pay for transport? If yes, how much? _____

3.7 Clay/Sand

1. Do you ever collect clay or sand for building? **Y [ ] N [ ]** ***If N, go to next section.***

a. If Y, Sand [ ] Clay [ ]

3.7.1. Sand

1. How much do you collect? (get units)_____

2. How often do you collect (or when was the last time you collected)?_____

3. How long does it take each time you collect?_____

4. Where do you collect?_____

5. Are there any costs involved, when collecting? **Y [ ] N [ ]**

a. If Y, How much?_____

3.7.2. Clay

1. How much do you collect? (get units)_____

2. How often do you collect (or when was the last time you collected)?_____

3. How long does it take each time you collect?_____

4. Where do you collect?_____

5. Are there any costs involved, when collecting? **Y [ ] N [ ]**

a. If Y, How much?_____

3.7.3. Sales

1. Does anyone in your household ever sell clay, sand or bricks? **Y [ ] N [ ]**

a. If Y, What do you sell? Clay [ ] sand [ ] bricks [ ]

b. How much?_____

c. How often?_____

d. At what price do you sell?_____

e. Where do you collect the material to sell?_____

4. GARDENS

1. Do you have a garden? **Y [ ] N [ ]**

If N, go to q4.

2. If Y, how big is your garden?_____

3. Do you grow...(*Ngaba uyayilima*)*?* & 4. Do you have fruit trees (*Ngaba unayo na imithi yeziqhamo*)?

4.	Garden (Igadi)	Field (Intsimi)
Maize (umbona)		
Sweet potatoes (ibhatata)		
Potatoes(amazambani)		
Pumpkins (ithanga)		
Beans (ibotyi)		
Cabbages		
Tomatoes		
Spinach		
Peppers (upelepele)		
Onions		
Butternut		
Carrots		
Beatroot		

5.	Yes (Ewe)
Peaches	
Guavas	
Oranges	
Nartjies (amanatshi)	
Lemons (ilamla)	
Avocadoes	
Mango	
Papaya (ipopo)	
Other	

Notes on any other cereals or fruit trees grown:_____

_____

_____

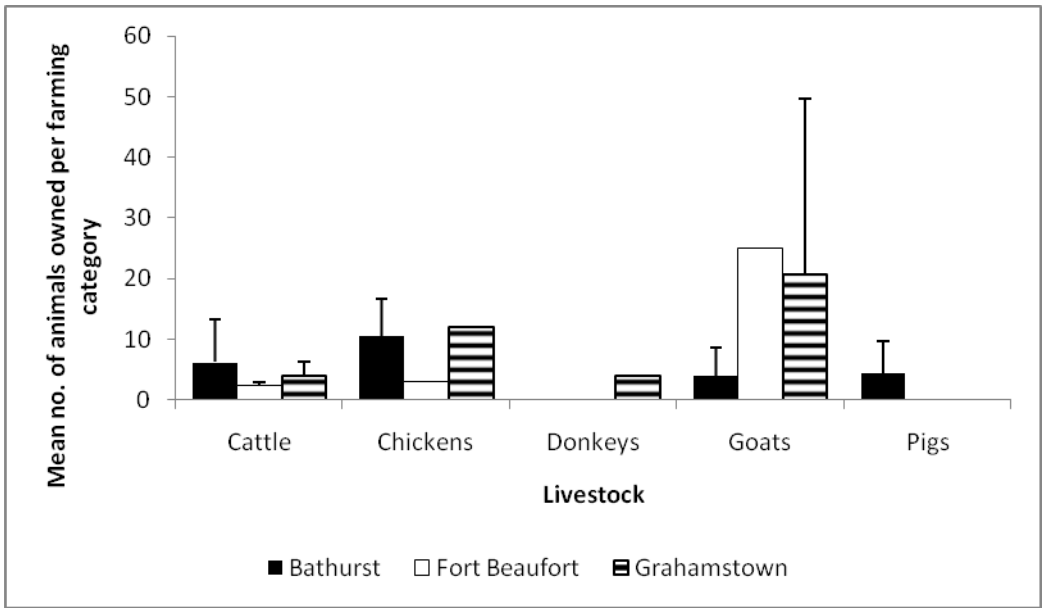
_____

_____

Appendix 7 Summary of government social welfare grants (R) into pensions, child grants and disability grants across the study towns

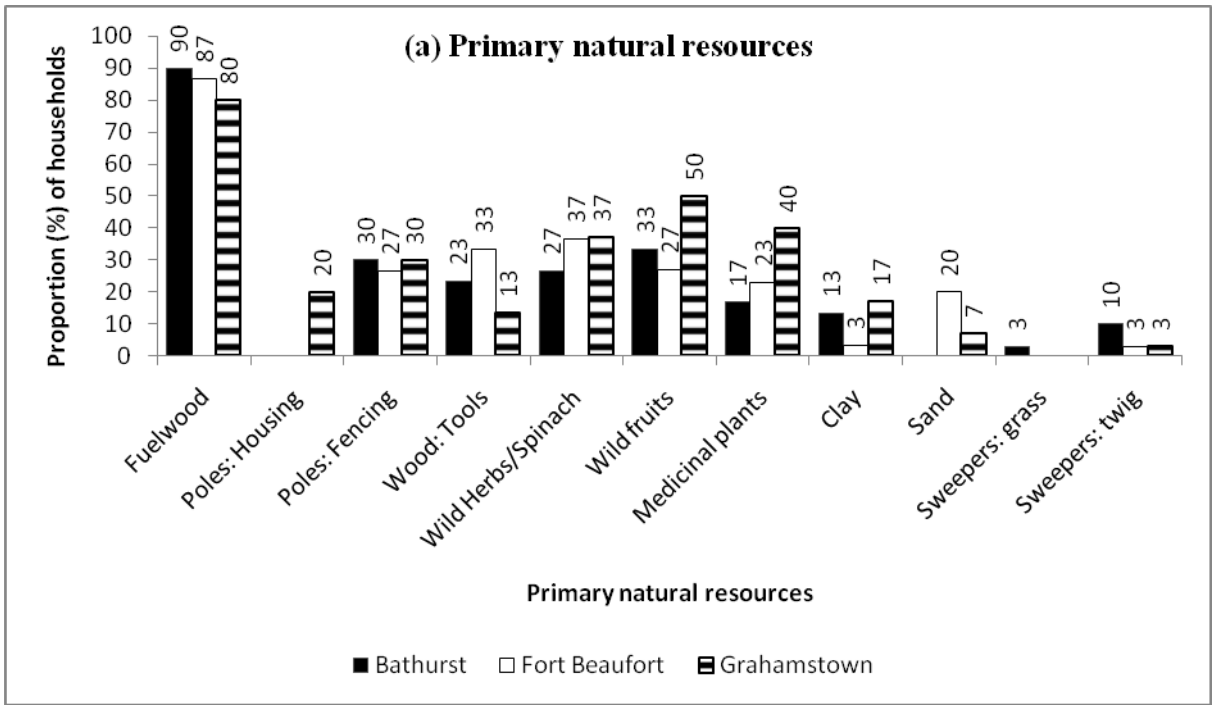
	Bathurst	Fort Beaufort	Grahamstown	Mean
Pensions	6 264 ± 8 040	4 872 ± 7 624	5 568 ± 7 624	9 416 ± 8 778
Child grants	1 760 ± 2 084	2 720 ± 2 336	3 040 ± 3 390	8 288 ± 9 142
Disability grants	1 392 ± 3 610	696 ± 2 649	2 436 ± 5 262	11 044 ± 9 805

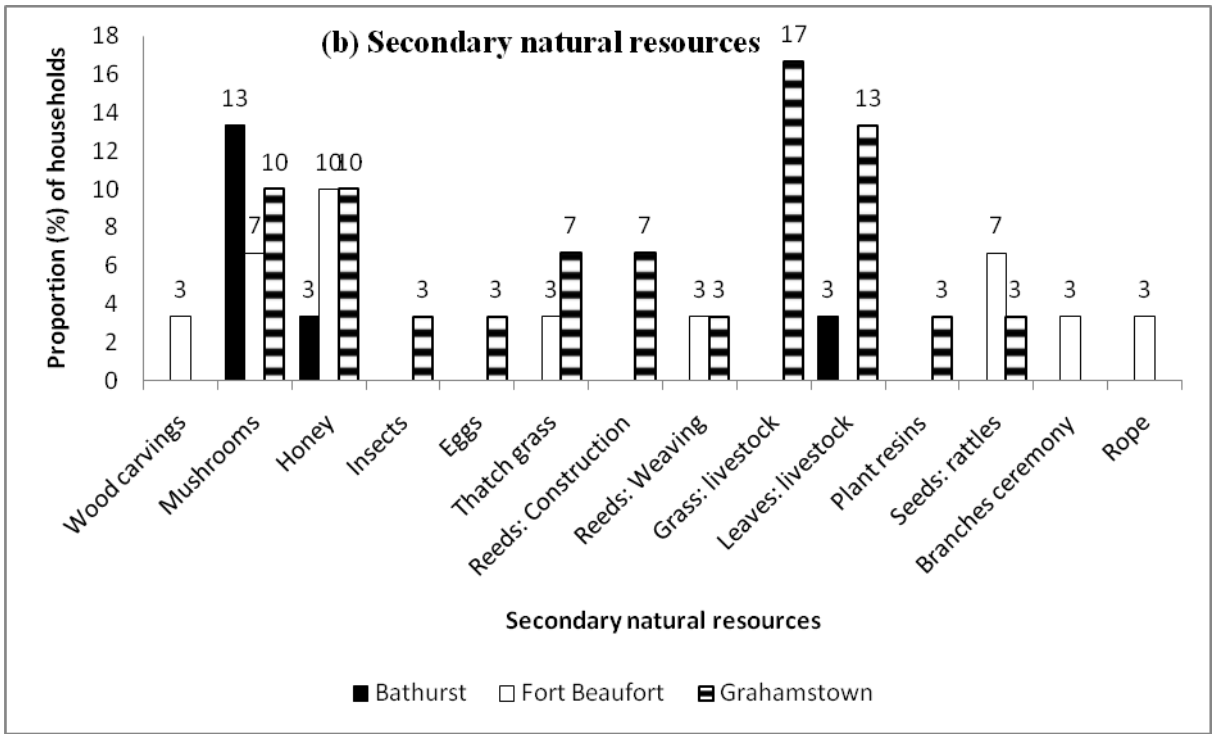
Appendix 8 Mean numbers of livestock owned by commonage livestock farmers per livestock category



Note that figures are quoted per farming category, i.e. mean number of cattle per cattle owning households and not total population

Appendix 9 Proportion of households who harvested (a) primary and (b) secondary natural resources





Appendix 10 Wild herb species that were collected by commonage using households. Values quoted are the proportion of households who collected the species

Vernacular name	Botanical name	Grahamstown	Fort Beaufort	Bathurst
Ihlaba	*Taraxacum officinale*	20	33	27
Imbuya	*Marrubium vulgare*	0	0	3
Irhawu	*Urtica urens*	3	7	0
Isiqwashumbe	*Raphanus raphanistrum*	7	20	7
Mbikilicane	*Chenopodium album*	23	23	3
Mfanuthenqo	*Aizoon glinoides*	0	0	3
Umsobosobo	*Solanum* spp.	20	3	27
Utyutu	*Amaranthus hybridus*	23	23	17
Other	*?*	0	3	3

Appendix 11 Wild fruit species that were collected by commonage using households (Values quoted are the proportion (%) of households who collected the species)

Vernacular name	Botanical name	Grahamstown	Fort Beaufort	Bathurst
Isiphingo	*Scutia myrtina*	17	0	0
Itdlofiya	*Opuntia ficus-indica*	40	27	33
Amatungulu	*Carissa macrocarpa*	3	0	0
Umnqabaza	*Grewia occidentalis*	3	0	0

Appendix 12 Medicinal plant species that were collected by commonage using households (Values quoted are the proportion (%) of households who collected that specific species)

Vernacular name	Suggested botanical name	Bathurst	Fort Beaufort	Grahamstown
Ikhala	*Aloe ferrox*	0	3	10
Imfihlo	*Capparis sepiaria citrifolia*	0	3	0
Impendulo	*Rubia petiolaris*	3	0	0
Imphepho	*Helichrysum* spp.	3	3	7
Inceba	*Polygala serpentaria*	3	0	0
Indawa	*Cyperus* spp.	0	0	3
Indlebe yebokwe	*Gunnera perspensa*	0	0	3
Inongwe	*Hypoxis* spp.	0	0	10
Iperepes	*Clausena anisata*	3	3	13
Iqwili	*Alepidea amatymbica*	0	3	0
Irooiwater	*Bulbine* spp.	3	0	7
Isibindi	*Ganoderma* spp.	0	0	3
Isicakathi	*Agapanthus africanus*	0	3	0
Isidumo	*Ilex mitis*	3	0	0
Isiphephetho	*Siphonochilus aethiopicus*	0	3	0
Itshongwe	*Pachycarpus* spp.	0	3	0
Itswele lomlambo	*Tulbaghia violacea*	0	0	7
Iyeza lomoya	*Osteospermum junceum*	0	3	0
Mayisake	*Cissampelos capensis*	3	0	0
Ubulawu	*Behnia/Scabiosa* spp.	3	0	0
Ucawuza	*Maesa alnifolia*	0	0	3
Uchithibunga	*Rhoicissus spp.*	3	3	0
Ukreletsane	*Ledebouria revoluta*	0	3	0
Umangolwane	*Drimia robusta*	0	3	0
Umaphipha	*Rapanea melanophloeos*	0	0	3
Umathunga	*Asparagus/Haemanthus* spp.	0	0	10
Umavumbuka	*Hydnora /Sarcophyte* spp.	0	0	3
Umdubu	*Combretum caffrum*	0	3	0
Umfazonengxolo	*Hippobromus pauciflorus*	0	3	0
Umgqeba/Bitterblaar	*Brachylaena elliptica*	0	0	7
Umhlonyane	*Artemisia/Marrubium* spp	3	7	17
Umkhwenkwe	*Pittosporum/Ilex* spp.	0	0	3
Umnga	*Acacia karroo*	0	0	3
Umnonono	*Strychnos* spp.	3	0	0
Umnukane	*Ocotea bullata*	0	3	0
Umquma	*Olea europaea africana*	0	3	0
Umrateni	*Ornithogalum* spp.	0	3	0
Ungcana	*Dianthus thunbergii*	0	3	0

Uphuncuka	*Crassula/Talinum* spp.	3	0	0

Vernacular name	Suggested botanical name	Bathurst	Fort Beaufort	Grahamstown
Uvuma	*Dolichos falciformis*	0	3	0
Uyakayakana	*Bulbine abyssinica*	0	10	10
Other	*?*	3	0	17

Appendix 13 Descriptive statistics of on and off-commonage income (Income includes cash and direct-use values, values are quoted in Rand)

	Bathurst			Fort Beaufort			Grahamstown		
	On mc	Off mc	Total livelihood	On mc	Off mc	Total livelihood	On mc	Off mc	Total livelihood
Mean	3828	18535	22363	3404	14003	17407	2780	23081	25861
Std dev	7581	9008	13382	4027	12819	14017	2256	15310	14932
Max	40116	35611	71316	12426	60120	61230	9305	60480	64647
Min	10	2400	3311	82	2400	2621	0*	1800	3594
Range	40106	33211	68005	12344	57720	58609	9305	58680	61053
Median	1307	21240	23920	1318	10320	13160	2282	20755	24273

*Minimum income from the commonage for Grahamstown is zero because one livestock farmer did not make any income in the last year.