

**LIVELIHOOD AND COPING STRATEGY CHANGES ALONG
RURAL-URBAN CONTINUA WITH AN EMPHASIS ON
NATURAL RESOURCES**

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Abstract

Rapid urbanisation is one of the greatest challenges facing both developed and developing countries. Sub-Saharan Africa has historically been one of the least developed and least urbanised areas of the world. However, urbanisation is now occurring much more rapidly in countries that have lower levels of per capita income. Therefore, in the coming decades, urban population growth is expected to be more widespread in the developing countries of the world. Most research on the role of natural resources focuses on rural communities and little is known about the contribution these resources make along the rural-urban continuum in small and medium sized towns as well as the contribution to total livelihoods. This is because researchers and policy makers have often treated rural and urban areas and their residents as distinct entities that should be studied in isolation. This, however, is not a true reflection of household livelihoods which often include both rural and urban elements. This study therefore analysed the impact of urbanisation on livelihoods along a rural-urban continuum with an emphasis on natural resources in South Africa. The main characteristics as well as the livelihood portfolios of respondent households were investigated. Secondly, the coping strategies used by households along the rural-urban continuum were explored, and disaggregated according to the gender of the household head. Data were collected along the rural-urban continuum of two small towns, namely Queenstown, located in the Eastern Cape province and Phalaborwa, located in the Limpopo Province of South Africa. Sampling covered the town, peri-urban areas, townships and adjacent rural households. A standardised survey instrument was used to capture household details and livelihood activities and a total of 272 interviews were conducted. The rural areas near both towns were poorer than the township and urban areas with regards to assets, access to employment and annual household income across all cash and non-cash income streams. The engagement in land-based activities increased towards the rural areas. The use of natural resources, as well as the number of resources collected, increased along the continuum towards the rural areas, with 12.0 % to 49.0 % of urban households, 30.0 % to 88.0 % of township households and between 80.0 % and 100.0 % of rural households engaging in the use and collection of natural resources. While natural resource use and collection was lowest in the urban areas, a significant amount of resources were still collected by urban households. Income portfolios for all households were calculated to determine the direct-use value of wild natural capital to livelihoods as well as the contribution made from land (arable and livestock farming), welfare grants and employment. Employment, barring one exception in the rural areas of Phalaborwa,

was the largest contributor in terms of mean annual income along the continuum in both towns, followed by grants and pensions in the township and rural areas. In Phalaborwa, however, wild natural capital was found to be the largest contributor to local livelihoods, contributing 48.0 % of the mean annual income. Household portfolios become more diversified in the poorer, rural areas as well as in households headed by females. The main shocks reported along the continuum in both Queenstown and Phalaborwa were death in the family, followed by a loss of employment, which was concentrated in male-headed households. Coping strategies resulting in the attainment of cash income fast, such as borrowing money from friends/relatives and cashing in retirements savings were favoured over longer term strategies such as finding local wage employment. Female-headed households were found to rely significantly on social groups or clubs as a coping strategy, highlighting the importance of social capital and social relations in female-headed households.

Keywords: Rural-urban continuum, natural resources, livelihood portfolio, coping strategies, female-headed households.

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Chapter 1

Introduction

1.1 Urbanisation

Over the past half century, a great rural-urban shift has been occurring and this shift is set to continue well into the 21st century (Ichimura, 2003). The world's rapid urbanisation is one of the greatest challenges facing both developed and developing regions. Cities occupy around 4 % of the world's terrestrial surface yet are home to almost half of the world's population (Redman & Jones, 2005). They consume approximately three-quarters of the world's natural resources and generate three-quarters of its pollution and waste. This rapid growth in the world's population requires large scale investment in new infrastructure as well as many challenges for political and social institutions (Redman & Jones, 2005).

Urbanisation is the shift from a rural to an urban society and occurs through a number of different processes such as natural population increase, rural-urban migration as well as annexation (Cohen, 2006; Owoade, 2007). It is the process by which cities and towns develop and grow into larger areas and involves the increase in the proportion of a population living in urban places (Drescher & Iaquinta, 2002; Simms, 2008). Urbanisation is the result of social, economic, and political developments that have led to urban concentration and development of large cities, changes in land use as well as the alteration from a rural to a metropolitan pattern of structure and authority (Nsiah-Gyabaah, 2004). This is a very significant trend to develop over the 20th and 21st centuries and has affected rural development, agriculture as well as food security (Drescher & Iaquinta, 2002). Both as a cause and an effect, urbanisation is related to the declining percentage of the rural population involved in agriculture, migration, changing household livelihood strategies, transformation of rural-urban linkages, and the increasing importance of urban and peri-urban agriculture (Drescher & Iaquinta, 2002).

Between the year 2000 and 2030, the world's population is anticipated to grow at an annual rate of 1.8 %, which means a doubling of the population in 38 years (Drescher & Iaquinta, 2002; Redman & Jones, 2005). The urban population of the world is expected to increase from 2.86 billion in 2000 to around 8.3 billion by 2030, with an expected 61.0 % of the world's population residing in urban areas (Drescher & Iaquinta, 2002; Cohen, 2006; Mandere *et al.* 2010). When compared to the rise in urban populations, rural populations have

been relatively slow. While the world's urban population is expected to increase by about two billion over the next 30 years, rural populations are expected to decline marginally from 3.3 billion in 2003 to 3.2 billion in 2030 (Bhattacharya, 2002; Redman & Jones, 2005). Therefore, it is anticipated that all future population growth is expected to occur in the urban areas.

The most profound difference between the first half of the 20th century and today is that urbanisation was predominantly confined to countries that had the highest levels of per capita income (Cohen, 2004). Population growth in general, and particularly that of urban populations, is expected to occur more rapidly in the developing world (Bhattacharya, 2002; Cohen, 2004; Redman & Jones, 2005). Cohen (2006) states that "more people in the world will be living in cities and towns than will be living in rural areas and by 2017 the developing world is likely to become more urban in character than rural". Growth will be rapid in the urban areas of the developing world, averaging around 2.3 % per year from 2000 to 2030, compared to the developed world's urban growth rate of 0.4 % (Drescher & Iaquina, 2002). Therefore, nearly all growth will occur in developing countries.

In Africa, the dramatic effects of rapid urbanisation are very evident with an estimated 72.0 % of the urban population now living in slums (Nsiah-Gyabaah, 2004; Cohen, 2006). Rapid urban growth has resulted in cities unable to provide adequate basic services to their inhabitants (Redman & Jones, 2005; Cohen, 2006). As the size and number of cities increase, their management becomes more complex. Here, the ever increasing demand for energy, food, goods and other resources has led to the conversion of land for urban expansion as well as for urban residents (Redman & Jones, 2005). Of great concern are the resultant threats to the surrounding environment, as degradation of local and regional environments threatens basic ecosystem services and global biodiversity (Redman & Jones, 2005; Cohen, 2006).

Sub-Saharan Africa has historically been one of the least developed and least urbanised areas of the world, with most households and national economies dependant on agriculture. However, in the last 50 years, these areas have experienced high rates of urban growth (Cohen, 2004). Understanding the change that has occurred in sub-Saharan Africa requires careful consideration of the social, economic and political history of the region. The role of colonialism warrants special mention. The onset of colonialism in the 17th century influenced the organization and pattern of African growth in numerous ways (Byerlee, 1974; Cohen, 2004). South Africa has experienced centuries of social and spatial regulation where racial classification and spatial segregation were employed by national authorities for the purpose

of maintaining control over rural and urban areas (King, 2011). The colonial system laid the groundwork for racial segregation through the use of reserves which were demarcated as official territories for the majority of the indigenous African population. In 1948, the National Party brought a set of policies designed to classify the population by race and implemented strict spatial segregation. The construction of the homelands was the primary vehicle through which the landscape was racially divided (King, 2011).

Approximately 44.0 % of the South African population live in rural areas. However, despite South Africa being a large country with a wealth of natural assets, a large proportion of the South African population live in poverty. This poverty is concentrated, although not restricted to the black population (Aliber, 2003). The concentration of poverty within the black population and in the rural areas is directly attributable to the previous apartheid policies (Aliber, 2003; Marais, 2005). In addition to this, there are also significant inequalities in terms of access to, and ownership of, land (Davenport *et al.* 2012).

1.2 Urbanisation in small and medium sized towns

Internationally, urbanisation studies have principally concentrated on large urban centres, and largely neglected, with a few exceptions, medium and small sized towns (Nel *et al.* 2011). Small towns, both internationally and in South Africa, are therefore largely under researched (Nel, 2005). However, a large proportion of the South African population resides in small towns and their surrounding hinterlands, and therefore research on such towns is important. The level of urbanisation is increasing everywhere, with impacts felt in the rapid population increases in small towns and medium sized cities (Drescher & Iaquina, 2002). By 2015, small and medium sized towns will be home to nearly 3.2 billion people or about 45.0 % of the total population. Small towns have populations between 5 000 and 50 000 but can be larger or smaller, as no universal definition exists (Drescher & Iaquina, 2002). Although some studies on small and medium sized towns have been conducted in southern Africa, these are few and far between (Nel & Rogerson, 2007; Nel *et al.* 2011). In addition to this, few studies have a comprehensive focus on livelihoods and the many activities comprising a household's livelihood portfolio in small towns.

South African small towns are in many ways unique and distinctive as a result of the processes occurring in them. These may be a reflection of the economic loss experienced in South Africa, as well as developing world characteristics of persistent population growth coupled with poverty (Nel *et al.* 2011). Small and medium sized towns have been shaped by a

number of processes such as: the historical processes of growth and decline over time; changing racial dynamics, which are reflected in the processes of discrimination; as well as control and removal, which ultimately shaped small towns and their hinterlands before the 1990's (Nel *et al.* 2011). South African small towns are characterised by high levels of poverty, out migration of skilled people and a decline in economic activity with rising unemployment (Nel, 2005). The economic decline is a concern in small towns as this affects the availability and accessibility of services in their hinterlands (Xuza, 2005).

International literature has shown that towns experiencing the greatest changes tend to be those which are situated close to natural attractions, centrality in terms of their hinterland areas as well as proximity to urban centres offering services to the new generation of small town residents (Nel *et al.* 2011). Another important reason for the emergence of small and medium sized towns is forced replacement due to violence in that they can provide more security than rural areas while avoiding the high crime rates in larger cities (Nel *et al.* 2011). A deepening social and economic crisis, fuelled by the decrease of formal sector employment, the impact of HIV/AIDS as well as farm evictions, is accelerating the movement of rural people to towns and cities (Davenport *et al.* 2011). In addition to this, migrants expect greater advantages in medium sized towns and cities (Drescher & Iaquina, 2002). Job opportunities are attractive to new migrants or to people who may struggle to find employment in the bigger, more competitive cities (Tacoli, 1998; Owusu, 2005; Kruger, 2006; Nel *et al.* 2011).

Nel *et al.* (2011), found that small towns in the Karoo appear to be largely urbanised, and are centres of growth rather than decline. In addition to this, the racial demographics of small towns are changing. Growth now has a defined racial characteristic to it, as noted in the Karoo with its growing coloured and black populations, a declining rural population and a stagnation of the white populations (Kok & Collinson, 2006).

Along with the increasing populations of small towns comes an increase in demands for urban services (Nel, 2005). According to Drescher and Iaquina (2002), employment and income generating opportunities are limited and unemployment levels are high. In addition to this, in many cases there are fewer males than females which leads to a high incidence of female-headed households coupled with low levels of income. As previously stated, small towns in the former homelands have extremely high levels of destitution and poverty and any approach to small town development issues must not only address development but also household wellbeing (Nel, 2005; Xuza, 2005). Few studies of small and medium sized towns

take a comprehensive look at the livelihoods of the poor and the activities that households are engaging in (Masika *et al.* 1997). This is highly important and cannot be neglected from a policy and planning perspective. The dimensions of poverty need to be clearly understood for one to begin to develop ways of dealing with it. Studies focusing on small towns cannot be divorced from their hinterlands, as these quite often form crucial components of the livelihoods of both urban and rural residents. Urban and rural development cannot be considered as separate entities but rather a continuum where both dimensions intersect (Masika *et al.* 1997; Drescher & Iaquina, 2002).

1.3 Drivers of urbanisation in Africa

The cause of the rapid growth of small and medium sized cities in less developed countries has been attributed to two main sources, i.e. continued rural-urban migration and the rate of natural increase (Owoade, 2007). There have been differing opinions as to which of the above mentioned sources contributes the most to the rapid urbanisation occurring today. While rural-urban migration has in the past been seen to be the main contributor to the growth of urban centres between the 1950s and the 1970s, in the past two decades natural increase has been noted as contributing more to urban growth (Drescher & Iaquina, 2002).

1.3.1 Rural-urban migration

Migration is a significant factor in the growth of cities in developing countries, accounting for 25.0 % of the population growth in Africa (Simms, 2008). Factors such as the economic opportunities associated with cities, the economic problems associated with rural areas, the search for employment, insecurity, as well as the excitement associated with city life and the hope of a better standard of living, drive people out of rural areas and into urban ones. Migrants tend to move from areas of lower economic opportunity to areas of high economic opportunity for the reasons mentioned above (Bhattacharya, 2002). It has been noted by Bhattacharya (2002) that migrants who move to urban areas improve their cash income over their rural options almost immediately after finding a job, and that over time there are little earning related differences between migrants and non-migrants of the same age, sex and education level. However, migration creates other major problems for urban areas. Rapid urban growth strains the capacity of local and national governments to provide even the most basic of services such as water, electricity and sewerage. Each year, cities attract new migrants who end up in squatter settlements and shanty towns (Simms, 2008). This leads to an increase in urban congestion and sprawl, and an accumulating backlog with regard to the

provision of adequate basic services as well as attempts to improve the infrastructure within the city (Stonian, 2005). A major effort is required to ensure that the rapidly expanding urban areas can support the growing urban population and that urbanisation will not result in increasing poverty for millions of people (Sheng, 2002). In Africa, most people move out of urban areas because they are 'pushed' out by factors such as poverty, environmental degradation, political persecution, food insecurity as well as a lack of basic infrastructure services. 'Pull' factors attracting rural residents to the advantages and opportunities in urban areas include education, electricity, entertainment, health services, etc. (Nsiah-Gyabaah, 2004).

1.3.2. Natural increase

Contrary to popular belief, rural-urban migration is not always the predominant driving force governing rapid urbanisation (Cohen, 2004; Redman & Jones, 2005). Natural increase is the second factor involved in the growth of cities in the developing world and currently accounts for approximately 60.0 % of urban population growth worldwide. Natural increase is the surplus of births over deaths within the urban population in a given time period (Redman & Jones, 2005). Natural increase is fuelled by improved medical care, better sanitation and improved food supplies, which lead to a reduction in the death rate and therefore an increase in population growth (Nsiah-Gyabaah, 2004).

1.3.3 Annexation

Cities can also grow from a process known as annexation. This is a consequence of the rapidly expanding urban areas through the joining or inclusion of territory to a city (Redman & Jones, 2005; Cohen, 2006; Sheng, 2002). The process for physical, municipal growth had been through annexation. This has been pursued by governments for a variety of reasons, including growth management strategies, as well as economic development strategies where the goal may be to acquire more land (Edwards, 2008). Therefore, as cities grow they usually annex neighbouring areas resulting in the development of suburbs. Annexation promotes coordinated land use planning and offers fringe residents services that otherwise may not be available to them (Edwards, 2008).

1.4 Rural-Urban Linkages

Planners, researchers and policy makers have often treated rural and urban areas, and their residents, as distinct entities from each other with unique problems that should be studied and addressed in isolation. This, however, does not reflect the reality of household livelihoods which often include both rural and urban elements (Drescher & Iaquina, 2002; Hebinck & Lent, 2007). Historically, most research has focused on either urban or rural issues with little consideration of the interconnectedness between the two (Tacoli, 1998; Cohen, 2004; Kruger, 2006). This is now being challenged with a growing recognition that the distinction between ‘urban’ and ‘rural’ as separate and clearly identified areas is not sufficient to characterise the patterns of settlement, production and livelihoods that occurs between these areas (Iaquina & Drescher, 2000).

Rural-urban linkages refer to the “flow of public and private capital, people (migration, commuting) and goods (trade) between rural and urban areas” (Sheng, 2002, Tacoli, 2004). They are the “structural social relationships maintained between individuals in the urban environment and those in the rural areas” (Lesetedi, 2003). Over the past decade, rural-urban linkages has focused on the nature of the production, consumption and investment linkages between urban and rural areas. There has also been a focus on small towns and their role in absorbing rural migrants, in order to stem the flow to large cities (Farrington, 2002).

The rural-urban continuum refers to the “continuous abstract distribution of human settlement” (Drescher & Iaquina, 2002). The continuum runs from evidently rural areas through to a variety of peri-urban forms onto dense urban areas. It is important to note that while these areas form a continuum, they are internally very mixed (Drescher & Iaquina, 2002). In many areas, zones of economic activity have emerged between rural and urban areas which contain essential elements of both (Cohen, 2006). The term ‘peri-urban’ has emerged as a way of defining the area that exists between rural and urban areas and is attracting increasing attention (Drescher & Iaquina, 2002; Mandere *et al.* 2010). A number of terms have been used in an attempt to describe ‘peri-urban’. These include the urban fringe, the periphery, the rural commuting zone as well as the area adjacent to urban areas. These areas have also been described as zones where traditional farming activities come into conflict with economic, residential and recreational interests, as well as zones that display intense interactions with the urban core (Mandere *et al.* 2010). In an African context, the ‘peri-urban’ area has been described by Maconachie and Binns (2006) as a “blurring between urban and rural” and

shows a focus on competition for natural resources. They are essentially areas with mixed urban and rural features. In this area, small farmers, informal settlements, industrial entrepreneurs as well as urban middle class commuters all coexist within the same geographic space but with largely differing interests, practices, perceptions and livelihoods (Drescher & Iaquina, 2002). Peri-urban areas frequently look to be essentially rural and much of the land is under cultivation, or livestock. However, much of the income may come from non-agricultural sources (Cohen, 2006). These areas have comparatively better infrastructure such as roads and electricity than the more rural areas (Mandere *et al.* 2010). Policy makers and researchers are increasingly acknowledging the potential role urban and peri-urban environments play in easing food insecurity and increasing the nutritional status of marginalized people (Iaquina & Drescher, 2000). A number of drivers seem to be fuelling the formation of peri-urban areas. The improved transport and communication systems, better access to energy, and more affordable public transport has allowed the diffusion of economic networks into areas that were previously disconnected. This has enabled the movement of goods, people, information and finance and aided in strengthening linkages in these areas (Mandere *et al.* 2010).

New urban migrants, particularly the poor, maintain strong linkages with the rural areas as a survival strategy and these linkages represent vital safety nets and welfare options for urban people (Lesetedi, 2003). Rural-urban linkages have become more and more important in developing countries with rising urban poverty and in many African countries urban poverty is considered to exceed rural poverty. The majority of migrants enjoy little economic security, unemployment and underemployment are rife, and for many migrants the ties that are maintained with the village of birth provide the only source of economic and social security. Such ties provide a resource pool that may be used during times of hardship which ensure a measure of security more reliable than that which is found in the urban area (Lesetedi, 2003).

Most urban migrants in Africa live in a dual system which is characterised by one family but two households (Lesetedi, 2003). Urbanisation has divided families into two geographically separated but mutually supportive households, one in the urban area and the other in the rural area (Lesetedi, 2003). Movement to the city does not mean a break in the ties that exist between rural and urban areas. New social relationships are developed while people move between village and city. This, however, does not mean that old relationships are dissolved, they are simply altered. Migrants may make frequent visits to their home place, provide financial assistance to those left behind in the rural areas and plan to ultimately return home

(Lesetedi, 2003). Modern communication has aided in strengthening the ties that exist between the city and the village through transport, postal and telephonic links. An example of rural-urban ties can be seen in a study conducted by Andreasen (1990) who reported that low-income urban dwellers lacked an obligation to town and were solely there for financial gain and planned on returning to the village. Even in cases where the job obtained was a lifetime commitment, urban dwellers rarely showed a desire to give up their rural ties. However, these ties do erode through time, especially with children born, raised or schooled in urban centres.

Studies on small and medium sized towns have been viewed as providing key growth parameters for acceptable development of rural regions. Small urban centres could aid development by setting in motion local linkages between urban and rural areas. Therefore, small towns can act as intermediate places of economic transition between urban and rural areas. By promoting both 'farm' and 'off-farm' employment, small towns can play the dual role of market and service centres which support the rural sector (Drescher & Iaquina, 2002). Although small towns do not appear to serve as major markets, they are important retail and service centres for communities in the surrounding hinterlands.

1.5 Contribution of wild natural capital to livelihoods along the rural-urban continuum

Rural households adopt a variety of livelihood coping strategies, draw from a wide range of income streams and invest in a variety of assets in search of a sustainable livelihood (Shackleton *et al.* 2002a; Paumgarten, 2005). A core dimension of rural livelihoods throughout the developing world is the use of a wide range of non-timber forest products (NTFPs) for both consumption and sale. In developing countries, natural resources are an integral part of the livelihoods of a large proportion of the rural poor. Urban households also make use of natural resources; however, these products are used to a lesser although not insufficient extent (Stonian, 2005; Shackleton *et al.* 2007b; Davenport *et al.* 2012). Natural resources contribute towards income generation, direct household provisioning as well as serve as safety nets in times of hardship. Their role in poverty alleviation is also receiving increasing attention (Paumgarten & Shackleton, 2009). Few studies have concentrated their research in urban areas and therefore little knowledge is known about the use of natural resources in these areas, and particularly about the use of natural resources along a rural-urban continuum.

Extraction, processing, consumption and sale of natural resources are critical elements of livelihood strategies in a diverse range of situations (Stoian, 2005). Recent calculations of the

mean annual income from natural resources has found the value of these resources to be considerable (Paumgarten, 2005; Shackleton *et al.* 2007b). In many respects, NTFPs are regarded as the poor people's safety net and can provide as much as 35.0 % of rural household cash income (Lawes *et al.* 2004; Paumgarten & Shackleton, 2009).

In general, South African rural households use a multitude of different natural resources to meet their daily household needs (Shackleton & Shackleton, 2004a). These products are used for food, energy, fibre, medicine, shelter and tools and can aid in reducing a household's vulnerability to risks (Paumgarten, 2005). These risks are associated with shocks that manifest from the sudden changes in the economic, social or biophysical environment (Delacote, 2009, Shackleton & Shackleton, 2004b). Associated with this is a saving of cash resources for households using meaningful quantities of forest resources on a more regular basis for direct household consumption (Shackleton *et al.* 2007b).

Natural resources provide livelihood benefits in a number of ways. The role that these resources play as "safety nets" to assist households in times of adversity is of central importance, combating factors such as floods, droughts, death or retrenchment (Shackleton & Shackleton, 2004b). Paumgarten and Shackleton (2011) view natural resources as the link between the troughs and the peaks, in that natural resources seldom offer a long-term solution to insecurity but are essential in helping households mitigate the troughs. During hard times, households frequently turn to the use of natural resources to sustain them until these setbacks are eliminated. This can be undertaken in a number of ways. Firstly, households may turn to, and make use of, other natural resources that are not usually used by that household, therefore diversifying the number of resources being used in times of hardship (Shackleton *et al.* 2007b; Delacote, 2009). A household may also increase the consumption of a particular resource that they are already making use of. This could take the form of substituting previously collected items with purchased ones. In addition to this, a household may also choose to partake in the temporary sale of natural resources in order to sustain them and aid in income generation (Shackleton & Shackleton, 2004b). Natural resources can be sold regularly as a livelihood strategy or on a more temporary basis in response to need (Paumgarten & Shackleton, 2009). The low capital and skill requirements that are required for the extraction of natural resources make this an attractive option for rural households, allowing them to extract resources easily (Paumgarten, 2005; Delacote, 2009). Households selling natural resources do so for a number of reasons, namely: to cover food and households expenses, to help alleviate poverty, to

supplement income, and as a response to the loss of other income sources (Paumgarten & Shackleton, 2009). The sale of natural resources is becoming more and more important as a response to the lack of employment as well as the vulnerability experienced in the rural areas of developing countries. In situations such as these, the adjusted use of natural resources is a coping strategy that many households may adopt (Shackleton *et al.* 2007b).

For some households income generation from natural resources is a supplementary activity, however for many people it is their primary source of income (Shackleton & Shackleton, 2004a, Delacote, 2009). Luckert *et al.* (2000) identified the relationship between household wealth and the use and reliance on natural resources in rural households. It was found that poorer households use greater amounts of, and are more reliant on, natural resources when compared to richer households living in the same area. The income derived by poor households from the use of natural resources makes a greater contribution to their overall livelihood status because it characterizes a higher proportion of all income streams when compared to richer households. Wealthier households have a greater number of income generating activities than poorer households, therefore representing a lower, but still highly important proportion of income (Shackleton & Shackleton, 2006). However, in a study conducted by Ambrose-Oji (2003) in Cameroon, it was found that wealthy and poor households are benefiting to a lesser degree than middle-income groups. Therefore it seems that the poorest of the poor are those most engaged in the use and extraction of natural resources. However, this prompts the question of whether or not natural resources contribute positively towards the livelihoods of the poor, or if they are just a poverty trap (Sunderlin *et al.* 2004; Davenport *et al.* 2009). Rural people become reliant on natural resources because they are poor, however, it may also be possible that they are perpetually poor because they are reliant on an activity in which compensation is low, i.e. - the extraction of natural resources (Sunderlin *et al.* 2004).

Nonetheless, the role that natural resources play in poverty alleviation is attracting increasing interest, as these products add to the well-being of millions of the rural poor throughout the world. Poverty is described as “the inability of individuals, households, or entire communities to command sufficient resources to satisfy a socially acceptable minimum standard of living (Shackleton & Shackleton, 2007b). Natural resources have an important role to play in poverty alleviation as they serve as a means of helping rural people avoid poverty. Natural resources have the potential to lift people out of the constraints of poverty (Sunderlin *et al.*

2004). However, Paumgarten (2005) and Shackleton *et al.* (2007b) state that although natural resources as a rural safety-net can be considered as playing a vital role in the prevention of poverty intensification, their role in poverty alleviation is minimal. According to Paumgarten (2005), natural resources aid in minimizing the impact of crisis on rural livelihoods and have therefore been pinpointed for their role in assisting households to move out of poverty and improve their general well-being.

Diversification is a very important livelihood strategy for the poor. Access to NTFP's helps rural households diversify their livelihood base and reduce their exposure to risk (Sunderlin *et al.* 2004). Diversification can be described as an "accumulation strategy for households with farming assets and with access to urban networks, and who often re-invest profits from urban-based activities in agricultural production and vice-versa, resulting in capital and asset accumulation" (Tacoli, 2004). Therefore, households that are able to diversify their activities are less likely to be impoverished as they have a multitude of livelihood options to rely on. The ability to diversify is beneficial for households at or below the poverty line as alternative options for income generation can make the difference between a viable livelihood and a destitute one (Ellis, 1999). A livelihood that is diversified is less vulnerable than one that is not and is more likely going to be sustainable over the long run because they are able to cope and adapt to changing circumstances (Ellis, 1999). Diversification of livelihood activities arises from an environment where economic choices are few and households must diversify in order to construct their livelihoods and survive.

1.6 Livelihood strategies

Poverty remains a challenge within the developing world, especially in sub-Saharan Africa where the nature of poverty is chronic. These conditions are exacerbated by unstable economies, HIV/AIDS, biodiversity loss and climate change (Sunderlin *et al.* 2005). Poverty results from vulnerability to a range of shocks and stresses. Households faced with increasing or persistent poverty levels become less resilient to future shocks and therefore households are less able to recover (Paumgarten & Shackleton, 2011).

According to Chambers and Conway (1992) and Carney (1998), a livelihood comprises the capabilities, assets and activities required to make a living. A livelihood is sustainable when it can cope and recover from shocks, maintain its capabilities or assets while not undermining the natural resource base. The ability to cope and recover from stresses and shocks is key to livelihood adaption and coping (Scoones, 1998). Households unable to cope are vulnerable

and unlikely to achieve sustainable livelihoods. The ability to cope with shock and stress depends on a number of factors, such as a household's asset base or employment levels (Shariff & Khor, 2008). According to Paumgarten and Shackleton, (2011), a shock's impact is determined by the nature of the shock and the resources households have at their disposal. Female-headed households, young households, poor households, as well as households affected by HIV/AIDS, are among the most vulnerable (Heemskerk *et al.* 2004). Different shocks may elicit different household coping mechanisms, and this is dependent on the capabilities of the households, i.e. - on the basic material and social, tangible and intangible assets that households have at their disposal (Scoones, 1998).

There are various risks to which households are vulnerable, including famine, crop failure, loss of assets, death in the family, loss of employment, increased expenditure, food shortages, divorce as well as droughts, floods and natural disasters (Pattanayak & Sills, 2001; Heemskerk *et al.* 2004; Paumgarten & Shackleton, 2011). In a study conducted by Paumgarten and Shackleton (2011), four main shocks affecting households were identified and these included: shocks related to climate change, political instability, human health shocks, as well as economic shocks including increasing unemployment. It was also identified that households can face multiple shocks in a short period of time, suggesting the need to have a few highly effective coping strategies.

To cope with the range of shocks experienced, households employ a diverse range of coping strategies (Heemskerk *et al.* 2004). Paumgarten and Shackleton (2011) identified a range of strategies used by households including: kinship, used by the greatest proportion of households, reduced spending, mobilization of savings, use of natural resources, selling livestock as well as the cashing in of retirement savings. According to Paumgarten and Shackleton (2011), a household's response to crisis may vary depending on the nature of the shock, its intensity and the household's attributes and assets. This in turn is influenced by household attributes such as the stage it occupies in the household cycle, the gender of the household head, its age and labour profile, as well as its wealth. However, some coping strategies are common across communities, irrespective of their location, characteristics or shocks experienced (Paumgarten & Shackleton, 2011). Wealthier households, with a larger asset base, are likely to rely on fewer strategies while poorer households usually diversify their strategies (Dekker, 2004). There is a distinction between short term strategies that are adopted out of necessity and long term strategies that aim to invest in the future capacity of households to build livelihoods (Meikle *et al.* 2001). This study looks at the range of shocks

experienced and therefore the coping strategies used along a rural-urban continuum. While a large amount of work on coping strategies has been conducted in rural areas, little knowledge is known about the coping strategies used along a continuum and whether these differ with regards to wealth or gender.

The central ideas in the sustainable livelihoods approach are an awareness of the vulnerability of households, the variety of assets that are used to overcome vulnerability, as well as the livelihood strategies adopted. According to Scoones (1998), one of the main livelihood strategies is diversification. Diversification can relate to the household's portfolio of livelihood activities and to its portfolio of assets. When diversifying with the aim of strengthening the livelihood system, diversification becomes a livelihood strategy (Niehof, 2004). Resource availability is essential to local people's livelihoods because it allows for diversity among income activities. The majority of poor African households rely on a range of activities and income sources that bridge the rural-urban divide (May *et al.* 2000; Campbell *et al.* 2002). These activities include casual and formal employment, remittances, government grants, crop and livestock production as well as natural resource use (Shackleton *et al.* 2001). It is through these strategies that people endeavour to secure their livelihoods and achieve multiple livelihood outcomes which will sustain them over the long run (Paumgarten, 2005). Many poor households are opportunistic, diversifying their sources of income and drawing on a wide portfolio of activities, while wealthier household's livelihood portfolios tend to be more specialised, concentrating on a limited number of activities. The degree of specialisation or diversification relates to the resource endowments available and the level of risk associated with alternative options (Scoones, 1998; Niehof, 2004).

The livelihood outcomes of households are the results of people's success or failure in transforming the assets available to them into basic goods and services through a variety of livelihood strategies (Meikle *et al.* 2001). A sustainable livelihood is one which is secure and guards people against shocks and stresses. Important livelihood outcomes include more income, increased well-being, reduced vulnerability and more sustainable use of the natural resource base (Scoones, 1998; Serrat, 2008; Davenport *et al.* 2011).

1.7 Gender

While natural population growth has been reported as the main contributor to urbanisation, rural-urban migration continues to be an important factor. The urbanisation process is largely shaped by gender roles and relations (Masika *et al.* 1997). The migration into urban areas is

influenced by a number of decisions in rural households such as who should migrate and for what reason, as well as by the constraints placed on women's work outside the home by households. While female migration is on the increase in sub-Saharan Africa as a result of the need for income and more employment opportunities, male migration is more common (Masika *et al.* 1997). A large amount of stress is placed on female-headed households when relations are strained by male absences and when much needed remittances are irregular or non-existent, leading to increased female poverty. However, households in which remittances are received are better off and gain independence and decision making power through managing household resources (Clarke & Wallsten, 2003).

Urbanisation has a large effect on the gender roles, relations and inequalities because the factors responsible for female headship arise through urbanisation (Masika *et al.* 1997). Examples can be seen in the transformation of household structures, the shifts in household strategies and changing patterns of employment. While female-headed households may be better off in some ways such as having more freedom, more flexibility and the absence of abuse, many female-headed households face discrimination, have greater difficulties than men in gaining access to the labour market, and obtaining credit as well as housing and basic services. Women have less access to the employment market than men, and in developing countries, discrimination with regards to employment is common (Ellis, 1999; Klasen *et al.* 2011). Women's work is frequently confined to the home, where domestic work is carried out (Niehof, 2004). Women's work is also quite often characterised by insecurity and low returns. According to the World Bank's economic research (2007b), poverty incidence tends to be higher in countries with more gender inequality, while economic growth appears to be positively correlated with gender equality. Female-headed households also face the burden of having to combine income earning with household management and child rearing which means that the parent can only take on part-time, informal labour with low earnings (Masika *et al.* 1997; Niehof, 2004; Holmes & Jones, 2011). In addition to this, as the women's work is frequently confined to the household, caring for the children and tending to household responsibilities, the time they can allocate to education and employment is largely reduced.

Gender defines the socio-cultural roles, functions and characteristics of men and women as they relate to each other within a specific socio-cultural context and is a key factor that shapes people's access to, use of and control over natural resources. Firstly, men and women do not have the same rights over natural resources. In addition to this, due to their roles based

on the gender division of labour, men and women have different priorities and benefit differently from the use of natural resources (Gurung *et al.* 2000).

Men and women's different tasks and responsibilities in food production and provision result in different needs, priorities and concerns. In most regions, men use natural resources in agriculture, logging and fishing for commercial purposes more than women, while women's use of natural resources is more on a subsistence level (Masika *et al.* 2000). As a result of women's responsibility for providing their households with basic needs, i.e. food, fuel, and water, they rely heavily on natural resources, while men seldom have responsibility for collecting and using natural resources for household use. Due to their different gender roles and responsibilities, men and women use forest products in different ways. For example, women collect products for fuel, food and fodder for small-scale income-generating activities while men gather wood for selling or construction (Gurung *et al.* 2000).

Households in poorer and remote communities that are headed by women are often more dependent on natural resources to sustain their livelihoods (Clarke *et al.* 1996; Paumgarten, 2005; Shackleton & Shackleton, 2006; Shackleton *et al.* 2007b; Davenport *et al.* 2011). It is the poorest households, and the more marginalised, that are more dependent on natural resources for income generation as well as subsistence living. In addition to this, households headed by women often use natural resources more as a source of income than do households headed by men. This means that women with fewer sources of income have turned a subsistence practice into a means of income generation (Shackleton & Shackleton, 2004a). Often this is done from the home space simultaneously with daily household chores.

In addition to this, in many societies, women typically have fewer ownership rights than men. Women's use rights are often mediated by men, therefore, when women are widowed or divorced, they may lose their rights. Men and women's use of natural resources therefore reflect gendered access (Gurung *et al.* 2000; World Bank, 2009).

Female-headed households, young households and poor households, as well as households affected by HIV/AIDS, are among the most vulnerable (Scoones, 1998). Women's vulnerability is largely explained by their lack of access to property, confinement at home caring for children and family members, as well as their poor nutritional status. Women's confinement at home makes them suffer the most, as alternative means of making a living are few. As a result of this, men and women are likely to have different ideals in the generation of livelihood. Firstly, women's ability to engage in income generation is limited by the

external gender division of labour as well as the fact that work carried out at the household can be very time consuming, leaving little time for other income generating activities (Niehof, 2004). For this reason, women's livelihoods are less likely to be focused on cash income streams, for example employment, and more focused on other sources of livelihood generation, such as the consumption of natural resources. According to Cavendish (2000) the income from natural resources has been strongly linked to gender. A number of studies have indicated that among households headed by women, natural resources often contribute significantly more to household income than is the case for households headed by men (Clarke *et al.* 2006). The need to diversify livelihood portfolios is therefore very important for the survival of female-headed households (Horrell & Krishnan, 2007). Comparative literature on this subject is however lacking, since not many livelihood studies, considering all income streams, have disaggregated their results by gender.

As a result of the different vulnerability of women, the shocks they experience and therefore the coping strategies they make use of are also likely to differ. As a result of their different roles in the livelihood system, men and women will deal differently with risk (Niehof, 2004; Oberhauser & Yeboah, 2011), and men's and women's attitudes to risk is likely to influence the choices they make in coping with stress. However, Paumgarten and Shackleton (2011) found no significant differences with regards to the different strategies used by male- and female-headed households. However, certain strategies, such as reduced spending, selling livestock and mobilisation of savings were used by a greater proportion of wealthy households while kinship, social capital and natural resource use were identified in poorer households. As a result of the low cash contributions in female-headed households, and their general vulnerability, female-headed households may be poorer and therefore depend on the strategies that were identified as being used by poor households. In comparison, Oberhauser and Yeboah (2011), found female-headed households to be more dependent on reciprocal relationships and social capital for access to both economic and household resources. Heemskerk *et al.* (2004) found that strategies revolving around kinship, diversity of crops as well as food storage were favoured in female-headed households over male-headed households.

1.8 Objectives and Key Questions

This study forms part of the Livelihoods, Urbanisation, Natural resources in Africa (LUNA) project. The LUNA project is a joint project between three German and five African research

institutions. The overall aim of the project is to develop a deeper understanding of “Urbanisation and its impact on the use of natural resources in medium and small towns in Africa”. This Masters study therefore aims to analyse the impact of urbanisation on livelihoods with an emphasis on natural resources in South Africa, as well as to explore the coping strategies used by households along the rural-urban continuum.

To address these aims, the following research questions were posed:

1. How do livelihood assets and portfolios change along the rural-urban continuum?
2. How do livelihoods change across the rural-urban continuum, with an emphasis on natural resources?
3. What are the main shocks and insecurities experienced by households along the rural-urban continuum?
4. What coping strategies do households make use of in the face of livelihood insecurity?
5. How do the shocks and coping strategies differ by gender of household head?

1.9 Structure of thesis

The thesis is structured as follows:

Chapter one introduces the research problem and the theoretical orientation of the thesis. Firstly, urbanisation and its driving forces are explained. The concept of rural-urban linkages and the relationships between rural and urban environments is unpacked. The importance of natural resources and how these contribute to the livelihoods along the rural-urban continuum are discussed as well as the role these resources play in the livelihood strategies adopted. Lastly, the role of gender, and the function and responsibilities of men and women within the livelihood system is introduced, as well as the benefits that male- and female-headed households derive from the use and consumption of natural resources. This is followed by the research objectives and research questions.

Chapter two provides an introduction to the study sites. The district and local municipalities are described, providing information on population size, area, physical location as well as climate. A map of the area, as well as the different study sites selected, is provided. In addition to this, the methods for the study are presented, outlining the selection of households, the structure of the questionnaire as well as how the data were analysed.

Chapter three deals with the first three research questions. The results and discussions are presented in a paper style format focusing on natural resource use and livelihoods along the rural urban continuum. This paper identifies the characteristics of households along the rural-urban continuum. In addition to this, the extent and use of natural resources along the rural-urban continuum are discussed as well as the percentage contribution these resources make to the overall livelihoods of households. The livelihood portfolio also encompasses crop agriculture and livestock, government grants and private pensions and employment, and how these activities contribute to total livelihoods. Lastly, the livelihood portfolio is examined from a gender perspective, exploring the income from the range of activities mentioned above by considering male- and female-headed household separately.

Chapter four deals with the last three research questions and focuses on the coping strategy changes along the rural-urban continuum. This chapter also presents the results and discussions in a paper style format. The shocks and coping strategy changes that affect households along the rural-urban continuum are explored and then disaggregated by the gender of the person heading the household.

Chapter five consists of a general discussion centred around the five research questions, namely how livelihoods change along the rural-urban continuum, whether or not natural resource use is context specific, if the gender of the household head matters when considering the breakdown of livelihood portfolios, and lastly the shocks and coping strategies used along the continuum, from both general and gender-based perspectives.

Chapter 2

Study Area and Methods

2.1 Study sites

Data collection took place between August and November 2010 in two different provinces of South Africa, namely the Eastern Cape province and the Limpopo Province. Two study sites were selected, one in each province. The first site, Queenstown, in the Eastern Cape province, forms part of the Lukhanji Local Municipality (LM) which falls within the Chris Hani District Municipality (DM). The second site, Phalaborwa, located in the Limpopo Province, forms part of the Ba-Phalaborwa LM which is part of the Mopani DM (Figure 2.1).

The Eastern Cape province is located in the south-east of South Africa, bordering Free State and Lesotho in the north, KwaZulu Natal in the north-east, and the Western and Northern Cape in the west. The province covers an area of 169 580 km², constituting 13.9 % of the total area of the country, making it the second largest province in the country. The population of the Eastern Cape province is 6.82 million people, making up 14.1 % of South Africa's population (Pauw, 2005a). Almost two thirds of the population (65.1 %) live in rural areas (Pauw, 2005a).

The Limpopo Province is the northernmost of South Africa's nine provinces covering an area of 124 000 km², roughly 10.0 % of South Africa's surface (Spatial Development Framework, 2009). The province is 89.0 % rural in nature with a population of 5.56 million people, 11.8 % of the national total (Pauw, 2005b).

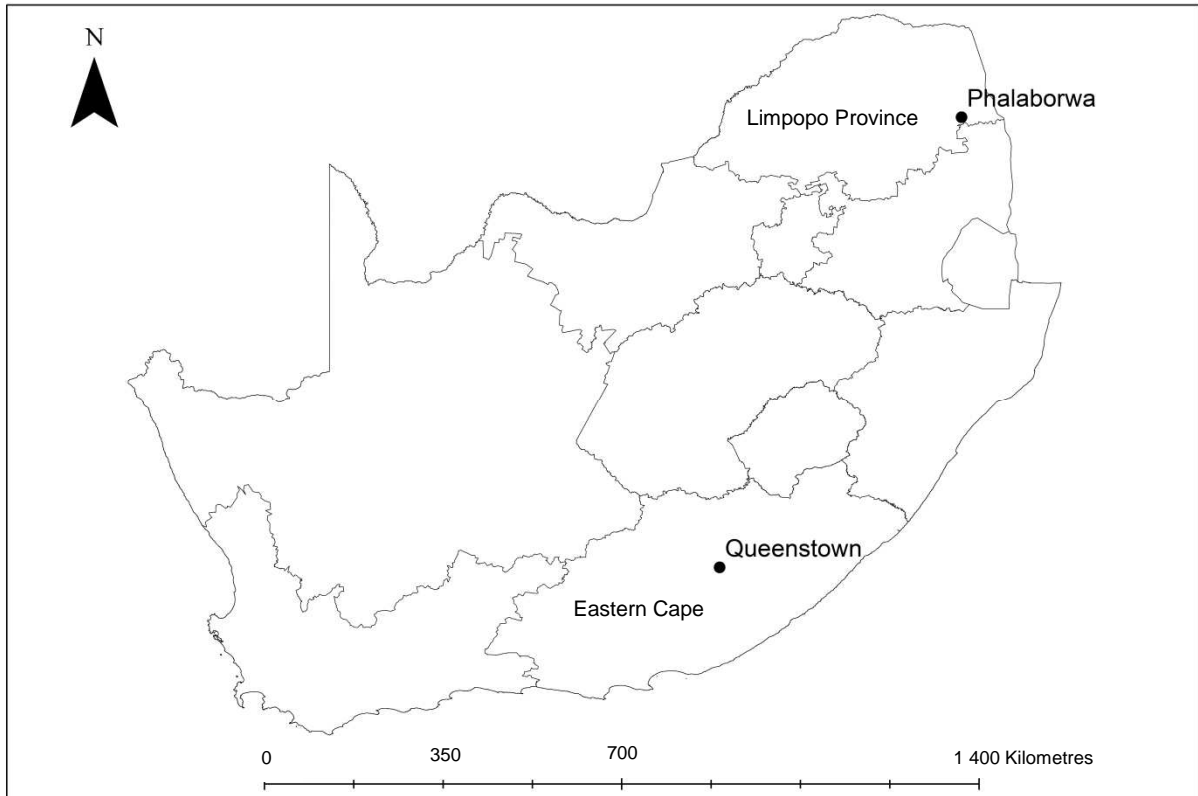


Figure 2.1: Location of Queenstown in the Eastern Cape province and Phalaborwa in the Limpopo Province

2.2 Chris Hani District

Estimates from the 2001 Census as well as the 2007 Community Survey signify an increase in the population of South Africa from approximately 44.8 million in 2001 to 48.5 million in 2007, showing a total increase of 3.7 million. In this time, the Eastern Cape province population is estimated to have grown by 200 000 from 6.3 million to 6.5 million. The Eastern Cape province is the third most populous province in the country, behind Gauteng and KwaZulu Natal (Chris Hani District Municipality IDP, 2009/2010).

The Chris Hani DM is centrally located within the Eastern Cape province. This district covers an area of 36 561 km² (Chris Hani District Municipality IDP, 2009/2010). It consists of eight local municipalities and one District Management Area - the Mountain Zebra National Park which is directly run by SANPARKS. Within the eight local municipalities lies the Lukhanji municipality which includes Queenstown and Whittelsea towns.

According to Statistics South Africa, there has been a marginal decrease in the population from 809 581 in 2001 to 798 597 in 2007 (Chris Hani District Municipality IDP, 2009/2010).

Global Insight Statistics paints a similar picture, showing that there was a marginal decrease from 817 709 in 2001 to 810 353 in 2007 and 809 925 in 2008. The Intsika, Yethu, Lukhanji, Engobo and Emalahleni local municipalities house the largest populations.

The average population growth rate from 1996 to 2009 was -1.9 %. The population is experiencing a negative population growth and this could be attributed to a number of factors such as increased education levels and urbanisation. An estimated 56.6 % of the district lives in poverty. Africans and mixed race (in South Africa termed 'Coloureds') are the most vulnerable groups, with 57.8 % of Africans and 57.4 % of all Coloureds living in poverty. In contrast, 11.4 % of Asians and 0.8 % of whites are estimated to live in poverty (Chris Hani District Municipality IDP, 2009/2010).

While the district has a low urbanisation rate of 31.0 %, there is a significant range across the municipalities from 0.6 % to 76.8 % and half of the local municipalities have substantially passed the 50.0 % urbanisation mark (McCann, 2005). Fifty three percent of the population is female. The majority of the population (54.4 %) consists of school going children between the ages of five and 20. The level of poverty in the Chris Hani DM is high, at 76.8 %.

Education levels in the district are low. The majority of the population in the Chris Hani District are functionally illiterate. This low level of education places significant demands on the unskilled job pool, as a large number of uneducated people are in search of employment. The reasons for the extremely low levels of education rests largely on the legacy of apartheid where education of Africans and Coloureds was severely under-resourced, but also includes a lack of finances for school fees, limited school facilities, a lack of adequately trained educators, and educational equipment. In many households, the parents are illiterate and therefore income is low resulting in little or no education for children (Chris Hani District Municipality IDP, 2009/2010).

The Chris Hani District economy is largely reliant on community services, with 51.0 % of the district employed in this sector, and without the employment opportunities provided by the government, the economy would be in decline (Chris Hani District Municipality IDP, 2009/2010). The community services sector is the only sector showing growth, with many other sectors showing little or no growth. It is therefore important to ensure that the economy becomes less reliant on government employment and becomes more diversified. The district also has a comparative advantage in agriculture and services. The high employment in trade (second biggest employer) and agriculture, which are reliant on semi-skilled and unskilled

labour, makes up a large percentage of the labour force. Unemployment is a large problem in the district, and is estimated at around 57.0 %. As a result of the high unemployment rates, there is a reliance on government grants and migrant remittances and this often forms the only household cash income in the poor areas of the district (Chris Hani District Municipality IDP, 2009/2010).

HIV/AIDS affects local economic development as well as health, infrastructure and service delivery in the Chris Hani DM. HIV/AIDS affects all community members through illness and death associated with the disease, and this results in a change in the composition of households where women, the young and the elderly take on additional household responsibilities.

2.2.1 Lukhanji Local Municipality

The Lukhanji LM occupies a strategic position within the Chris Hani DM and covers an area of approximately 4 231 km². It is made up of the greater Queenstown area and neighbouring farms and villages, Ilinge, Whittelsea and Ntabethemba. It has the largest urban centre (Queenstown) and attracts many people from surrounding municipalities.

The largest population in the Chris Hani DM resides in the Lukhanji local municipality (24.0 % of the total CHDM population). With a growth rate of one percent between 2001 and 2006, the population is now estimated at 188 788, with the majority of the population (91.0 %) being African (Lukhanji Municipality IDP, 2009). Approximately 52.0 % of this population resides in the urban areas, 31.0 % in the rural areas, and the remainder 17.0 % in the peri-urban areas. This shows the relationship between rural population loss and urban population gain, with the most out-migrants from rural areas moving to the smallest, closest town (Nel *et al.* 2011). Lukhanji's population is estimated at 50 262, which equates to roughly four people per household. The population gender breakdown is of a similar nature to that observed over the rest of the country, comprising of 52.0 % females and 48.0 % males (Lukhanji Municipality IDP, 2009).

Economically, Lukhanji is an important sub-region of the Chris Hani District. It accounts for around one-third of the District's GDP (37.2 %) and formal employment (31.9 %) (McCann, 2005). It has the highest density of urban settlements, industrial activity, commerce, transport infrastructure services, regional service centres as well as social development services. According to Global Insight Statistics, unemployment in Lukhanji has improved by 1.3 %.

This figure is better than that of the district (0.8 %) and the country (0.5 %) but is marginally less than that of the Eastern Cape province that has improved by 1.4 % over the same period (Lukhanji Municipality IDP, 2009). Lukhanji has a Human Development Index (HDI) of 0.55, with Queenstown having an HDI of 0.60, which is the highest in the district.

Eskom is the sole provider of electricity within the Lukhanji municipality with 88.7 % of households having either metered or prepaid connections. Backlogs for electricity household connections affect around 11.3 % of households who have no electricity.

The Lukhanji municipality is responsible for the water and sanitation services for Queenstown. According to statistics from 2006, 81.1 % of households have yard connections, 2.9 % obtain water through boreholes, and 12.2 % have access to water through a stand pipe. The remainder 7.0 % do not have access to piped water. Water backlogs within the municipality exist and the Chris Hani district municipality has reduced these backlogs significantly (Lukhanji Municipality IDP, 2009). Sanitation backlogs are higher than the water backlogs, particularly in the rural areas. Fifty-nine percent of households have waterborne systems, 27.9 % have RDP level services and the remainder 13.1 % has no sanitation services and therefore requires attention.

2.2.2 Queenstown

Queenstown (31° 54' S, 26° 53' E) is centrally located within the Eastern Cape province and forms part of the Lukhanji municipality. Queenstown is the administrative and economic centre of the district. It has an estimated population of about 126 084 people. The concentration of the population of Lukhanji is fairly distinct with nearly 50.0 % of the population residing in the urban areas of Queenstown, Ilinge and Whittlesea (Lukhanji Municipality IDP, 2009). Queenstown therefore appears to be largely urbanised. The main languages spoken in the Queenstown area are isiXhosa and English.

Queenstown is located an elevation of 1 076 m above sea level. Temperatures are often in the extremes, ranging from highs of 33 ° in mid-summer to as low as -2 ° in winter. This area is characterized by dry Highveld, sandy grassland, and valley thicket (Lukhanji Municipality IDP, 2009). Lack of management and overgrazing of communal grazing lands in the former homeland areas have led to the poor condition of these lands. Poor vegetation cover coupled with poor farming methods have often led to severe soil erosion problems. The mean annual

rainfall for Queenstown is between 379 mm and 574 mm per annum (Lukhanji Municipality IDP, 2009).

Areas in which the study was conducted included the urban complex of Queenstown which is mainly surrounded by commercial farms as well as some communal areas, the townships of Mlungisi and Ezibeleni (which are mainly residential in character) and the rural areas of Macubeni (Figure 2.2). Sampling took place along a rural-urban continuum from the town centre outwards to the rural areas.

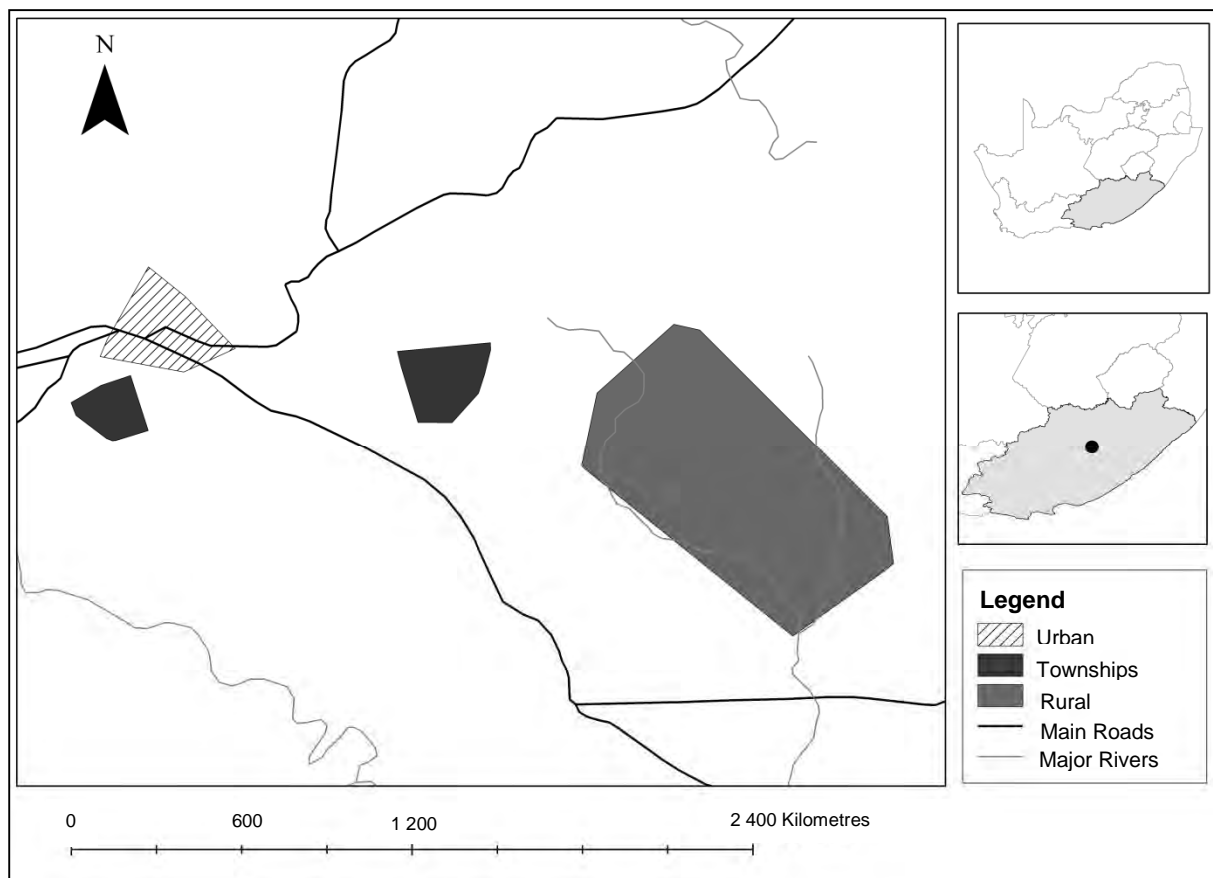


Figure 2.2: Map of Queenstown showing different study sites

2.3 Mopani District

Phalaborwa lies within the Ba-Phalaborwa municipality which is situated within the Mopani district municipality of the Limpopo Province. The Mopani DM is situated in the north-eastern part of the Limpopo Province (Mopani District Municipality IDP, 2007/2008). This district has been named after the abundance of mopani trees and worms that are found throughout the area. The district covers an area of 22 421 km² and consists of five local municipalities. Within the district there are 15 urban complexes, made up of towns and

townships and 325 rural settlements, making up a total of 106 wards. The Mopani District forms part of the Greater Limpopo Transfrontier Park, which combines conservation areas along the international borders between Mozambique, South Africa and Zimbabwe (Mopani District Municipality IDP, 2007/2008).

The population of the Mopani District in 2006 was 1 223 747 people. Of this population, 85.6 % is found in the rural areas and 14.2 % of the population reside in the urban areas. Most of the residents in the Mopani District are younger than 35 years old (Mopani District Municipality IDP, 2007/2008). The district has very few people who are older than 65 years. This could be due to the fact that many people who are economically active usually leave the rural areas and migrate to urban centres. The percentage of females in the district increases along with age, implying that females live longer. The percentage of males and females in the 0-4 year's age group are fairly even. However, in the 65 and older age group, females account for 69.1 % of the population (Mopani District Municipality IDP, 2007/2008).

The literacy levels in the Mopani District are low. Of the adult population, as much as 37.8 % have not received any form of schooling with an additional 13.7 % having only completed some form of primary education. As much as 50.0 % of the population can therefore be regarded as functionally illiterate. On the other hand, of the adult population in the district, 12.7 % have obtained their matric (school leaving certificate) and 6.5 % some form of higher education (Mopani District Municipality IDP, 2007/2008). Within the Ba-Phalaborwa municipality, 16.8 % of people are considered illiterate. The level of education provides an indication of the degree to which the population is employable in specific sectors of the economy. Many people in the district have a poor level of education and therefore lack proper skills and knowledge needed for formal labour market (Mopani District Municipality IDP, 2007/2008).

Farming, industry, mining, trade, government, transport, manufacturing, construction and energy employ most of the people living in the Mopani District. The government sector is the largest employer in the district, with the second largest being the farming sector, employing 25.9 % of the population (Mopani District Municipality IDP, 2007/2008). However, when comparing the municipalities separately, the mining sector employs the second largest population in the Ba-Phalaborwa municipality.

Income from employment is the key determinant of living standards in the district. Of the 81.0 % of people living in the rural areas of the district, the majority of them are poor.

Approximately 60.0 % of the unemployed people in the district are women. There are major constraints with regards to income as the rural economy is unable to provide people with jobs as well as self-employment opportunities resulting in the majority of the people in the district having no visible means of self-earned cash income (Mopani District Municipality IDP, 2007/2008). The figures above are a reflection of the total population, and therefore the economically inactive, such as children and pensioners, are also included.

2.3.1 Ba-Phalaborwa Local Municipality

The Ba-Phalaborwa local municipality is one of five local municipalities in the Mopani District. It covers an area of 3 004 km² which makes up 27.0 % of the Mopani District. It is situated adjacent to the Kruger National Park and therefore serves as a convenient gateway to the park as well as to the Greater Limpopo Trans-frontier Park through the Mozambique channel (Ba-Phalaborwa Municipality IDP, 2009/2010). Private farms cover a large area of the land, followed by tribal land that is under the control of traditional leaders. These areas include the Majeje Traditional Authority, the Ba-Phalaborwa Traditional Authority, the Maseke Traditional Authority as well as the Selwane Traditional Authority.

The major suburbs of Phalaborwa are Namakgale and Lulekani, with Phalaborwa as the sole economic hub within the municipal area (Ba-Phalaborwa Municipality Annual Report, 2009/2010). The formal town of Phalaborwa was established in 1955, with the apartheid inspired separate developments of Namakgale and Lulekani situated towards the west of Phalaborwa (Ba-Phalaborwa Spatial Development Framework, 2009). The rural settlements are concentrated around the Phalaborwa, Namakgale and Lulekani areas. The farming areas are mostly privately owned and are used for game and citrus farming (Ba-Phalaborwa Municipality IDP, 2009/2010). Spatial planning in Phalaborwa is seriously affected by land claims where 77 of the 107 farms in the municipal area are under land claims.

According to Stats SA, the population in the municipal area in 2001 was estimated to be 131 098 people. However, a community survey conducted in 2007 estimated the population to be 127 304 people. Ninety-four percent of the municipality's residents live within a distance of 15 km from the Phalaborwa urban context with the remaining 6.0 % making up the populations of Gravelotte and Selwane (Ba-Phalaborwa Municipality IDP, 2009/2010). Namakgale and Lulekani account for 49.0 % of the population complex, with Phalaborwa accounting for 20.0 % of the population and the remainder of the 31.0 % made up of the rural population. The majority (36.0 %) of the population in the municipal area are between the

ages of 15 and 34, dominating the municipal area by people who are both economically and socially active (Ba-Phalaborwa Municipality IDP, 2009/2010).

Ba-Phalaborwa has the most concentrated economy of all the local municipalities. The municipality's economy is largely dependent on the mining sector. The main minerals mined in Phalaborwa are vermiculite, iron, copper, phosphate and zirconium (Greater Phalaborwa Trade and Tourism Council, 2005). The nature of skills required for mining operations has fostered a migrant labour system which has resulted due to a shortage of skills within the community. This has negative impacts for the community, such as the spread of HIV which is amongst the highest in the Limpopo Province (Ba-Phalaborwa Municipality IDP, 2009/2010). The downscaling of mining operations as a result of the depletion of mineral resources, as well as the recent global economic meltdown, pose major challenges for the Ba-Phalaborwa municipality. A major consequence could be the rise in unemployment levels (Ba-Phalaborwa Municipality IDP, 2009/2010).

With regards to electricity, the municipality has a licence to supply electricity within the boundaries of the Phalaborwa town itself. Eskom supplies electricity within the municipality to all the outlying areas including Namakgale, Lulekani and the rural areas of Maseke, Mashishimale and Makhushane (Ba-Phalaborwa Municipality IDP, 2009/2010). According to Statistics South Africa, the municipality has 2 780 households, or 8.2 % of the municipal area, that do not have access to electricity.

Regarding water, there is an undersupply of approximately 11.0 %. Access to water through communal standpipes outside the yard is used by between 11.0 % and 29.0 % of the households in the areas. The main problem is associated with bulk water infrastructure and this is affecting water supply in the majority of wards (Ba-Phalaborwa Municipality IDP, 2009/2010).

The municipality provides waterborne sanitation to the town of Phalaborwa, Lulekani and Namakgale. Statistics South Africa estimates that about 20.0 % of households do not have sanitation facilities and as this percentage is comprised of black people only it implies that access to basic services is skewed along racial lines (Ba-Phalaborwa Municipality IDP, 2009/2010).

2.3.2 Phalaborwa

Phalaborwa (23° 57' S, 31° 07' E) is situated in the North-Eastern lowveld, halfway up the length of the Kruger National Park in the Limpopo Province. According to the community census conducted in 2007, the population of Phalaborwa, Lulekani and Namakgale is approximately 120 000 people. This excludes the populations of Gravelotte and Selwane which are more than 50 km outside of Phalaborwa and not included in the study site. The main languages spoken in Phalaborwa are Sepedi (40.3 %) and Xitsonga (45.4 %) (Ba-Phalaborwa Municipality IDP, 2009/2010).

Phalaborwa is located 400 m above sea level and has a gentle topography. The climate in Phalaborwa is predominantly subtropical, and is known as the “Town of Two Summers” (Ba-Phalaborwa Spatial Development Framework, 2009). Winters are mild and free of frost. The area experiences high summer temperatures, with the mean monthly maximum for January being 38.4° C and 5.7° C for July (Rutherford *et al.* 2006). This area experiences summer rainfall with very dry winters. Rainfall is low, especially in the lower-lying areas and the average annual rainfall is between 400 mm and 600 mm per annum (Rutherford *et al.* 2006). As a result of the low rainfall, this area experiences severe water shortages and regular drought conditions.

Nutrient poor sandy soils occur in large parts of the municipal area, which is not always suitable for crop production. Vegetation in Phalaborwa falls within the Savanna Biome and is characterised by a well formed woody component with interspersed grass (Ba-Phalaborwa Spatial Development Framework, 2009). Phalaborwa is part of the drier northern sub-region of the Mopane-bushveld that is part of the Savannah Bushveld, with mixed grass and trees, as well as the indigenous marula tree (*Sclerocarvo birrea* subsp. *caffra*) which is a key household and economic resource in the area.

Areas in which the study was conducted included the urban complex of Phalaborwa, the townships of Lulekani and Namakgale which lie to the west of the town, as well as the more informal and unplanned settlements of Mashishimale, Maseke and Makhushane within the traditional council areas (Figure 2.3). Sampling took place along a rural-urban continuum from the town centre outwards to the rural areas.

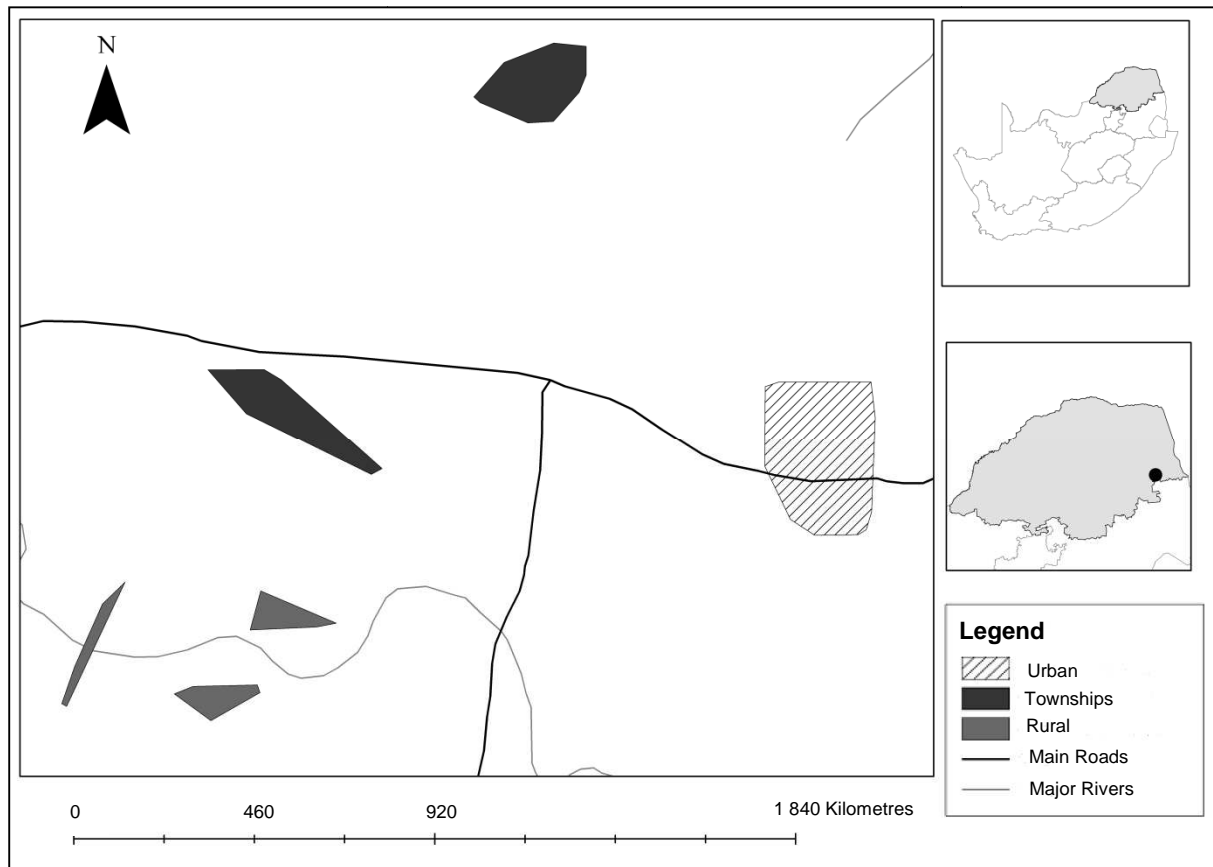


Figure 2.3: Map of Phalaborwa showing different study sites

2.4 Methods

2.4.1 Data collection

To address the research questions, a structured interview schedule was administered. A standardized survey instrument was used to capture the household details and livelihood activities. All interviews were conducted in the preferred language of the respondent, namely isiXhosa in the Queenstown area and Sepedi and Xitsonga in the Phalaborwa area. In most cases in the rural and township areas, translators were used to make the interview process less challenging for both the interviewer and the interviewee. Translators were trained on the content of the questionnaire to ensure a full understanding of the questions being administered. The interviews were in accordance with Rhodes University’s Ethical Guidelines and Ethical Standards Policy.

Before commencing with the field work, preliminary site visits were conducted in both Queenstown and Phalaborwa. In addition to this, various contacts were made in and around the areas to obtain information on the various activities taking place in the towns as well as to

inform people about the project and the work being conducted. Efforts were made to get in touch with local municipalities to obtain permission from the relevant authorities regarding administration of the questionnaire. Participation in the study was completely voluntary and the confidentiality of the information received was assured.

Data collection took place between August and November of 2010. A total of 135 questionnaires were conducted along a continuum in Queenstown, 65 in the urban areas, 20 questionnaires for each township making up a total of 40, as well as 30 for the rural areas. For Phalaborwa, a total of 137 questionnaires were completed along a continuum. This was broken down into 65 questionnaires for the urban areas, a total of 42 for the two townships and 30 questionnaires for the rural areas. The interview was conducted with the household head, however if the household head was not present, any adult person within the household who was knowledgeable about income sources and natural resource use was interviewed. For this survey, a household is defined as a family-based co-residential unit, where all members of the unit live in the house permanently and rely on the socio-economic interdependencies among themselves, while taking care of resource management and the primary needs of its members (Ellis, 2000; Niehof, 2004).

2.4.1.1 Selection of households

Individual households were randomly selected using software from ArcView 4 and ArcGis 9. The study sites were divided up into sampling areas or zones (urban, townships, rural). Using ArcGis, each zone was then digitised on high resolution aerial maps (2006) by drawing polygons to demarcate the specific areas. All features that fell within the polygon which are distinctly not households, for example open spaces, school buildings or industrial areas, were unmarked within the digitised zone.

Using ArcView 4, a 50 m by 50 m grid was then placed over each zone using a script known as 'CreateMapGridTheme'. All grids falling outside the digitised zones were excluded from the study area. Another script, called 'RandomSelection' was used to randomly select the required number of grids for each zone (65 urban, 40 townships, 30 rural). For the former township areas, the sample size of 40 was divided in half to accommodate the two physically separate townships in each town. Finally, a script called 'AddxyCoordtoFTab' was used to create GPS coordinates for each selected grid from its centre point. In the field, the household nearest to that point was selected for the study. If that household was not available or did not

wish to partake in the study, the next household closest to those coordinates and one which was willing to take part in the questionnaire was interviewed.

2.4.1.2 Structure of questionnaire

The livelihoods questionnaire was divided into 13 sections:

- Section A: Interview Details
- Section B: Physical Capital and Indirect Wealth Indicators
- Section C: Crop Production
- Section D: Fruit Production
- Section E: Livestock Production
- Section F: Wild Natural Capital
- Section G: Remittances and Rentals
- Section H: Welfare Grants and Pensions
- Section I: Self-employment/selling of items made
- Section J: Employment
- Section K: Household Profile
- Section L: Social Capital
- Section M: Community Typology

Sections A and B of the questionnaire involved obtaining basic information about the household as well as information on physical capital (e.g. plot size, number of rooms in house, presence or absence of electricity, etc.). Some questions were included to gain information on indirect indicators of wealth of the household such as the number of household assets owned (cars, television, cell phones), how many meals households typically ate per day as well as how often meat was consumed.

Section C and D focused on crop and fruit production. This section obtained information on the main crops or fruits grown, the amount that was produced in the last planting season, and whether or not the household sold any of their produce. Questions on livestock numbers and ownership were covered in section E. This included the number of livestock and all the direct and indirect benefits accrued from each type of livestock, as well as the associated costs.

Section F was on the use, collection, and sale of wild natural capital. Here, households were asked a range of questions on 22 wild natural resources such as firewood, wild fruits and vegetables, edible insects, medicinal plants as well as plant fibres for weaving, timber for building and fencing, and so on.

Sections G and H obtained information with regards to the amount and frequency of remittances and rentals as well as grants and pensions for each member of the household.

Self-employment as well as formal employment were covered by sections I and J. Section K involved a detailed household profile, gathering information on the number of people residing in the household, year of birth, gender, and highest education.

Social data were captured in section L. Households were asked about social groups/associations that they belonged to. In addition to this, households were asked about any major income shortfalls that had occurred in the last two years and how they had coped. Lastly, section M was a community typology covering trust in the community as well as what they liked or disliked about living in their respective areas or neighbourhoods.

2.4.2 Data analysis

2.4.2.1 Calculating total household income

A large proportion of township and rural residents had diverse livelihood streams including off-farm activities (such as wages, remittances, grants and informal economic activities) and on-farm activities (such as crop and livestock production and the harvesting of natural resources (Paumgarten, 2005). The use of land as well as natural resources provide rural households with a range of non-monetary goods and services, including income, water, fuel, medicine, shelter and importantly, food security.

A livelihood portfolio was calculated to determine the contribution made from all income streams including those obtained from land, wild natural capital, welfare grants, remittances and employment, by each household on an annual basis. This involved calculating the contributions made to household total income (cash and non-cash). To achieve this, the total household income was calculated by adding up the declared cash contribution and direct-use values from wild natural capital, livestock and crops for each household over the past year. Direct-use values were determined as the product of amounts used per resource per unit time and the local ('Farm-gate') price for each suburb and each town.

Total household income was calculated from the following categories:

- 1) Crop agriculture
- 2) Livestock
- 3) Wild natural capital
- 4) Remittances, grants and pensions
- 5) Self-employment and formal employment

2.4.2.1.1 Crop agriculture

An important livelihood activity for households living in South Africa's homelands is the production of food crops (Shackleton *et al.* 2001). It is therefore not surprising that a large percentage of households are involved in the production of crops. For that reason, the agricultural practices of each household were an important aspect of the Livelihood Survey and included all aspects of crop and fruit production. Respondents were questioned on the crop or fruit produced, the number of units that were produced as well as the type of units produced. Following completion of the survey, all fruits and vegetables were weighed and converted to kilograms according to the unit given by respondents (i.e. crate, plastic packet, two litre container, etc.) to standardise the weights across the two towns. Local prices were used as far as possible. However, where no prices were given, a 2010 price list from Fruit and Veg City was used and the annual income from crop and fruit production calculated.

2.4.2.1.2 Livestock

There are a number of studies investigating the role and importance of livestock in communal systems in South and southern Africa (May, 2000). However, Shackleton *et al.* (2005) identified the lack of consideration of small livestock in the overall value of livestock, as well as direct uses (such as milk, dung for floors, manure, etc.) as a whole to rural livelihoods. Therefore, all livestock kept by households were considered in this study. There are a number of reasons why households would choose to keep livestock, including cash from sales, milk for household consumption, slaughter, dung, bride-wealth as well as for transport (Shackleton *et al.* 2005). Details of the livestock (cattle, goats, sheep, pigs, horses, donkeys, geese, ducks, and chickens) goods and services used per household were captured in the Livelihood Survey. These included the benefits provided to the household from the livestock including slaughter, donation, sale, number of offspring, number of eggs produced, meat, milk and dung. Emphasis was placed on the frequency of receipt of all of the above mentioned benefits to obtain the annual benefits. The monetary values of all of these products were obtained from the respondents. In situations where the local price was not known, the average price for that town was used. Below is a list of the average prices.

Table 2.1: Average (\pm SD) price (Rands) of livestock and livestock products in Queenstown and Phalaborwa

	Cattle (\pm SD)	Sheep (\pm SD)	Goats (\pm SD)	Pig (\pm SD)	Chicken (\pm SD)	Eggs (\pm SD)	Milk (\pm SD)
Queenstown	R 3 470 (\pm 1527)	R 775 (\pm 141)	R 880 (\pm 84)	n/a	R 65 (\pm 21)	R 2.30 (\pm 1)	R 5.50/l (\pm 1)
Phalaborwa	R 4 750 (\pm 500)	n/a	R 450 (\pm 184)	R 500 (\pm 0)	R 30 (\pm 4)	R 1 (\pm 0)	n/a

The annual benefits from livestock were calculated from the amount of offspring produced a year. Calculating the amount of livestock that a household had at the time of data collection is not a fair representation of the annual flow of that good. Therefore, by dividing the number of growth (i.e. offspring born in a year) by the number of livestock that was owned at the time of data collection, the annual percent growth was calculated. This percentage, multiplied by the total asset price, gives the percentage price of that household's livestock. Added onto this value for each household was the number of livestock eaten, donated and sold as well as any other benefits such as eggs, milk and dung. Where the number of growth for a particular livestock was not known, the average percentage growth over the whole town was used.

2.4.2.1.3 Wild natural capital

Households, particularly in the rural areas, regularly engage in the use, consumption and sale of natural resources. However, the value of consumption and sale of these resources to peoples' livelihoods is often ignored or undervalued because not much enters formal markets (Paumgarten, 2005; Shackleton & Shackleton, 2006; Watson, 2007). These activities are found to be very difficult to calculate in monetary terms and are therefore quite often ignored.

For this reason, the value of natural resources consumed and sold by households was included in the portfolio when calculating the total income of surveyed households. This involved calculating the direct-use value to households using wild natural capital. The direct use value is the financial valuation of resources used domestically (Twine *et al.* 2001). All households were questioned on the amount of natural resources that were used or sold in either the wet or dry seasons. The local price for each resource was used to calculate the annual value. If no price was quoted, the mean value from all quoted or selling prices was

used (Table 2.2). For resources where no local price was available, values were taken from literature. After this was completed, all the resource values were totalled for each household.

Table 2.2: Average (\pm SD) values (Rands) of natural resources

Category	Price (Rand) (\pm SD)		Unit
	Queenstown	Phalaborwa	
Firewood	26 13.3 (\pm 5.0) 40 (\pm 14.1) 354.2 (\pm 49.8)	41 20.7 (\pm 15.9) 51.3 (\pm 27.8) 355.4 (\pm 76.7)	Bundle Bag/Pack Wheelbarrow Bakkie
Wild Vegetables	36.8 (\pm 11.1) ^a	36.8 (\pm 11.1) ^a	kg
Wild Fruit			
Marula	0.48 ^b	n/a	kg
Prickly Pear	1.5 ^c	n/a	Litre
	1.8 ^d	5.3 (\pm 2.1) ^e	kg
Other	5.3 (\pm 2.1) ^e		kg
Honey	24 ^f 32 ^f	24 ^f 32 ^f	Litre kg
Insects			
Mopane Worms	20 40	n/a	kg Litre
Locusts	20	n/a	Kg
Meat			
Duiker	90 (\pm 14.4)	n/a	Per animal
Jackal	50	n/a	Per animal
Rabbit	45 (\pm 35.4)	45 (\pm 35.4)	Per animal
Fish	15.8 (\pm 1.6) ^g	15.8 (\pm 1.6) ^g	Per fish
Fencing Poles	2.3 ^e	2.3 ^e	Per pole
Traditional Brooms			
Grass	17.5 (\pm 10.6)	19 (\pm 9.4)	Per broom
Twigs	n/a	21 (\pm 7.1)	Per broom

^a Shackleton, 2003; ^b Van Zyl, 2011; ^c Shackleton *et al.* 2002^a; ^d Shackleton *et al.* 2011; ^e Shackleton *et al.* 2002^b; ^f Timmermans, 2005; ^g Shackleton *et al.* 2007c.

2.4.2.1.4 Remittances, grants and pensions

In the rural areas, grants and pensions are quite often the only form of cash income for a number of households and therefore forms a large percentage of total livelihood income (Pauw & Mncube, 2007). Data on remittances, grants and pensions for each household were

collected. All households were asked whether they receive any remittances in the form of cash, clothing or food as well as whether they received any regular income from renting out rooms. Information on the type and number of grants and pensions and the amount received was also obtained. The annual income from remittances, grants and pensions was calculated by multiplying the monthly amount by the frequency of receipt.

2.4.2.1.5 Self-employment and formal employment

Data on self-employment and formal employment were collected. This involved gathering information on the number of employed individuals in the household and how much they earned. Wages were given on a monthly basis and were therefore multiplied by 12 to give a yearly figure. In some cases, employment information was missing from the data sheet and therefore excluded certain households from the final mean calculations. A household without employment information is not a true representation of the household's total income. This decreased the livelihood portfolio sample size from 272 households to 246 households.

2.4.2.2 Calculating severity of shocks

Households were asked to rank the severity of household shocks on a scale from 0-3, ranging from no crisis, minor crisis, moderate crisis to severe crisis. For the purpose of this study, the households were placed in either a 'severe' or 'not severe' category. Households ranking shocks with either no crisis or a minor crisis (i.e. a score of 0 or 1), were placed in the 'not severe' category while households ranking shocks as moderate or severe (i.e. a score of 2 or 3) were placed in the severe category. Results were then ranked and tabulated.

2.4.4.3 Statistical analysis

The data collected was summarised into spreadsheets using Microsoft excel. This allowed graphical or tabular display of the results where household attributes and patterns of natural resource use could be identified. Following this, statistical analysis could occur. All data was analysed using STASTICA (StatsSoft, Inc. 2011) and SPSS (IBM® SPSS®, 2011).

Frequency tables were calculated for each categorical question displaying the distribution of responses across the relevant scale for both locations and continuum levels. Means and standard deviations of the continuous variables were calculated for both locations and continuum levels.

Chi-square tests, using a 5 % level of significance, were used to establish if the distribution of responses was significantly different between (1) the two study sites and (2) the three positions along the continuum, and thereby to determine if there were any significant location and continuum effects.

Independent t-tests were used to test for significant differences in the means in selected continuous variables between the two locations. One-way ANOVA procedures were used to test for a continuum effect on the continuous data of the physical capital and indirect wealth indicators such as years lived in town, number of rooms in household, amount spent on electricity as well as the number of meals eaten a day. Where the ANOVA results revealed significant differences between the two study sites or along the continuum, Tukey post-hoc multiple comparison tests were used to display exactly which of the levels differed from each other. Prior to analysis, homogeneity of variances of the data were examined using Levene's test (Johnson & Wichern, 2007). If homogeneity was not attained, non-parametric Mann-Whitney and Kruskal-Wallis test procedures were used. Statistical significance was set at the 5 % level of significance.

Chapter 3

Livelihoods and natural resource use along rural-urban continua

3.1 Introduction

Diversification is defined as the process by which households construct increasingly diverse livelihood portfolios by making use of a combination of resources and assets, and is based on the realization that a livelihood is more than just cash income (Ellis, 1998; Niehof, 2004; Owusu, 2009). Very few people obtain all their income from any one source, hold all their wealth in the form of a single asset or use their assets in any one activity (Barret *et al.* 2001). Diversification is not just for the poor, and people with different socioeconomic backgrounds engage in it for different reasons, whether it be for survival, livelihood security or as a means of accumulation for wealthier households. The wide array of potential strategies collectively enhances a household's ability to obtain a livelihood under uncertain and difficult conditions (Lahiff, 2003). Households therefore engage in multiple activities and alternatives for income generation, as it can make the difference between viable livelihoods and destitution, as this provides flexibility in their sources of income (Ellis, 1999; Hussein & Nelson, 1999; Niehof, 2004; Paumgarten, 2005).

Households depended on multiple sources of income, including 'farm income' which is cash and non-cash income from livestock and crop agriculture as well as natural resources (which can also be off-farm), 'off-farm income', which includes wages, grants and pensions, as well as 'nonfarm income' which includes rental income and remittances (Owusu, 2009). For many poor households, one of these activities on their own is rarely enough to support a household, prompting households to engage in multiple activities and rely on diversified income portfolios (Ellis, 1999; Owusu, 2009).

Included in the range of strategies is the use of natural resources both for household consumption and sale. Natural resources provide a range of products which aid in reducing households vulnerability to risk. These products are used for energy, food, shelter, medicines and fibre (Paumgarten, 2005). In sub-Saharan Africa, there are few rural households that do not use natural resources as part of their livelihood strategies (Kaimowitz, 2003). For this to occur, access to land, whether a small plot or a forest, offers local households the opportunities to diversify their livelihoods (Paumgarten, 2005; Shackleton *et al.* 2007a; Shackleton *et al.* 2007b; Davenport *et al.* 2012). Cash income earned from the sale of crops,

livestock and other natural resources is often believed to provide only small proportions of total household income, however, this perception has been widely criticized (Shackleton *et al.* 2001). There is now a growing international awareness of the importance and value of natural resources in the lives of rural communities throughout the world, such that the contribution made by natural resources to household cash and non-cash income has been found to be considerable and often comparable to other income commonly acknowledged income sources such as agriculture (Dovie *et al.* 2002; Paumgarten, 2005; Shackleton & Shackleton, 2006). Additionally, rural households using natural resources on a regular basis for direct household consumption enjoy a significant saving of cash resources (Shackleton *et al.* 2007b). These benefits are not restricted to rural households, with a small number of recent studies also revealing extensive use of wild natural resources and agricultural production in urban areas (Mougeot, 2005; Cocks, 2006; Davenport *et al.* 2011; 2012). It is this comparative basis that is the focus of this chapter.

This chapter explores how livelihood assets and portfolios change along a rural-urban continuum as well as how livelihoods change with regards to the use and consumption of natural resources. In addition to this, the livelihood portfolio and income of the surveyed households are explored along gender lines of the household head.

3.2 Results

3.2.1 Characteristics of livelihoods along the rural-urban continuum

3.2.1.1 Number of years the householder has lived in town/neighbourhood

The number of years people had lived in Queenstown ($H=16.7$, $df=2$, $p<0.05$) and Phalaborwa ($H=29.5$, $df=2$, $p<0.0001$), as well as in their particular neighbourhoods, ($H=32.6$, $df=2$, $p<0.0001$) and ($H=26.7$, $df=2$, $p<0.0001$) respectively, differed significantly across the continuum in both sites (Table 3.1). In general, residents in the urban areas did not stay in the same area or neighbourhood for as long as township and rural residents. The number of years lived in town increased from between 17.9 (± 17.4) and 15.5 (± 12.6) in the urban areas to between 22.5 (± 14.9) and 24.6 (± 14.3) in the township areas and further increased to between 31.5 (± 15.5) and 39.2 (± 22.3) in the rural areas. The pattern was very similar with regards to the number of years lived in the neighbourhood and increased from the urban to the rural areas.

3.2.1.2 Plot size

Significant differences were found along the continuum in Queenstown ($H=97.4$, $df=2$, $p<0.0001$) and Phalaborwa ($H=57.5$, $df=2$, $p<0.0001$) when considering plot size. Average plot size was largest in the rural areas of both Queenstown and Phalaborwa, and smallest in the township areas (Table 3.1), with urban being intermediate between these two.

3.2.1.3 Number of physical assets per household

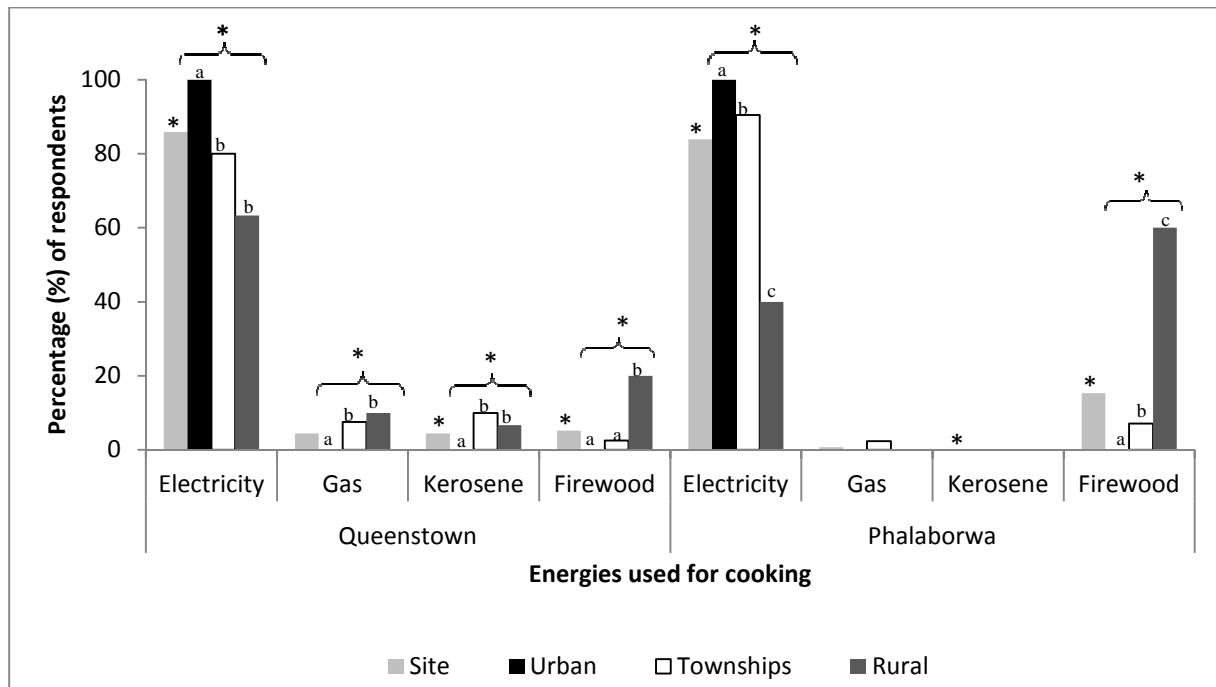
There was an association between the number of assets per household (Table 3.1) and the position on the continuum in Queenstown ($H=76.2$, $df=2$, $p<0.001$) and Phalaborwa ($H=66.3$, $df=2$, $p<0.0001$). Household assets included cars, motorbikes, bicycles, fridges, televisions and cell phones. The average number of assets per household decreased along the continuum from the urban areas to the rural areas, ranging from 7-8 in the urban households to 3-4 in the rural ones.

3.2.1.4 Electricity

In both Queenstown and Phalaborwa, 97.8 % of households had electricity. There was however a significant difference with regards to monthly expenditure on electricity in Queenstown ($H=67.5$, $df=2$, $p<0.0001$) and Phalaborwa ($H=72.0$, $df=2$, $p<0.0001$). Urban residents spent seven to eleven times more on electricity per month compared to township and rural residents in both towns. Phalaborwa urban and township residents spent significantly more on electricity than Queenstown residents in the same areas (Table 3.1).

3.2.1.5 Main energies for cooking

Queenstown had a significant difference in the main energies used for cooking along the continuum ($\chi^2=31.8$, $df=6$, $p<0.0001$) (Figure 3.1). Electricity was used to a lesser degree moving away from the town centre. A wider variety of energies were used, especially in the township and rural areas, where residents used electricity, gas, kerosene and firewood. Firewood was used 20.0 % of the time in the rural areas of Queenstown. Phalaborwa also showed a significant difference ($\chi^2=62.2$, $df=4$, $p<0.001$) along the continuum. Firewood use in the rural areas was much higher with a total of 60.0 % of rural households using firewood as their main energy for cooking.



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences along the continuum and between sites.

Figure 3.1: Main energies used for cooking in Queenstown and Phalaborwa

3.2.1.6 Piped water on site

There was a significant difference along the continuum with regards to piped water on site in both Queenstown ($\chi^2=107.7$, $df=2$, $p<0.0001$) and Phalaborwa ($\chi^2=69.2$, $df=2$, $p<0.0001$). In both Phalaborwa and Queenstown, in the urban areas, 100.0 % of the surveyed households had piped water on site. The township areas of Queenstown had piped water in 95.0 % of households. However, in the rural areas of both Phalaborwa and Queenstown the numbers dropped significantly. There was a significant difference found between Queenstown rural households having piped water and Phalaborwa rural households having piped water ($\chi^2=8.5$, $df=1$, $p<0.05$). In Phalaborwa, 43.0 % of households had piped water on site with the remainder of the households having to use public taps and nearby water sources. In Queenstown, only 10.0 % of the households surveyed had piped water on site.

Table 3.1: Household attributes of Queenstown and Phalaborwa along the continuum

Site	Urban	Townships	Rural	Site Mean	Test statistic	p value
Years lived in town (± SD)						
Queenstown	17.9 ± 17.4 ^a	22.5 ± 14.9 ^b	31.5 ± 15.1 ^c	22.3 ± 17.0	H= 16.7	<0.05
Phalaborwa	15.5 ± 12.6 ^a	24.6 ± 14.3 ^b	39.2 ± 22.3 ^c	23.5 ± 18.2	H= 29.5	<0.0001
Test statistic	Z= 0.1	Z= -0.7	Z= -1.3	Z= -0.4		
p value	>0.05	>0.05	>0.05	>0.05		
Years lived in neighbourhood (± SD)						
Queenstown	11.3 ± 11.7 ^a	19.6 ± 13.1 ^b	26.5 ± 12.3 ^c	17.2 ± 13.7	H= 32.6	<0.0001
Phalaborwa	8.9 ± 8.1 ^a	18.4 ± 11.4 ^b	24.9 ± 22.2 ^b	15.3 ± 14.8	H= 26.7	<0.0001
Test statistic	Z=0.4	Z= 0.2	Z= 1.4	Z=1.4		
p value	>0.05	>0.05	>0.05	>0.05		
Plot size (m²) (± SD)						
Queenstown	1 212 ± 262 ^a	645 ± 375 ^b	4 131 ± 2 802 ^c	1 693 ± 1 882	H= 97.4	<0.0001
Phalaborwa	1 463 ± 443 ^a	844 ± 203 ^b	2 097 ± 1 073 ^c	1 412 ± 744	H= 57.5	<0.0001
Test statistic	Z=-4.1	Z= -3.7	Z=4.3	Z= -0.1		
p value	<0.05	<0.05	<0.05	>0.05		
Number of rooms per person (± SD)						
Queenstown	2.1 ± 1.7 ^a	1.3 ± 0.9 ^b	1.6 ± 0.9 ^{ab}	1.7 ± 1.4	H= 11.1	<0.05
Phalaborwa	1.8 ± 1.3 ^a	1.4 ± 1.1 ^b	1.0 ± 0.6 ^b	1.5 ± 1.1	H= 19.8	<0.0001
Test statistic	Z=0.9	Z= -0.1	Z= 2.6	Z= 1.8		
p value	>0.05	>0.0	<0.05	>0.05		
Meals eaten per day in household (± SD)						
Queenstown	2.8 ± 0.3 ^a	2.7 ± 0.4 ^a	2.9 ± 0.5 ^a	2.8 ± 0.4	H= 2.1	>0.05
Phalaborwa	2.9 ± 0.4 ^a	2.5 ± 0.6 ^b	2.4 ± 0.6 ^c	2.7 ± 0.6	H= 25.0	<0.0001
Test statistic	Z=-0.5	Z= 1.4	Z= 3.0	Z= 1.8		
p value	>0.05	>0.05	<0.05	>0.05		
Number of physical assets per household (± SD)						
Queenstown	8.0 ± 2.9 ^a	3.4 ± 1.7 ^b	3.2 ± 1.2 ^b	5.6 ± 3.3	H= 76.2	<0.0001
Phalaborwa	7.6 ± 2.2 ^a	4.5 ± 1.8 ^b	3.3 ± 2.6 ^c	5.7 ± 2.9	H= 66.3	<0.0001
Test statistic	Z=0.7	Z= -2.9	Z= -0.6	Z= -0.9		
p value	>0.05	<0.05	>0.05	>0.05		
Electricity Expenses (R/month) (± SD)						
Queenstown	760 ± 621 ^a	195 ± 133 ^b	114 ± 74 ^c	437 ± 525	H= 67.5	<0.0001
Phalaborwa	1 139 ± 818 ^a	443 ± 594 ^b	98 ± 94 ^c	675 ± 777	H= 72.7	<0.0001
Test statistic	Z=-3.1	Z= -2.7	Z= 1.3	Z= -2.2		
p value	<0.05	<0.05	>0.05	<0.05		

Note: nonparametric Mann-Whitney U tests read down for differences between sites, while nonparametric Kruskal-Wallis tests read across for differences along the continuum. Superscripts are only relevant within their row categories'; unlike superscripts reflect significant differences along the continuum at $p < 0.05$ or higher.

3.2.2 Indicators of household wealth

The average number of rooms per person in the household, number of meals eaten per day, frequency of consumption of meat, as well as households going to bed hungry were included as indirect measures of wealth of the surveyed households.

3.2.2.1 Number of household rooms per person

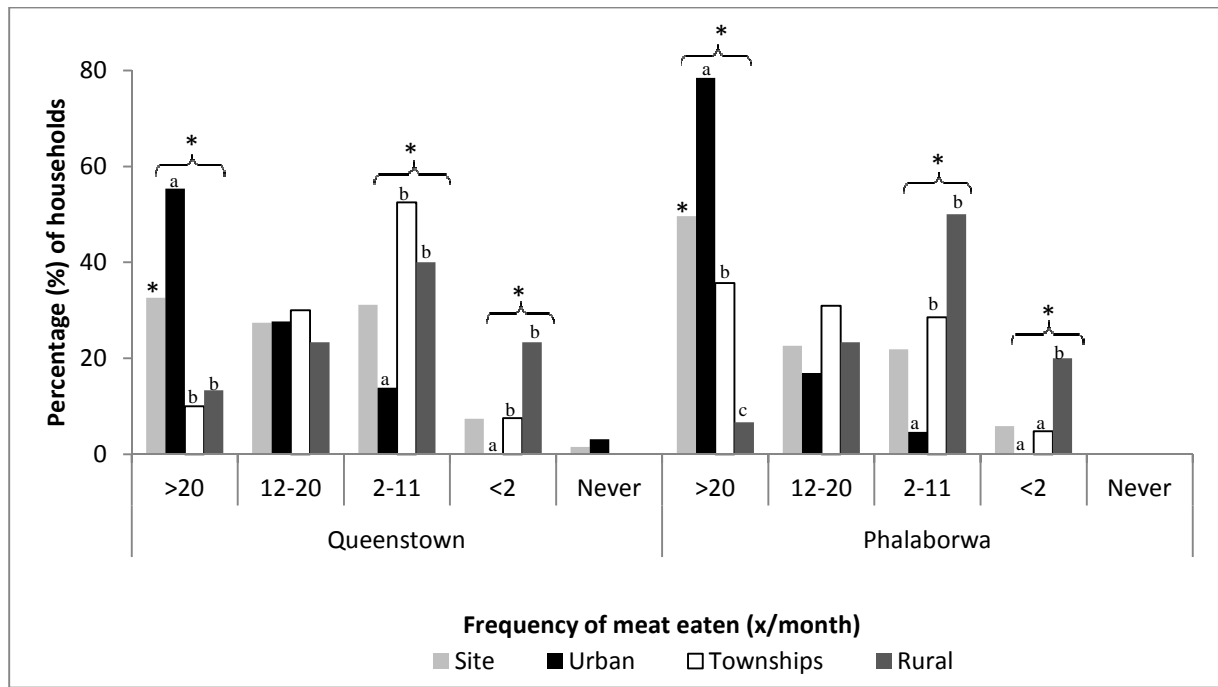
There was a significant difference along the continuum with regards to the number of rooms per person in Queenstown ($H=11.1$, $df=2$, $p < 0.05$) and Phalaborwa ($H=19.8$, $df=2$, $p < 0.0001$). In general, the urban areas had a greater number of rooms per person when compared to the township and rural areas (Table 3.1).

3.2.2.2 Number of meals consumed a day

There was a significant difference in the number of meals consumed a day in Phalaborwa ($H=25.0$, $df=2$, $p < 0.0001$), being greatest in the urban areas and decreasing along the continuum. There was, however, no significant trend for Queenstown (Table 3.1).

3.2.2.3 Household meat consumption

There was a significant difference between the position on the continuum and the frequency of meat consumed by households in both Queenstown ($\chi^2=51.9$, $df=12$, $p < 0.0001$) and Phalaborwa ($\chi^2=61.7$, $df=10$, $p < 0.0001$). Meat was consumed more frequently in the urban areas of both Queenstown and Phalaborwa than in the township and rural areas (Figure 3.2).



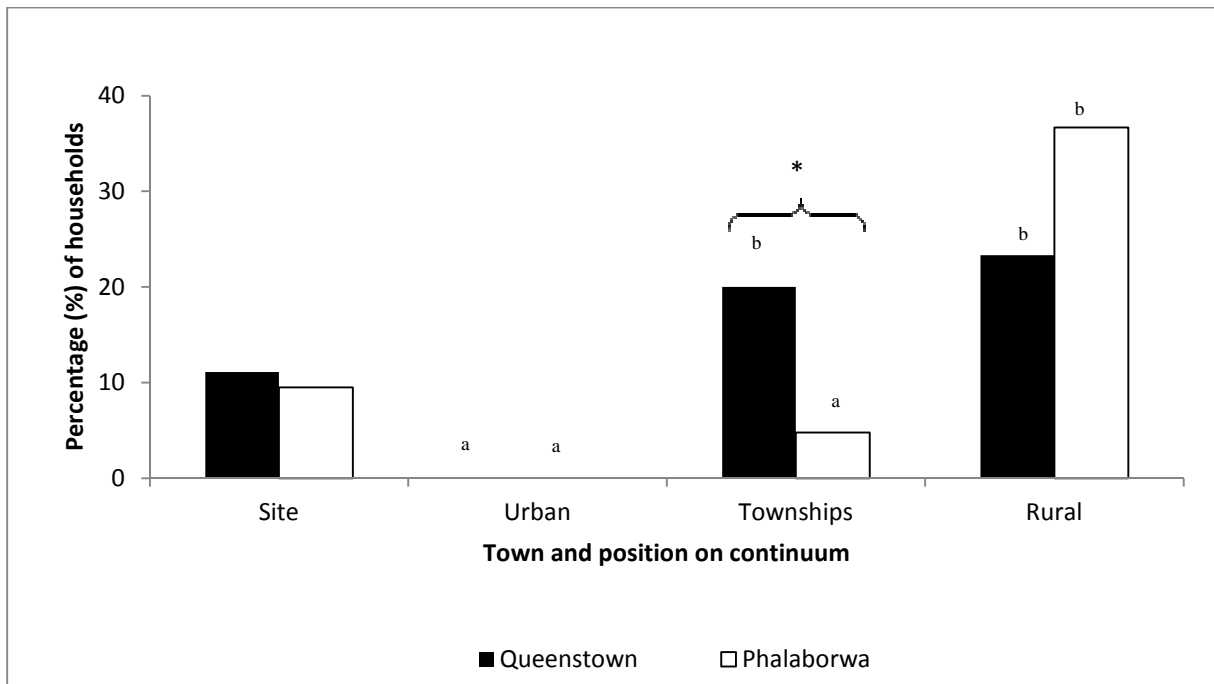
Note: Unlike superscripts represent significant differences per frequency along the continuum while * represents significant differences along the continuum between sites.

Figure 3.2: Frequency of meat consumption in Queenstown and Phalaborwa

3.2.2.4 Households going to bed hungry

There was a significant difference between the number of Queenstown households going to bed hungry and the number of Phalaborwa households going to bed hungry in the township areas ($\chi^2=4.3$, $df=1$, $p<0.05$). More Queenstown households in the township area (20.0 %) reported going to bed hungry than Phalaborwa households in the township area (4.7 %) (Figure 3.3).

There was a significant difference between the number of households going to bed hungry and the position on the continuum in Queenstown ($\chi^2=15.9$, $df=2$, $p<0.0001$) and Phalaborwa ($\chi^2=33.7$, $df=2$, $p<0.0001$). No urban residents stated that they go to be hungry in either Queenstown or Phalaborwa, however this percentage increased in the township and rural areas with the rural areas having the highest percentage, 23.0 % and 37.0 % respectively.



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 3.3: Percentage (%) of households going to bed hungry in Queenstown and Phalaborwa

3.2.3 Livelihood income streams

3.2.3.1 Crop agriculture and livestock

A significant difference was found between the township areas of Queenstown and the township areas of Phalaborwa ($\chi^2=8.8$, $df=1$, $p<0.05$). In Phalaborwa, 45.6 % of residents engaged in crop agriculture, compared to the 15.0 % in Queenstown (Table 3.2).

Significant differences in agricultural production along the continuum in both Queenstown ($\chi^2=10.3$, $df=2$, $p<0.01$) and Phalaborwa ($\chi^2=13.7$, $df=2$, $p<0.01$) were found. Participation in agricultural production increased the further away from the urban areas sampling took place, and was highest in the rural areas of Queenstown (50.0 %) and Phalaborwa (63.0 %).

The main crops grown in Queenstown were spinach, which was grown by 61.5 % of the households engaging in crop agriculture, maize (35.9 %), cabbage (28.2 %), pumpkin (20.5 %), onions (20.5 %) and beans (17.9 %).

The main crops grown in Phalaborwa were spinach, grown by 37.0 % of the households engaging in crop production, onions (33.3 %), tomatoes (31.5 %), maize (16.7 %) and beetroot (16.7 %).

There was a much greater proportion of households keeping livestock in the rural areas of Queenstown than in the more urbanised areas. Queenstown was found to have a significant difference ($\chi^2=51.0$, $df=2$, $p<0.0001$) with regards to livestock production along the continuum. The same applied at Phalaborwa ($\chi^2=34.9$, $df=2$, $p<0.0001$). While the values are less than that of Queenstown, they still show an increase the further away from the town centre sampling took place.

Table 3.2: Percentage (%) of respondents engaging in crop agriculture and livestock production in Queenstown and Phalaborwa

		Urban	Townships	Rural	Site	Test statistic	p value
Crop Agriculture	Queenstown	27.7 ^a	15.0 ^a	50.0 ^b	28.9	$\chi^2= 10.3$	<0.01
	Phalaborwa	24.6 ^a	45.6 ^b	63.3 ^b	39.4	$\chi^2= 13.7$	<0.01
	Test statistic	$\chi^2= 0.1$	$\chi^2= 8.8$	$\chi^2= 1.0$	$\chi^2= 3.3$		
	p value	>0.05	<0.05	>0.05	>0.05		
Livestock	Queenstown	7.7 ^a	10.0 ^a	70.0 ^b	22.2	$\chi^2=51.0$	<0.0001
	Phalaborwa	3.1 ^a	7.1 ^a	46.7 ^b	13.9	$\chi^2= 34.9$	<0.0001
	Test statistic	$\chi^2= 1.3$	$\chi^2= 0.2$	$\chi^2=3.3$	$\chi^2= 3.2$		
	p value	>0.05	>0.05	>0.05	>0.05		

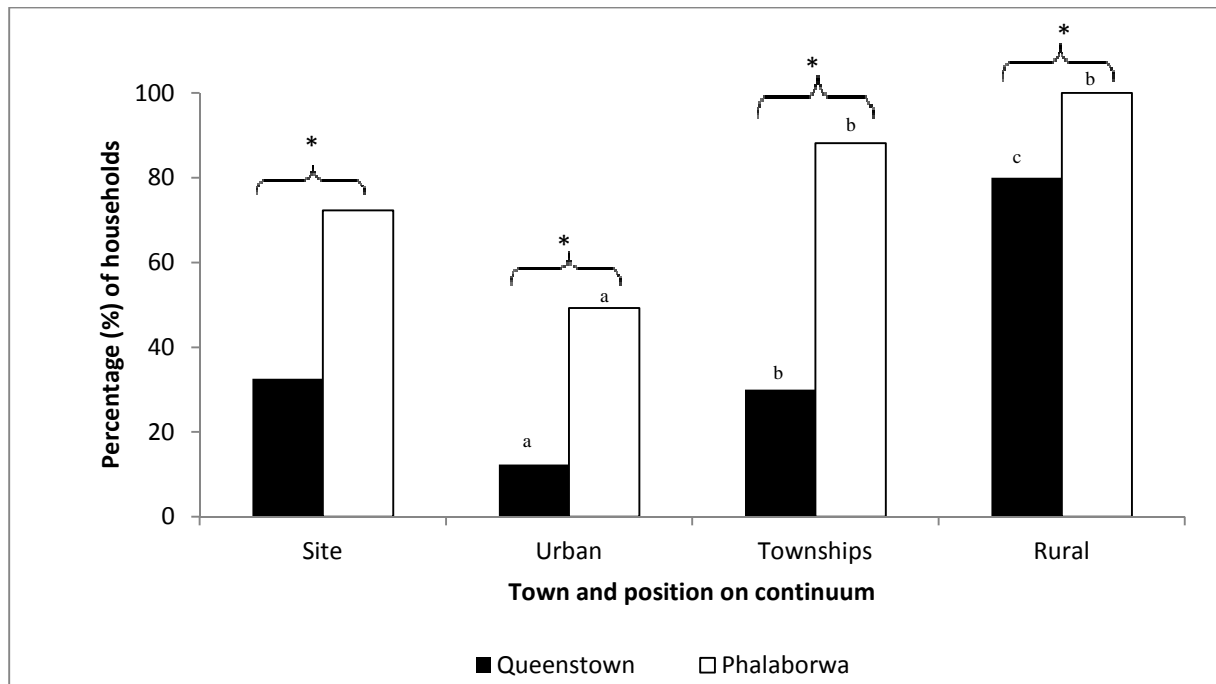
Note: nonparametric Chi-squared tests read down for differences between sites, while significant differences along the continuum read across. Superscripts are only relevant within their row categories; unlike superscripts reflect significant differences along the continuum.

3.2.3.2 Wild resources

There was a significant difference between the two study sites with regards to the use of wild resources ($\chi^2=42.9$, $df=1$, $p<0.0001$). In Queenstown, 32.5 % of all surveyed households used wild resources to some extent compared to the 72.2 % of household using wild resources in Phalaborwa (Figure 3.4).

A significant difference was also found along the continuum in Queenstown ($\chi^2=42.9$, $df=2$, $p<0.0001$) and Phalaborwa ($\chi^2=33.9$, $df=2$, $p<0.0001$). The percentage of households using wild resources increased along the continuum from the urban to the rural areas, with 80.0 % of Queenstown rural respondents and 100.0 % of Phalaborwa rural respondents using wild

resources. Phalaborwa respondents used significantly more resources along the continuum than Queenstown residents.

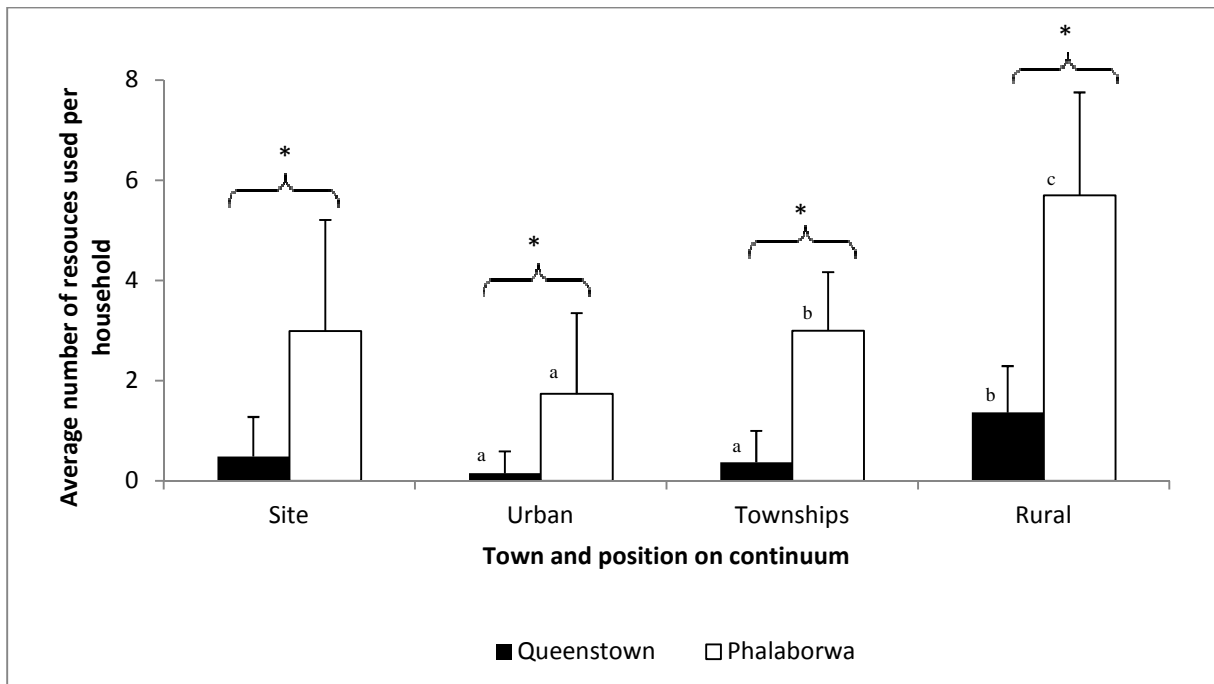


Note: Unlike superscripts represent significant differences per site along the continuum, while * represents significant differences between sites.

Figure 3.4: Percentage (%) of households using natural resources across the sites and along the continuum

There was a significant difference found between the number of resources used per household and the respective sites ($Z=-10.6$, $df=1$, $p<0.05$) (Figure 3.5). In Queenstown, an average of $0.4 (\pm 0.7)$ resources were used per household. Households in Phalaborwa used a much larger variety of resources and averaged $2.9 (\pm 2.2)$ resources per household.

There was a significant association found between the number of resources used and the position on the continuum in Queenstown ($H=47.7$, $df=2$, $p<0.0001$) and Phalaborwa ($H=65.4$, $df=2$, $p<0.0001$). In Phalaborwa, the average number of resources per household increased from $1.7 (\pm 1.6)$ in the urban areas to $3.0 (\pm 1.2)$ in the township areas and a further increase to $5.7 (\pm 2.1)$ resources per household in the rural areas.



Note: Unlike superscripts represent significant differences per site along the continuum, while * represents significant differences between sites.

Figure 3.5: Average (\pm SD) number of resources used across the sites and along the continuum

The key resources used in Queenstown (Table 3.3) included firewood, which was used by 10.8 % of urban residents, 27.5 % of township residents and 76.7 % of rural residents, wild vegetables and wild meat. All resources used in Queenstown were utilised primarily in the rural areas.

There was a much wider range as well as a greater extent of use of these resources in Phalaborwa. Firewood, wild vegetables and edible insects surpassed the 50.0 % mark in the rural areas. Edible insects were used the most across the continuum, 23.1 %, 59.5 % and 83.3 % respectively, followed by a high use of firewood, particularly in the rural areas. Other key resources include wild fruits and traditional brooms.

Table 3.3: Percentage (%) of households using specific wild resources across the continuum in Queenstown and Phalaborwa (cont. on next page)

Resource	Site	Urban %	Townships %	Rural %	Site Percentage	Test statistic	p value
Firewood	Queenstown	10.8 ^a	27.5 ^b	76.7 ^c	30.4	$\chi^2=42.3$	<0.0001
	Phalaborwa	12.3 ^a	54.8 ^b	93.9 ^c	43.1	$\chi^2=58.3$	<0.0001
	Test statistic p value	$\chi^2= 0.1$ >0.05	$\chi^2= 16.5$ <0.0001	$\chi^2=3.2$ >0.05	$\chi^2= 4.7$ <0.05		
Wild Fruit	Queenstown	1.5 ^a	2.5 ^a	3.3 ^a	0.7	$\chi^2=0.3$	>0.05
	Phalaborwa	10.8 ^a	4.8 ^a	46.7 ^b	6.6	$\chi^2= 25.2$	<0.0001
	Test statistic p value	$\chi^2= 4.8$ <0.05	$\chi^2= 0.3$ >0.05	$\chi^2= 15.0$ <0.05	$\chi^2= 16.6$ <0.0001		
Wild Vegetables	Queenstown	0 ^a	2.5 ^{ab}	10.0 ^b	3.0	$\chi^2= 7.1$	<0.05
	Phalaborwa	1.5 ^a	2.4 ^a	56.7 ^b	13.9	$\chi^2= 58.9$	<0.0001
	Test statistic p value	$\chi^2= 1.0$ >0.05	$\chi^2=0.1$ >0.05	$\chi^2= 14.7$ <0.05	$\chi^2= 10.4$ <0.05		
Edible Insects	Queenstown	0	0	0	0.0	n/a	n/a
	Phalaborwa	23.1 ^a	59.5 ^b	83.3 ^c	47.4	$\chi^2= 33.4$	<0.0001
	Test statistic p value	$\chi^2=16.9$ <0.05	$\chi^2= <0.05$ <0.05	$\chi^2=42.8$ <0.0001	$\chi^2=84.1$ <0.0001		
Wild meat	Queenstown	0 ^a	2.5 ^a	23.3 ^b	5.9	$\chi^2= 21.2$	<0.0001
	Phalaborwa	0 ^a	0 ^a	3.3 ^a	0.7	$\chi^2=3.59$	>0.05
	Test statistic p value	n/a n/a	$\chi^2=1.0$ >0.05	$\chi^2=5.1$ <0.05	$\chi^2= 5.7$ <0.05		

Wild Fish	Queenstown	0 ^a	0 ^a	0 ^a	0.0	n/a	n/a
	Phalaborwa	1.5 ^a	7.1 ^a	26.7 ^b	8.8	$\chi^2 = 16.4$	<0.0001
	Test statistic	$\chi^2 = 1.0$	$\chi^2 = 2.9$	$\chi^2 = 9.2$	$\chi^2 = 12.3$		
	p value	>0.05	>0.05	<0.05	<0.05		
Traditional Brooms	Queenstown	0 ^a	0 ^{ab}	6.7 ^b	1.5	$\chi^2 = 7.1$	<0.05
	Phalaborwa	26.2 ^a	33.3 ^a	43.3 ^a	32.1	$\chi^2 = 2.8$	>0.05
	Test statistic	$\chi^2 = 19.5$	$\chi^2 = 16.0$	$\chi^2 = 10.7$	$\chi^2 = 45.4$		
	p value	<0.0001	<0.05	<0.05	<0.0001		
Weaving Material	Queenstown	1.5 ^a	0 ^a	0 ^a	0.7	n/a	n/a
	Phalaborwa	1.5 ^a	2.4 ^a	23.3 ^b	6.6	$\chi^2 = 17.6$	<0.0001
	Test statistic	$\chi^2 = 0.1$	$\chi^2 = 0.9$	$\chi^2 = 7.9$	$\chi^2 = 6.5$		
	p value	>0.05	>0.05	<0.05	<0.05		

Note: nonparametric Chi-squared tests read down for differences between sites, while significant differences along the continuum read across. Superscripts are only relevant within their row categories'; unlike superscripts reflect significant differences along the continuum.

In terms of the income contribution made from wild resources (Table 3.4), in Queenstown the main contribution came from two main sources, firewood and meat. Firewood made up 77.8 % of the income contribution from wild natural resources in Queenstown, followed by meat, which made up 19.0 %.

In Phalaborwa, the main contributions came from firewood (36.3 %), edible insects (32.2 %) and wild vegetables (27.0 %).

Table 3.4: Contribution (%) of different wild resources to the total value of wild natural capital per household

Site	Resources	Urban	Township	Rural	Total
Queenstown	Firewood	96.1	88.2	74.3	77.8
	Wild Fruits	3.9	0.1	0.0	0.1
	Wild Vegetables	0.0	1.9	0.9	1.1
	Honey	0.0	7.5	0.0	1.6
	Edible Insects	0.0	0.0	0.0	0.0
	Wild Meat	0.0	2.2	24.3	19.0
	Wild Fish	0.0	0.0	0.0	0.0
	Traditional Brooms	0.0	0.0	0.1	0.0
	Weaving Material	0.0	0.0	0.0	0.0
	Roofing	0.0	0.0	0.4	0.3
	Fencing Poles	0.0	0.0	0.0	0.0
Phalaborwa	Firewood	4.0	49.3	37.9	36.3
	Wild Fruits	1.2	0.1	2.3	2.0
	Wild Vegetables	6.5	0.5	32.3	27.0
	Honey	0.0	0.0	0.0	0.0
	Edible Insects	87.3	48.2	24.8	32.2
	Wild Meat	0.0	0.0	0.0	0.0
	Wild Fish	0.2	1.4	1.4	2.3
	Traditional brooms	0.8	0.5	0.5	0.2
	Weaving material	0.0	0.0	0.0	0.1
	Roofing	0.0	0.0	0.0	0.0
	Fencing Poles	0.0	0.0	0.0	0.1

3.2.3.3 Government grants and pensions

At the time of the field work for this study, the value of government grants and pensions in Queenstown and Phalaborwa were:

- Child grant – R 250 per month
- Disability grant – R 800 - R 1 000 per month
- Old age pension – R 1 080 per month

The proportion of households receiving welfare grants or pensions in Queenstown showed a significant difference from the proportion of households receiving State welfare grants or pensions in Phalaborwa ($\chi^2=5.9$, $df=1$, $p<0.05$) (Figure 3.6). Fifty percent of the respondents in Queenstown received some form of welfare grant or pension compared to the 42.0 % in Phalaborwa.

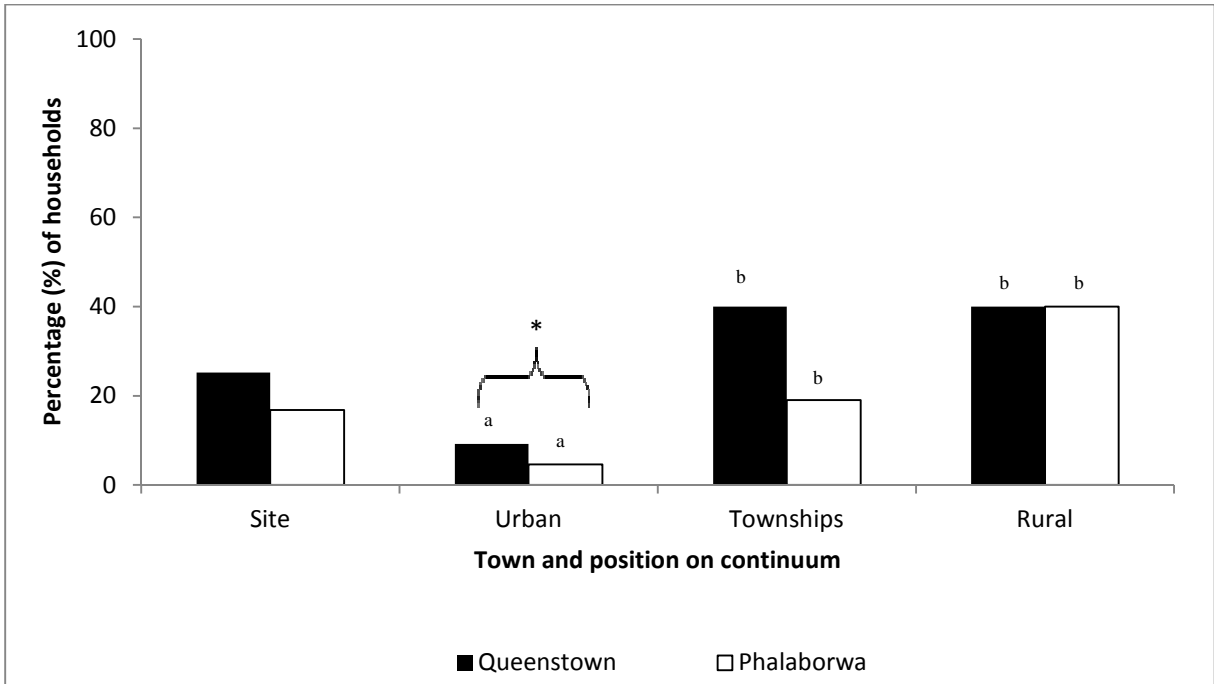
The proportion of households receiving government grants and pensions showed a significant difference along the continuum in both Queenstown ($\chi^2=28.9$, $df=2$, $p<0.0001$) and Phalaborwa ($\chi^2=35.5$, $df=2$, $p<0.0001$). Urban respondents received fewer welfare grants and pensions in both Queenstown (33.8 %) and Phalaborwa (16.9 %) compared to the townships and rural areas. The majority of rural and township households of Queenstown (72.5 % and 87.5 %) and Phalaborwa (57.1 % and 76.7 %) received welfare grants and pensions.



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 3.6: Percentage (%) of households receiving grants and pensions across the sites and along the continuum

No significant difference was found between Queenstown and Phalaborwa with regards to sole reliance on grants and pensions (Figure 3.7). There were, however, significant differences found along the continuum in Queenstown ($\chi^2=16.9$, $df=2$, $p<0.0001$) and Phalaborwa ($\chi^2=18.6$, $df=2$, $p<0.0001$). The percentage of households solely reliant on grants and pensions for cash income increased noticeably towards the township and rural areas. Between 5.0 % and 15.0 % of households in the urban areas were solely reliant on government grants and pensions for cash income and this figure increased moving out from the town centre. In the township areas of Queenstown reliance on grants and pensions increased to 40.0 % and remained at 40.0 % for the rural areas of both Queenstown and Phalaborwa.



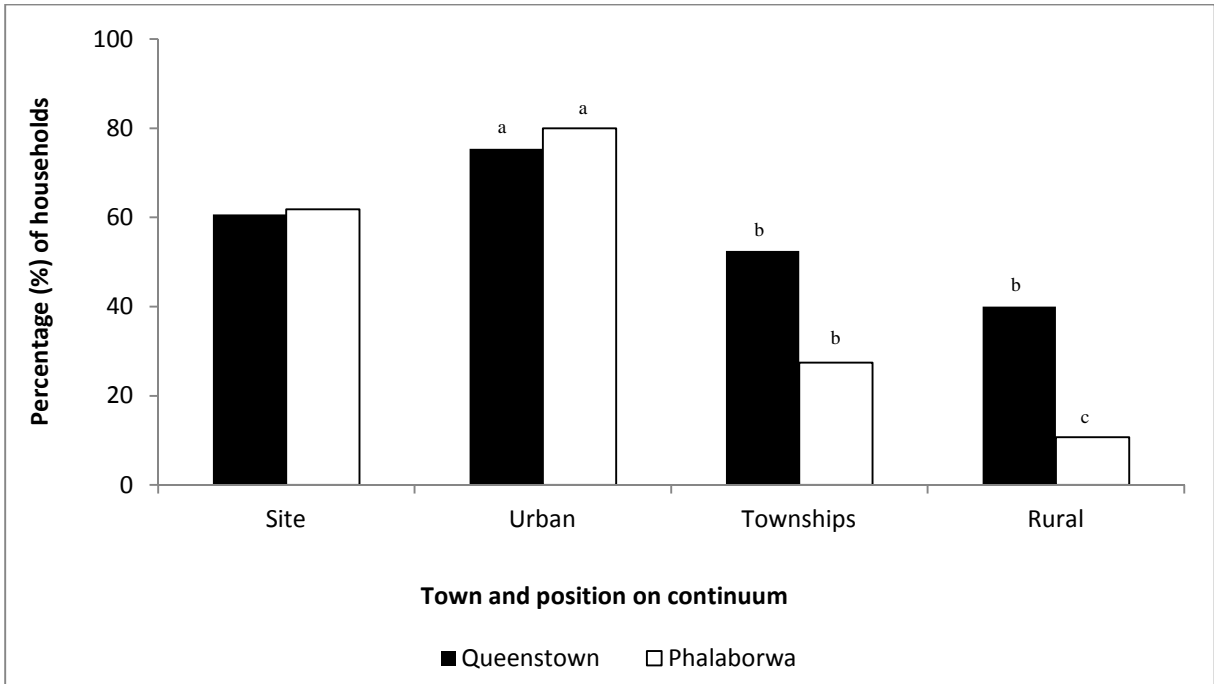
Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 3.7: Percentage (%) of households solely reliant on grants and pensions across the sites and along the continuum

3.2.3.4 Employment

There was a significant difference found between employment levels and the position on the continuum in Queenstown ($\chi^2=12.3$, $df=2$, $p<0.01$). At least one employed individual was found in 75.4% of the urban households surveyed. This decreased with distance from urban areas, where only 40.0% of rural households had at least one employed individual (Figure 3.8).

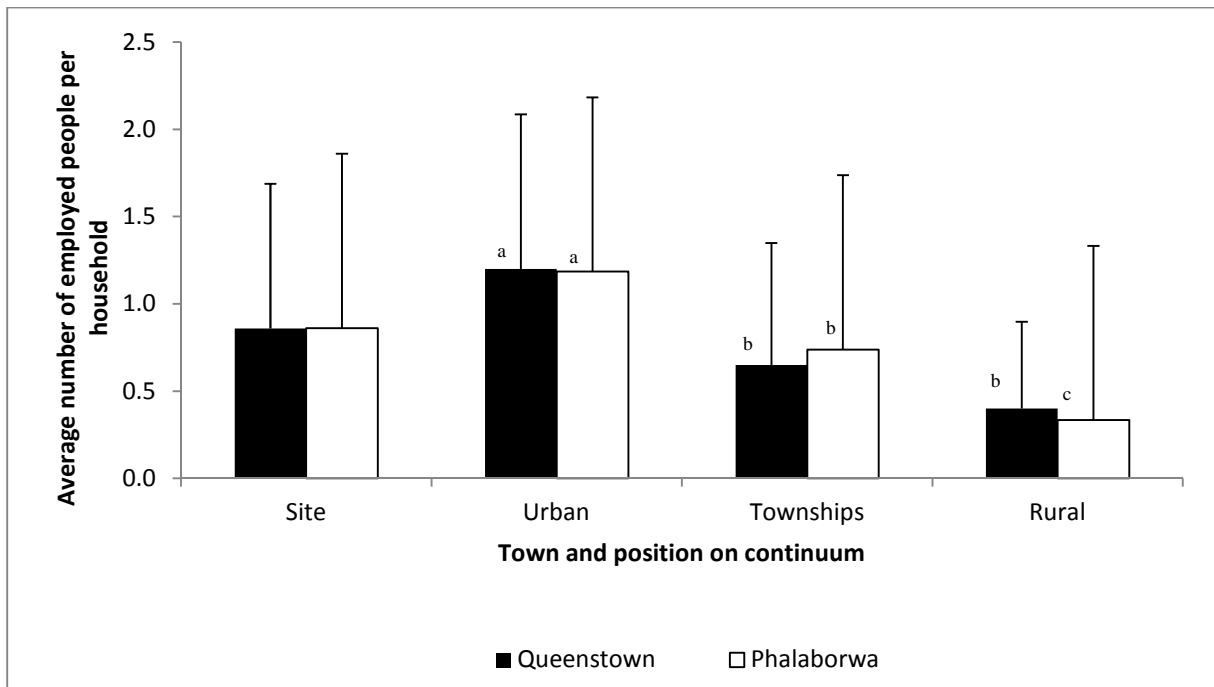
Phalaborwa also showed a significant difference along the continuum ($\chi^2=22.5$, $df=2$, $p<0.0001$). Eighty percent of urban households had at least one employed individual and this declined to less than one-third in township and rural areas.



Note: Unlike superscripts represent significant differences per site along the continuum.

Figure 3.8: Percentage (%) of households with at least one employed individual per household across the sites and along the continuum

Both Queenstown ($H=21.3$, $df=2$, $p<0.0001$) and Phalaborwa ($H=25.6$, $df=2$, $p<0.0001$) had significant differences in the number of people formally employed per household along the continuum. Both urban areas in the study sites had, on average, more people formally employed per household than the townships and rural areas (Figure 3.9).



Note: Unlike superscripts represent significant differences per site along the continuum.

Figure 3.9: Average (\pm SD) number of formally employed individuals per household along the continuum

3.2.3.5 Total household income streams

Rural households in Queenstown draw the most income from crop agriculture, livestock, wild resources and remittances (Table 3.5). Township households generally form the halfway point with regards to total average annual income. However, in Queenstown, township residents draw more income from grants than both rural and urban residents and the least income from crop agriculture and livestock. The majority of the household average total annual income in urban households comes from rentals, pensions and employment.

In Phalaborwa, the majority of rural households' annual income stems from crop agriculture, grants and to a large extent wild resources. Annual income from wild resource use is 26 times more than that of the urban areas and 13 times more than that of the township areas. Income from urban households is concentrated in rentals, pensions, livestock and employment, which forms a large portion of their total annual income.

Table 3.5: Average (\pm SD) annual income (cash and non-cash) per household (Rands) from different livelihood activities (cont. on next page)

	Site	Urban	Townships	Rural	Site mean	Test statistic	p value
Crop Agriculture (\pm SD)	Queenstown	384 \pm 714 ^a	12 \pm 41 ^b	691 \pm 1 387 ^a	341 \pm 860	H= 12.4	<0.05
	Phalaborwa	578 \pm 799 ^a	5 218 \pm 24 359 ^{ab}	7 839 \pm 16 464 ^b	3 557 \pm 15 617	H= 5.9	>0.05
	Test statistic	Z=-2.0	Z= -5.0	Z= -2.6	Z= -5.3		
	p value	<0.05	<0.05	<0.05	<0.05		
Livestock (\pm SD)	Queenstown	1 687 \pm 7 228 ^a	138 \pm 568 ^a	6 672 \pm 8 206 ^b	2 400 \pm 6 728	H= 40.8	<0.0001
	Phalaborwa	5 344 \pm 40 704 ^a	74 \pm 303 ^a	4 17 \pm 776 ^b	2 674 \pm 28 174	H= 23.4	<0.05
	Test statistic	Z=0.4	Z= 0.1	Z= 2.9	Z= 1.5		
	p value	>0.05	>0.05	<0.05	>0.05		
Wild Resources (\pm SD)	Queenstown	46 \pm 218 ^a	594 \pm 1 184 ^a	2 761 \pm 3 630 ^b	868 \pm 2 174	H= 49.5	<0.0001
	Phalaborwa	1 173 \pm 5 053 ^a	2 250 \pm 5479 ^b	26 204 \pm 35 292 ^c	6 881 \pm 19 592	H= 57.6	<0.0001
	Test statistic	Z=-3.6	Z= -3.3	Z= -3.3	Z= -4.8		
	p value	<0.05	<0.05	<0.05	<0.05		
Remittances (\pm SD)	Queenstown	367 \pm 2 021 ^a	576 \pm 2 165 ^a	1 740 \pm 3 962 ^a	762 \pm 2 689	H= 4.6	>0.05
	Phalaborwa	986 \pm 4 265 ^a	1 524 \pm 3 748 ^a	576 \pm 2 402 ^a	1 062 \pm 3 765	H= 3.4	>0.05
	Test statistic	Z=-0.1	Z= 0.6	Z=0.8	Z=-0.1		
	p value	>0.05	>0.05	>0.05	>0.05		
Rentals (\pm SD)	Queenstown	3 407 \pm 1 027 ^a	230 \pm 1 076 ^a	0 ^a	1 598 \pm 2 689	H= 7.5	<0.05
	Phalaborwa	3 744 \pm 11 794 ^a	0 ^a	0 ^a	1 795 \pm 8 342	H= 6.7	<0.05
	Test statistic	Z= 0.4	Z= 0.3	Z= -0.1	Z= 0.4		
	p value	>0.05	>0.05	>0.05	>0.05		

Private Pensions (± SD)	Queenstown	15 857 ± 39 260 ^a	0 ^a	4 428 ± 7 645 ^a	8 166 ± 27 357	H= 9.7	<0.05
	Phalaborwa	12 558 ± 34 698 ^a	810 ± 4 931 ^a	0 ^a	6 267 ± 24 819	H= 8.0	<0.05
	Test statistic	Z= 0.1	Z= -0.1	Z= 1.7	Z= 0.6		
	p value	>0.05	>0.05	>0.05	>0.05		
Government Grants (± SD)	Queenstown	1 517 ± 3 619 ^a	7 544 ± 7 630 ^b	7 188 ± 7 278 ^b	4 758 ± 6 682	H= 33.3	<0.0001
	Phalaborwa	825 ± 3 159 ^a	6 966 ± 8 028 ^b	8 584 ± 7 717 ^b	4 370 ± 6 963	H= 39.2	<0.0001
	Test statistic	Z= 0.9	Z= 0.7	Z=-0.6	Z= 1.0		
	p value	>0.05	>0.05	>0.05	>0.05		
Employment (± SD)	Queenstown	247 135 ± 208 031 ^a	26 347 ± 55 107 ^b	14 640 ± 20 277 ^b	122 450 ± 234 086	H= 57.9	<0.0001
	Phalaborwa	217 179 ± 238 489 ^a	71 289 ± 83 781 ^b	11 007 ± 20 241 ^c	128 267 ± 192 376	H=54.2	<0.0001
	Test statistic	Z= 0.8	Z= -2.5	Z= 0.8	Z=-1.1		
	p value	>0.05	<0.05	>0.05	>0.05		
Total per household (± SD)	Queenstown	270 403 ± 198 478 ^a	35 445 ± 54 024 ^b	38 122 ± 19 680 ^b	141 348 ± 179 123	H= 79.1	<0.05
	Phalaborwa	242 391 ± 234 985 ^a	88 134 ± 81 404 ^b	54 630 ± 42 933 ^c	154 630 ± 189 349	H= 43.1	<0.05
	Test statistic	Z= -0.8	Z= 3.8	Z= 2.2	Z= 2.5		
	p value	>0.05	<0.05	<0.05	<0.05		

Note: nonparametric Mann-Whitney U tests read down for differences between sites, while nonparametric Kruskal-Wallis tests read across for differences along the continuum. Superscripts are only relevant within their row categories'; unlike superscripts reflect significant differences along the continuum at p<0.05 or higher.

3.2.4 Total income composition

There was a significant difference with regards to the average annual income between the two sites ($Z=-2.52$, $df=1$, $p<0.05$). Households in Phalaborwa had on average more income than households in Queenstown (Figure 3.10). A significant difference was also found between the average annual income per household and the position on the continuum in Queenstown ($H=79.1$, $df=2$, $p<0.0001$) and Phalaborwa ($H=43.1$, $df=2$, $p<0.0001$). Urban households in both Queenstown and Phalaborwa receive on average more than double the income of township and rural residents.



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 3.10: Average (\pm SD) annual household income (Rands) across the sites and along the continuum

Table 3.6 shows the average percent contribution that each livelihood income stream made to households along the continuum in both Queenstown and Phalaborwa. Employment was the largest contributor along the continuum in both towns, followed by grants and pensions in the township and rural areas. However, in the rural areas of Phalaborwa, wild natural resources were found to be the largest contributor to rural livelihoods with 48.0 % of the annual income coming from natural resources.

Table 3.6: Average percentage (%) contribution to annual household income

Site	Income source	Urban	Township	Rural	Total
Queenstown	Agriculture	0.1	0.0	1.8	0.2
	Livestock	0.6	0.4	17.5	1.7
	Wild Resources	0.0	1.7	7.2	0.6
	Remittances	0.1	1.6	4.6	0.5
	Rentals	1.3	0.7	0.0	1.1
	Private Pensions	5.9	0.0	11.6	5.8
	Government Grants	0.6	21.3	18.9	3.4
	Employment	91.5	74.3	38.4	86.6
Phalaborwa	Agriculture	0.2	5.9	14.4	2.3
	Livestock	2.2	0.1	0.8	1.7
	Wild Resources	0.5	2.6	48.0	4.4
	Remittances	0.4	1.7	1.1	0.7
	Rentals	1.5	0.0	0.0	1.2
	Private Pensions	5.2	0.9	0.0	4.0
	Government Grants	0.3	7.9	15.7	2.8
	Employment	89.6	80.9	20.1	82.8

3.2.5 Livelihood income streams by gender of household head

3.2.5.1 Queenstown

There were significant differences between male- and female-headed households with regards to income from grants in the urban areas ($Z=-2.1$, $df= 1$, $p<0.05$) as well as between the site mean ($Z=-2.6$, $df=1$, $p<0.05$). Female-headed households received significantly more income from grants than male-headed households in Queenstown. There were also significant

differences with regards to employment in the township areas ($Z=2.2$, $df=1$, $p<0.05$) and between the means ($Z=2.3$, $df=1$, $p<0.05$). Male-headed households received significantly more income from employment (R 153 180 \pm R 208 171) than female-heads households (R 79 310 \pm R 125 337). There was a significant difference with regards to total income between male-and female-headed households ($Z=3.2$, $df=1$, $p<0.05$). Male-headed households received a total of R 176 170 \pm R 203 022, significantly higher than female-headed ones, who received R 92 464 \pm R 125 093.

Table 3.7: Total annual income (cash and non-cash) composition per household (Rands) by gender of household head in Queenstown (cont. on next page)

	Gender	Urban	Townships	Rural	Mean	Test statistic	p value
Crop Agriculture (± SD)	Male	349 ± 637 ^a	0 ± 0 ^b	803 ± 1 618 ^a	386 ± 969	H= 10.2	<0.05
	Female	453 ± 859 ^a	0 ± 0 ^a	496 ± 895 ^a	279 ± 684	H= 3.1	>0.05
	Test statistic	Z= 0.1	Z= -1.1	Z= 0.04	Z= 0.1		
	p value	>0.05	>0.05	>0.05	>0.05		
Livestock (± SD)	Male	2 554 ± 8 806 ^a	67 ± 222 ^a	8 401 ± 9 176 ^b	3 496 ± 8 331	H= 26.3	<0.05
	Female	0 ± 0 ^a	194 ± 735 ^{ab}	3 685 ± 5 314 ^b	861 ± 2 819	H= 13.8	<0.05
	Test statistic	Z=0.6	Z= 0.1	Z= 1.5	Z= 1.3		
	p value	>0.05	>0.05	>0.05	>0.05		
Wild Resources (± SD)	Male	67 ± 266 ^a	753 ± 1 1330 ^a	1 740 ± 2 024 ^b	662 ± 1 394	H= 27.2	<0.05
	Female	5 ± 23 ^a	470 ± 1 074 ^a	4 525 ± 5 044 ^b	1 158 ± 2 934	H= 22.6	<0.05
	Test statistic	Z= 0.3	Z= 0.5	Z= -1.6	Z= 0.1		
	p value	>0.05	>0.05	>0.05	>0.05		
Remittances (± SD)	Male	389 ± 2 367 ^a	0 ± 0 ^a	1 326 ± 3 461 ^a	542 ± 2 457	H= 5.1	>0.05
	Female	326 ± 1 129 ^a	1 022 ± 2 830 ^a	2 456 ± 4 803 ^a	1 071 ± 2 982	H= 1.7	>0.05
	Test statistic	Z= -0.4	Z= -0.9	Z= -0.5	Z=-1.0		
	p value	>0.05	>0.05	>0.05	>0.05		
Rentals (± SD)	Male	2 562 ± 7 731 ^a	529 ± 1 585 ^a	0 ± 0 ^a	1 421 ± 5 642	H= 2.7	>0.05
	Female	5 052 ± 14 088 ^a	0 ± 0 ^a	0 ± 0 ^a	1 846 ± 8 723	H= 7.3	<0.05
	Test statistic	Z= -0.4	Z= 0.6	Z= 0.02	Z= 0.1		
	p value	>0.05	>0.05	>0.05	>0.05		

Private Pensions (± SD)	Male	22 864 ± 46 472 ^a	0 ± 0 ^a	3 751 ± 7 700 ^a	12 565 ± 34 741	H= 4.4	>0.05
	Female	2 210 ± 9 635 ^a	0 ± 0 ^a	5 596 ± 7 773 ^a	1 991 ± 7 010	H= 11.0	<0.05
	Test statistic	Z= 1.1	Z= -0.01	Z= -0.5	Z= 0.7		
	p value	>0.05	>0.05	>0.05	>0.05		
Government Grants (± SD)	Male	752 ± 2 871 ^a	7 002 ± 8 124 ^b	7 307 ± 8 089 ^b	3 913 ± 6 751	H= 24.0	<0.05
	Female	3 006 ± 4 472 ^a	7 963 ± 7 393 ^b	6 981 ± 5 980 ^{ab}	5 944 ± 6 464	H= 7.7	<0.05
	Test statistic	Z= -2.0	Z= -0.6	Z= -0.2	Z= -2.6		
	p value	<0.05	>0.05	>0.05	<0.05		
Employment (± SD)	Male	272 594 ± 232 521 ^a	45 988 ± 74 311 ^b	16 547 ± 20 779 ^b	153 180 ± 208 171	H= 26.7	<0.05
	Female	197 557 ± 142 044 ^a	11 169 ± 27 096 ^b	11 345 ± 19 909 ^b	79 310 ± 125 337	H= 32.1	<0.05
	Test statistic	Z= 1.3	Z= 2.2	Z= 0.9	Z= 2.3		
	p value	>0.05	<0.05	>0.05	<0.05		
Total per household (± SD)	Male	303 133 ± 216 345 ^a	54 340 ± 73 022 ^b	39 878 ± 16 801 ^b	176 170 ± 203 022	H= 42.6	<0.05
	Female	208 612 ± 143 734 ^a	20 842 ± 26 573 ^b	35 088 ± 24 476 ^c	92 464 ± 125 093	H= 34.1	<0.05
	Test statistic	Z= 1.7	Z= 2.2	Z= 1.4	Z= 3.2		
	p value	>0.05	<0.05	>0.05	<0.05		

Note: nonparametric Mann-Whitney U tests read down for differences between gender, while nonparametric Kruskal-Wallis tests read across for differences along the continuum. Superscripts are only relevant within their row categories'; unlike superscripts reflect significant differences along the continuum at p<0.05 or higher.

Table 3.8 shows the average percent contribution that each resource made to male- and female-headed households in Queenstown. Male- and female-households received the greatest percent contribution from employment, 87.0 % and 85.8 %, respectively. Large contributions were also made by private pensions (7.1 %) in male-headed households and government grants (6.4 %) in female-headed ones.

Table 3.8: Average percentage (%) contribution to annual household income for male- and female-headed households in Queenstown

Income source	Gender of household head	Urban	Township	Rural	Total
Agriculture	Male	0.1	0.0	2.0	0.2
	Female	0.2	0.1	1.4	0.3
Livestock	Male	0.8	0.1	21.1	2.0
	Female	0.0	0.9	10.5	0.9
Wild Resources	Male	0.0	1.4	4.4	0.4
	Female	0.0	2.3	12.9	1.3
Remittances	Male	0.1	0.0	3.3	0.3
	Female	0.2	4.9	7.0	1.2
Rentals	Male	0.8	1.0	0.0	0.8
	Female	2.4	0.0	0.0	2.0
Private Pensions	Male	7.6	0.0	9.4	7.1
	Female	1.1	0.0	15.9	2.2
Government Grants	Male	0.2	12.9	18.3	2.2
	Female	1.4	38.2	19.9	6.4
Employment	Male	90.2	84.6	41.5	87.0
	Female	94.7	53.6	32.3	85.8

3.2.5.2 Phalaborwa

Female-headed households received significantly more income from crop agriculture ($Z=-2.2$, $df=1$, $p<0.05$), wild resources ($Z=-3.6$, $df=1$, $p<0.05$) and government grants ($Z=-2.7$, $df=1$, $p<0.05$) in Phalaborwa. Male-headed households received significantly more income from employment ($Z=4.1$, $df=1$, $p<0.05$) and enjoyed a higher total income overall ($Z=3.8$, $df=1$, $p<0.05$) compared to female-headed households. The average total annual household income in female-headed households was R 86 868 \pm R 78 434, significantly lower than the total income of R 191 032 \pm R 219 341 in male-headed households (Table 3.9).

Table 3.9: Total annual income (cash and non-cash) composition per household (Rands) by gender of household head in Phalaborwa (cont. on next page)

	Gender	Urban	Townships	Rural	Mean	Test statistic	p value
Crop Agriculture (± SD)	Male	516 ± 736 ^a	1 572 ± 3 346 ^a	2 128 ± 3 393 ^a	1 041 ± 2 286	H= 0.9	>0.05
	Female	816 ± 1 008 ^a	10 003 ± 36 961 ^a	12 735 ± 21 346 ^a	8 289 ± 25 861	H= 3.7	>0.05
	Test statistic	Z= -0.7	Z= -0.6	Z= -1.6	Z= -2.2		
	p value	>0.05	>0.05	>0.05	<0.05		
Livestock (± SD)	Male	6 739 ± 45 707 ^a	34 ± 160 ^{ab}	466 ± 994 ^b	4 004 ± 34 871	H= 17.9	<0.05
	Female	0 ± 0 ^a	125 ± 426 ^a	374 ± 565 ^a	172 ± 437	H= 6.1	<0.05
	Test statistic	Z= 0.1	Z= -0.3	Z= 0.1	Z= -0.7		
	p value	>0.05	>0.05	>0.05	>0.05		
Wild Resources (± SD)	Male	783 ± 4 126 ^a	2 145 ± 6 501 ^b	20 750 ± 16 134 ^c	4 178 ± 10 370	H= 32.5	<0.05
	Female	2 667 ± 7 718 ^a	2 389 ± 3 957 ^a	30 878 ± 46 086 ^b	11 965 ± 29 637	H= 17.5	<0.05
	Test statistic	Z= -1.8	Z= -1.7	Z= 0.1	Z= -3.6		
	p value	>0.05	>0.05	>0.05	<0.05		
Remittances (± SD)	Male	495 ± 2 731 ^a	628 ± 2 618 ^a	0 ± 0 ^a	455 ± 2 470	H= 1.4	>0.05
	Female	2 866 ± 7 674 ^a	2 700 ± 4 688 ^a	1 071 ± 3 245 ^a	2 204 ± 5 277	H= 1.3	>0.05
	Test statistic	Z= -0.6	Z= -1.1	Z= -0.5	Z= -1.4		
	p value	>0.05	>0.05	>0.05	>0.05		
Rentals (± SD)	Male	3 208 ± 10 48 ^a	0 ± 0 ^a	0 ± 0 ^a	1 868 ± 8 317	H= 2.9	>0.05
	Female	5 800 ± 15 569 ^a	0 ± 0 ^a	0 ± 0 ^a	1 657 ± 8 489	H= 5.1	>0.05
	Test statistic	Z= -0.4	Z= 0.01	Z= 0.02	Z= 0.02		
	p value	>0.05	>0.05	>0.05	>0.05		

Private Pensions (± SD)	Male	15 052 ± 38 312 ^a	0 ± 0 ^a	0 ± 0 ^a	8 764 ± 30 044	H= 6.2	<0.05
	Female	3 000 ± 10 392 ^a	1 875 ± 7 500 ^a	0 ± 0 ^a	1 571 ± 7 143	H= 1.1	>0.05
	Test statistic	Z= 0.5	Z= -0.3	Z= 0.02	Z= 0.5		
	p value	>0.05	>0.05	>0.05	>0.05		
Government Grants (± SD)	Male	759 ± 3 033 ^a	4 17 ± 7 824 ^a	9 730 ± 8 321 ^b	3 147 ± 6 433	H= 27.0	<0.05
	Female	1 080 ± 3 741 ^a	10 050 ± 7 428 ^b	7 602 ± 7 328 ^b	6 671 ± 7 401	H= 12.9	<0.05
	Test statistic	Z= 0	Z= -2.2	Z= 0.6	Z= -2.7		
	p value	>0.05	<0.05	>0.05	<0.05		
Employment (± SD)	Male	238 721 ± 259 ± 556 ^a	99 617 ± 88 086 ^a	13 750 ± 27 389 ^b	167 571 ± 220 977	H= 31.5	<0.05
	Female	134 600 ± 98 718 ^a	34 110 ± 62 473 ^b	8 657 ± 11 843 ^b	54 337 ± 82 732	H= 15.4	<0.05
	Test statistic	Z= 2.0	Z= 2.6	Z= -0.3	Z= 4.1		
	p value	<0.05	<0.05	>0.05	<0.05		
Total per household (± SD)	Male	266 276 ± 255 339 ^a	108 615 ± 88 139 ^b	46 826 ± 31 217 ^b	191 032 ± 219 341	H= 34.2	<0.05
	Female	150 831 ± 88 756 ^a	61 252 ± 64 715 ^b	61 319 ± 51 144 ^b	86 868 ± 78 434	H= 11.7	<0.05
	Test statistic	Z= 2.3	Z= 1.5	Z= -0.3	Z= 3.8		
	p value	<0.05	>0.05	>0.05	<0.05		

Note: nonparametric Mann-Whitney U tests read down for differences between gender, while nonparametric Kruskal-Wallis tests read across for differences along the continuum. Superscripts are only relevant within their row categories'; unlike superscripts reflect significant differences along the continuum at p<0.05 or higher.

Table 3.10 shows the average percent contribution that each resource made to male- and female-headed households in Phalaborwa. The greatest percent contribution in male-headed households came from employment (87.7 %). Employment in female-headed households also bought in the greatest percent contribution (62.6 %), followed by wild resources (13.8 %), agriculture (9.5 %) and government grants (7.7 %).

Table 3.10: Average percentage (%) contribution to annual household income for male- and female-headed households in Phalaborwa

Income source	Gender of household head	Urban	Township	Rural	Total
Agriculture	Male	0.2	1.4	4.5	0.5
	Female	0.5	16.3	20.8	9.5
Livestock	Male	2.5	0.0	1.0	2.1
	Female	0.0	0.2	0.6	0.2
Wild Resources	Male	0.3	2.0	44.3	2.2
	Female	1.8	3.9	50.4	13.8
Remittances	Male	0.2	0.6	0.0	0.2
	Female	1.9	4.4	1.7	2.5
Rentals	Male	1.2	0.0	0.0	1.0
	Female	3.8	0.0	0.0	1.9
Private Pensions	Male	5.7	0.0	0.0	4.6
	Female	2.0	3.1	0.0	1.8
Government Grants	Male	0.3	4.3	20.8	1.6
	Female	0.7	16.4	14.1	7.7
Employment	Male	89.7	91.7	29.4	87.7
	Female	89.2	55.7	14.1	62.6

3.3 Discussion

3.3.1 Characteristics of livelihoods along the rural-urban continuum

In both Queenstown and Phalaborwa, the length of time respondents had lived at their site, as well as in their respective neighbourhoods, increased significantly along the continuum towards the rural areas. Rural households had lived at their respective site or neighbourhood significantly longer than urban residents. Migrating to find work in the rural areas is widespread, with the migrant often spending most of their time at the workplace, while the dependent kin spends most of their time tending to the homestead and agricultural interests (Seekings, 2008). In addition to this, relocating has a large impact on the social structures that many households depend on for survival. The physical assets built up over time are stripped when relocating and important social relations may also be eroded (May, 2000). Alternatively, families develop a dual rural and urban base, which requires duplication of certain assets and expenditures (Kruger, 2006; Smith & Hebinck, 2007). However, maintaining both an urban and a rural base provides a safety net for low-income city dwellers in times of economic hardship (Tacoli, 1998; Hossain, 2005). Nonetheless, multi-homestead families are common (de Wet, 2011) as formerly rural households establish a base in urban areas with better access to formal employment and health and education services. Whether there will be a total shift to a solely urban homestead and livelihood base over the next generation or so remains to be seen. But movement is not unidirectional, as often urban based family members return to rural areas if they are retrenched or reach retirement age (van Averbek & Hebinck, 2007). These rural-urban linkages should not be assumed to be beneficial in all circumstances. In some cases, they can increase inequality and the vulnerability of those groups with the least assets (Tacoli, 1998). Land is also a highly important safe-guard for many rural communities as agriculture and farming can be an important source of income and for some forms a large proportion of rural livelihoods (May, 2000), and a fall-back for urban dwellers (Kruger, 2006). Relocating would therefore erode the social ties that have been built up over the years, making rural households more vulnerable to the shocks and insecurities experienced in everyday living. However, the results from this study, and others (e.g. Hebinck & Lent, 2007), show that agriculture is for some rural households only a small contributor to rural livelihoods, with some households being more reliant on cash sources from migrants, wages and government grants. Agriculture in the drier areas of South Africa can be a risky and difficult livelihood (Tywman *et al.* 2004).

Previous work has used the ownership of various assets as a determinant of household wealth (Adams *et al.* 1997). According to Cavendish (2000), low incomes are associated with low asset levels. Household wealth and a regular income allows households to invest in a variety of assets which households can chose to liquidate in times of hardship or exchange to improve their livelihood sustainability (e.g. invest financial capital in education or agricultural implements). In contrast, poor households have fewer assets to liquidate should they come into difficulty and are likely to struggle with replenishing their asset base. With regards to the number of physical assets per household, urban households in both towns had significantly more assets than both township and rural households. Associations have been found between asset ownership and a number of positive livelihood outcomes such as increased wealth, educational attainment and health (Chowa & Sherraden, 2009). In general, child well-being has been correlated by the number of assets a household has at its disposal, perhaps as an index of overall household wealth. In addition to this, it has been suggested by Sherraden (2001) that asset ownership improves household stability, aids in the stimulation of development of other assets and enhances general well-being. Some assets generate income for families, provide nutrition as well as build the capital for investment in the next generation through improved education and health (Chowa & Sherraden, 2009). Physical assets can be in the form of housing, farmlands, livestock and equipment. An important aspect of asset ownership is that they secure livelihoods as well as provide a buffer to lessen the impact of common disasters such as flooding, drought and diseases. Households are better able to provide for basic needs if they have a sufficient asset base. It has also been found that households which lack basic assets are less able to recover from shocks and stresses (Chow & Sherraden, 2009).

Household wealth status was explored through a number of variables, including the number of household rooms per person, number of meals consumed a day, monthly expenditure on electricity, frequency of meat consumption as well as the incidence and frequency of hunger. The results were reasonably consistent across the different measures, and showed that most urban households had a better well-being, asset base and disposable income, as expressed in more meals per day, greater consumption of meat, a lower prevalence of hunger, larger dwellings and higher use of electricity. Differences between township and rural households were less stark, but typically township households were intermediate between rural and urban by most, but not all, measures. These results are corroborated by the markedly higher incomes for urban households compared to township or rural ones, with township and rural

being comparable. These differences were starkly communicated by the incidence of households reporting that at times they went to bed hungry; none in the urban centres, 5.0 % to 20.0 % in the townships and 23.0 % to 37.0 % of rural households. Thus, it is evident that food security in many areas is critical. Food security has been defined as the access by all people at all times to enough food for an active healthy life (du Toit, 2011). In 2010/2011, food security was reprioritised as one of the top priorities by the South African government (du Toit, 2011). This is in line with the Millennium Development Goal to halve the people who go hungry over the period 1990-2015. According to the Food and Agriculture Organisation (FAO) report for 2008, the number of people experiencing chronic hunger increased dramatically between 1990 and 2007 as a result of increased food prices. Food security is strongly linked to poverty, income and employment. A lack of income due to employment can contribute to food insecurity. A recent survey by Stats SA reported that 20.0 % of South African households have inadequate access to food (du Toit, 2011).

3.3.2 Income streams

3.3.2.1 Crop agriculture and livestock

A large proportion of South African households derive some of their livelihoods from land-based activities such as crop agriculture and livestock farming. The production of food crops has been an important livelihood activity for many African households (Shackleton *et al.* 2001). According to May *et al.* (2000), over one-third of rural households in South Africa practice agriculture. Ellis (1999) stated that in sub-Saharan Africa, the reliance on agricultural production reduces as income levels rise. Evidence of this is seen with the relationship between employment levels and agricultural production calculated from Queenstown and Phalaborwa households. When the average income decreases, an increase in agricultural production is identified. In Queenstown, the poorer, more rural areas had a much higher percentage of households engaging in crop agriculture than the wealthier, more urban households. The same was observed in Phalaborwa, where households engaging in agricultural production more than doubled in the rural areas, from 24.6 % in the urban areas to 63.3 % in the rural areas. Therefore, the wealthier, more urban households are engaging less in agricultural production while relying more on cash income from employment or government grants, while the poorer, more rural households rely more on income from other sources, such as agriculture. Along the continuum, it was a few hundred rand per household per year in the urban centre, over two thousand rand in the townships and over four thousand

land in the rural areas. Rural households also had larger plot sizes than households living in the urban areas and therefore had more space for crop production.

With sufficient land the rural poor can often produce most of their own food, whereas urban residents generally depend on earned income to purchase their own food which would decrease the amount of money going into agricultural production (Owusu, 2009). This is a worldwide pattern, and therefore hardly surprising. However, this study does show that agriculture or livestock production are not solely the domain of rural livelihoods. According to Tacoli (2004), agriculture is not purely a rural activity, with a measurable proportion of urban and township households engaged in one or both of these activities, either for home consumption and therefore income saving, or for sale and income generation. This fits with other literature showing that urban agriculture is common in South Africa (Webb, 1998; Egal *et al.* 2001; Rogerson, 2003), and other developing countries (Mougeot, 2006), and hence needs appropriate recognition, and perhaps support, in urban planning and governance processes. Urban agriculture contributes to food availability in cities and therefore to the diet of urban consumers. Urban agriculture has been growing in the developing world as a result of rapid urbanisation, wage cuts, rising unemployment as well as declining purchasing power (Tefera, 2010). In order to meet the food needs of urban dwellers, urban farming, both in urban and peri-urban areas, is becoming a permanent feature of the developing world and makes a vital contribution to the household economy of urban residents (Tefera, 2010). The contribution to food security through increased food availability, stability and accessibility is seen as a coping mechanism and should not be excluded as a mechanism for the alleviation of urban poverty (Egal *et al.* 2001).

The second aspect was the large contrast between Queenstown and Phalaborwa, showing that the contribution of agriculture is spatially highly variable. This must be a consequence of differences in local climatic, and soil conditions, but also perhaps local economics and culture. Dovie *et al.* (2003) conducted a study in Thorndale, a rural village in the Limpopo Province about 170 km south of Phalaborwa and found the direct-use value of crops to be around R 3 591 per annum. This value is substantially lower than the direct use value found in a study by Watson (2007) in Ethiopia, in which the direct-use value from crop production was valued at around R 9 371. This value is closer to the value calculated in my study for the rural areas of Phalaborwa. At the time of data collection, the Eastern Cape province was experiencing drought conditions which hampered households' ability to grow crops successfully, and this was the reason given by the majority of households for the absence of

agricultural production in Queenstown. However, earlier work by Paumgarten *et al.* (2005) showed major differences between villages in Limpopo Province and the Eastern Cape province with respect to planting and maintenance of trees, with far greater engagement in the Limpopo Province. This suggests a different agrarian culture between the two regions of South Africa. Hebinck and Lent (2007) depict a steady decline in agrarian activities in the Eastern Cape province over the last few decades.

Many households in communal areas incorporate livestock production into their livelihood portfolio, which provides goods for direct consumption as well as potential assets for wealth accumulation or as a safeguard against misfortune (Dovie *et al.* 2006). Investment in livestock is therefore often a preferred livelihood option for many rural households. Most rural households keep micro-livestock which includes pigs, chickens, ducks and geese. These smaller types of livestock are often overlooked as forming a part of the rural household economy (Shackleton *et al.* 2001). More attention has been paid to larger livestock such as cattle, goats and sheep. Poor households rarely specialise in one particular livestock species, preferring to diversify to take advantage of the different roles each type can play, as well as to spread the risks, which includes animal disease (Pica-Ciamarra *et al.* 2011). There are many reasons for keeping livestock, such as cash from sales, milk or home consumption, a form of employment, savings, manure, social status, transport as well as bride-wealth (Pica-Ciamarra *et al.* 2011). This is often determined by the household's position in the domestic development cycle. For example, a young man who has the intention of accumulating bride-wealth may be more interested in the short term benefits of livestock while an older man may be more interested with building his retirement herd. Households with different levels of income have incentives to keep livestock because of the wide range of benefits they provide, such as the ones mentioned above (Pica-Ciamarra *et al.* 2011). In the rural areas of Queenstown, it was found that 70.0 % of households keep some form of livestock, and this percentage decreased towards the urban areas, with 10.0 % of township, and 7.7 % of urban households keeping livestock. The same pattern of livestock production was found in Phalaborwa, where 3.1 % of urban residents, 7.1 % of township residents and 46.7 % of rural residents kept livestock. As is evident, livestock is kept across all expenditure quintiles, which suggests the multiple roles of farm animals in the household economy. Similar findings were reported by Pica-Ciamarra *et al.* (2011) in a review of 12 developing countries. It was found that poorer households keep livestock 58.0 % to 65.0 % of the time, while urban areas kept livestock between 8.0 % and

12.0 % of the time. Livestock therefore remains a critical component of the livelihoods of rural households (Davenport & Gambiza, 2009).

Livestock ownership and income varied considerably between the two study towns as well as along the continuum. Mean annual direct-use values from livestock resulted in an average of R 1 687 (\pm R 7 228) and R 5 344 (\pm R 40 704) from the urban areas of Queenstown and Phalaborwa respectively. This is comparable to the direct-use values from livestock found by Davenport *et al.* (2012) of R 3 479 per household. Mean annual direct-use value of R 138 (\pm R 568) and R 74 (\pm R 303) was calculated in the township areas of Queenstown and Phalaborwa respectively and R 6 672 (\pm R 8 206) and R 417 (\pm R 776) from the rural areas. The rural areas of Queenstown received the most income annually from livestock. This is comparable to the findings of Dovie *et al.* (2006) where livestock contributed R 5 315 to rural livestock owning households, and in another study conducted by Shackleton *et al.* (2005) where the annual direct-use value per household from livestock was reported at R 4 972. These values included the benefits provided to the household from the livestock including slaughter, donation, sale, number of offspring, number of eggs produced, meat, milk and dung. The contribution from livestock is extremely variable between households because ownership patterns are extremely skewed in favour of a few individuals who have large herds and the majority of households with only a few animals (Davenport & Gambiza, 2009; Pica-Ciamarra *et al.* 2011). Therefore, the annual direct-use value of the livestock was much greater in the urban areas of Phalaborwa compared to the rural areas, where the percentage of households having livestock is higher, but the direct-use values lower.

3.3.2.2 Wild resources

Non-timber forest products (NTFPs) provide a range of goods which, when incorporated into livelihood strategies, help reduce a household's vulnerability to risk and provide cash saving or even income generation (Paumgarten, 2005; Shackleton *et al.* 2007a). There is a growing awareness of the importance and value of natural resources in the lives of rural communities throughout the world (Kaimowitz, 2003; Shackleton & Shackleton, 2006). Wild natural resources serve a number of functions, including daily subsistence, income generation, cash saving as well as safety nets in times of adversity (Shackleton *et al.* 2007a; Shackleton *et al.* 2007b). In developing countries, wild resources form an integral component of the livelihoods of the majority of rural households as well as a lower, although not unsubstantial, proportion of urban households (Stoian, 2005; Shackleton *et al.* 2007b; Davenport *et al.*

2011). There are marked disparities in the use and dependency on natural resources between wealthy and poor households. Poorer and more vulnerable households, such as those headed by women, tend to be more dependent on the natural resource base, using a greater diversity of resources than those households with access to other forms of income, for example formal employment (Qureshi & Kumar, 1998). The poor are more dependent on the goods and services that natural resources provide throughout the surrounding landscape (Cavendish, 2000; Campbell *et al.* 2002; King, 2011). It is widely accepted that rural communities obtain a wide variety of natural resources for home consumption and sale, however little is known about the use of these resources in urban areas. Many different resources are used to supply everyday needs, including fuel wood, wild spinaches, grass brooms, edible fruits and vegetables, edible insects, as well as medicinal plants (Shackleton *et al.* 2002a).

Percentage of households using natural resources

As stated earlier, there are marked disparities in the use of natural resources between wealthy and poor households and strong evidence suggests that the poorest households are the most engaged in the extraction of wild natural resources (Sunderlin *et al.* 2004; Shackleton *et al.* 2008). This may be because different social groups will perceive and use natural resources differently and that poor sectors have fewer alternative options resulting from a limited asset base (Cavendish, 2000; Campbell *et al.* 2002; Shackleton & Shackleton, 2006; Shackleton *et al.* 2008). An indication of this can be seen with the significant differences found in the percentage of households using natural resources in Queenstown and Phalaborwa. Natural resource use increased from the urban areas outwards, where significantly more rural residents engaged in the use of natural resources than urban and township residents. Queenstown showed an increase in the number of households using natural resources from 12.4 % in the urban areas, to 30.0 % in the township areas, and a further increase to 80.0 % in the rural areas. The use of natural resources remained high across the continuum in Phalaborwa, where households using natural resources increased from 49.2 % in the urban areas, to 88.1 % in the township areas and 100.0 % of rural households.

It was also noted that a significantly larger proportion of Phalaborwa households used wild natural capital when compared to Queenstown households. On average, as many as 72.2 % of Phalaborwa residents used natural resources compared to the 32.5 % in Queenstown. The extent and quality of resources available in the Limpopo Province far outweigh that found in the Eastern Cape province. Shackleton and Shackleton (2004b) identified that communities in

the savannas of the northern provinces of South Africa regularly use up to 200-300 plant species and that fewer resources appear to be exploited in the Eastern Cape province, patterns which are replicated in this study. Twenty-seven percent of the wooded biomes and plantations in South Africa are found in the Limpopo Province alone. Therefore, fewer resources appear to be used in the south-eastern regions possibly as a result in changes in biodiversity in the landscape, which is important in shaping use patterns (King, 2011).

Number of resources used

It can therefore be seen that there are few households and even fewer rural households that do not use natural resources as part of their livelihoods, however the extent of use varies (Paumgarten, 2005; Shackleton & Shackleton, 2006). Rural households were found to use a significantly larger number of resources than both township and urban residents in both Queenstown and Phalaborwa. While the number of resources used in Queenstown did increase from the urban areas outwards, the results in Phalaborwa were more significant. The average number of resources used increased from 1.7 (\pm 1.6) resources in the urban areas, to 3.0 (\pm 1.2) in the township areas and again almost doubled in the rural areas where an average of 5.7 (\pm 2.1) resources were used per household. While both wealthy and poor households may use natural resources, it is evident that poor households use resources on a more frequent basis, an indication of the higher dependency by these households. In India Qureshi and Kumar (1998) and Narendran *et al.* (2001), revealed strong links between household wealth and both the degree of participation in natural resource harvesting as well as amounts harvested. A greater proportion of poor households used the most natural resources and greater amounts were extracted per household. This supports the findings from this study. Natural resources are a very attractive means of income for rural residents as the collection requires little capital investment or skills and could therefore prompt rural households to collect a much larger number of resources (Paumgarten, 2005; Delacote, 2009). It may also be tied to the generally lower wealth status of rural inhabitants, resulting in them making greater opportunity of free resources, as is the case within rural settlements (Campbell *et al.* 2002; Shackleton & Shackleton, 2006). However, a drawback of extensive use of natural resources could cause households to be caught in a poverty trap. If too much labour is allocated to natural resource extraction, some households may be trapped in less productive activities and only get their minimum subsistence requirements from that activity (Delacote, 2009). De Merode *et al.* (2004) also highlights that the unsustainable use of

particular natural resources is a matter of concern as depletion of these resources may exacerbate food insecurity, vulnerability and poverty.

Specific natural resources

A number of resources were used by households living in Queenstown and Phalaborwa. Fewer natural resources were used in Queenstown when compared to Phalaborwa, which may be a reflection of the lower biodiversity in the landscape (Shackleton & Shackleton, 2004a). A range of natural species are extracted from different parts of the landscape. While some species, such as edible spinach, are maintained within the homestead and fields, others such as firewood are extracted from areas around the homestead and more specialised species such as edible insects or medicinal plants are found in the broader landscape (Shackleton & Shackleton, 2004a).

Households at each of the two study areas made use of a wide range of resources collected from the surrounding landscape. Firewood was by far the most widely used resource, with 10.8 % and 12.3 % of urban households, 27.5 % and 54.8 % of township households, and 76.7 % and 93.9 % of rural households collecting firewood in Queenstown and Phalaborwa, respectively. This corroborates the results from the main energies that were used for cooking, with firewood being used extensively in the rural areas with the importance decreasing towards the urban areas. Similar findings were observed in a study conducted by Davenport *et al.* (2011) where 17.0 % to 64.0 % of all township households and between 65.0 % and 91.0 % of commonage-using households utilised firewood. The proportion of households using natural resources can be very high, particularly for key resources such as firewood and wild foods (Cavendish, 2000; Dovie *et al.* 2003). In sub-Saharan Africa, firewood is the main energy source for most rural as well as many peri-urban and urban households, used for heating and cooking (Madubansi & Shackleton, 2007). Ease of collection of this resource within the immediate environment may make it a more attractive resource as well as its direct cost saving ability. Other widely collected resources in Queenstown included wild meat, which was collected in 23.3 % of rural residents, as well as wild vegetables (10.0 %). Phalaborwa has a much wider range and extent of resources and collection included firewood, wild fruits and vegetables, traditional brooms, and to a large extent, edible insects. The majority of households made regular use of edible insects which were collected in 23.1 % of urban households, 59.5 % of township households and 83.3 % of rural households. The Mopani District has an abundance of mopane worms that are found throughout the area

which would therefore prompt a high percentage of households to collect these high protein worms (Mopani District Municipality IDP, 2007/2008).

In terms of average annual percentage contribution for specific resources, firewood was the highest contributor in Queenstown and Phalaborwa. In Queenstown, 96.1 % of the contribution from wild natural capital in the urban areas came from firewood, 88.2 % in the townships and 74.3 % in the rural areas. In Queenstown, the other main source was from bushmeat, which contributed 24.3 % of the average annual income in the rural areas. Bushmeat was not collected in Phalaborwa.

In Phalaborwa, 4.0 % of the urban average annual contribution came from firewood, 49.3 % in the township areas and 37.9 % in the rural areas. The figure for the township and rural areas is similar to that of a study by Dovie *et al.* (2002) in the Bushbuckridge Lowveld, where the contribution from firewood was 44.0 %. Edible insects were extensively collected in Phalaborwa, and formed on average the second largest contribution to annual income. In the urban areas, 87.3 % of the contribution from wild natural capital was from edible insects, which included mopane worms and to a smaller extent, locusts. In the township areas, almost half (48.2 %) of the wild natural capital average annual income came from edible insects, and 24.8 % in the rural areas. The third highest percent contribution came from wild vegetables, which contributed 6.5 % in the urban areas, 0.5 % in the township areas, and 32.2 % in the rural areas. Some resources, such as fruit trees and edible insects, are only harvested at particular times of the year, whereas firewood is collected year round. Households collect seasonal resources, such as mopane worms and store them for later use when the supply diminishes (Shackleton & Shackleton, 2004a).

Natural resource direct-use values

The value of consumption and sale of natural resources to poor peoples' livelihoods is often ignored and underestimated, which maintains the notion that most rural areas are economically unproductive (Paumgarten, 2005; Watson, 2007). However, recent calculations of the mean annual income from natural resources has found the value of these resources to be considerable (Paumgarten, 2005; Shackleton *et al.* 2007b). In terms of mean direct-use values, urban households in Queenstown received on average R 46 (\pm R 218), township households on average R 594 (\pm R 1 184) and rural households R 2 761 (\pm R 3 630). The research findings are in line with previous literature regarding the direct-use values of natural resources. Shackleton and Shackleton (2004a) reported the annual direct-use value of natural

resources in seven different communal areas in the former homelands to be between R 2 300 and R 7 200, with an average of R 3 154, and Davenport *et al.* (2011) calculated the mean annual direct-use value of natural resources to be R 2 373 (\pm R 719) for township households. In other studies, Shackleton and Shackleton (2004a) found the annual direct-use values averaged across households between R 1 600 and R 7 200, and Shackleton *et al.* (2002b) found the gross value consumed by households ranging between R 2 819 and R 7 238 (excluding the sale of traded products).

The results for Phalaborwa show a far larger increase direct-use value of natural capital than in Queenstown, as well as from previous studies, particularly in the rural areas. The urban areas received a direct-use value of R 1 173 (\pm R 5 503), 23 times that of Queenstown, the township areas R 2 250 (\pm R 5 479), three times that of Queenstown, and the rural areas R 26 204 (\pm R 35 292), ten times the value in Queenstown which is considerably higher than the other areas. The substantial increase in the direct-use value along the continuum and across towns reflects the differences in both the quantities consumed as well as the unit prices, which greatly influences the direct-use values (Shackleton & Shackleton, 2004b). Rural households therefore derive greater benefits from the surrounding environment than wealthier more urban households. The daily net role of natural resources in the provision of energy, food and shelter to rural households alleviates some of the costs that the government would incur had it to provide these services in the rural areas (Shackleton & Shackleton, 2004b). In addition to this, it also represents a direct cost saving to households and shows that access to natural resources is pivotal for rural livelihoods (Shackleton *et al.* 2002a; Shackleton & Shackleton, 2004a). For example, Shackleton *et al.* (2007b) states that the direct-use value of firewood is R 2 000 per household per year. These cash resources can therefore be used to secure other household needs and the accumulation of the necessary assets for a more secure livelihood.

3.3.2.3 Grants and pensions

With a large unemployment rate as well as a persistently high poverty rate, South Africa is facing major challenges in addressing poverty, inequality as well as income discrepancies (Aliber, 2011). In many rural communities in South Africa, the reliance on government grants has been identified as an important livelihood strategy. South Africa's social security system is the government's chief initiative in addressing these problems. Along with income from employment, government grants are often regarded as the most important source of cash

income for poor households across South Africa, and quite often in the rural areas, these grants are the main source of cash income for many poor households (Greenberg, 2008). There are five major social security grants in South Africa, including the government Old Age Pension, the Disability Grant, the Child Support Grant, the Foster Child Grant and lastly the Care Dependency Grant, and eligibility for each grant depends on cash income of the various households (Samson *et al.* 2006; Pauw & Mncube, 2007).

In Queenstown and Phalaborwa, the number of households receiving government grants and private pensions increased towards the rural areas. In addition to this, it was identified that a large proportion of households are solely reliant on government grants and private pensions as their only form of cash income and therefore as a means of survival. As much as 40.0 % of Queenstown township households, and 40.0 % of both Queenstown and Phalaborwa rural households, rely solely on the income from government grants, which means that it is their only form of cash income. Paumgarten (2007) also found that government grants, in many cases, constituted the primary source of cash income for rural households, particularly as high unemployment rates continue to be a challenge. Similarly, in a study conducted by Greenberg (2008) in Khayelitsha, a growing reliance on pensions and grants to sustain households was found, with a significant proportion of households living off social grants as the only form of cash income. With 60.0 % of Queenstown rural households, and 89.3 % of Phalaborwa rural households having no employed members living in the household, these government grants play a pivotal role in mitigating the impact of poverty and improving the access of households to food and education which would, without these grants, be destitute (Greenberg, 2008).

The income from government grants and private pensions differed with regards to the position on the continuum. Private pensions were mainly concentrated in the urban areas of both Queenstown and Phalaborwa. When looking at the average income from social grants, the results were the opposite. Income from social grants was highest in the rural and township areas and lowest in the urban centres. Social provisioning is therefore extremely important as a large percentage of households are reliant on these grants. A large proportion of the population have poor employment probabilities, and as they fall outside of the economic mainstream they are less likely to gain from economic growth and new employment opportunities (Pauw & Mncube, 2007).

The high reliance on government grants could be one of the reasons for the high reliance on the use and consumption of natural resources, and these are strongly correlated. The reliance on grants could be promoting the wider use of natural resources as they are “free” resources which require little capital investment or skills and can be widely collected (Shackleton *et al.* 2001). It is evident that as the reliance on government grants increases, as seen in the rural areas, a higher dependence on natural capital is identified.

3.3.2.4 Employment

Significant differences were found between employment and the position on the continuum. A much higher percentage of urban households had at least one employed individual per household when compared to township and rural households. The number of employed individuals was greater in the wealthy households, indicating both the adoption of alternative opportunities as well as a better ability to pay for goods and services (Shackleton & Shackleton, 2006). With regards to the number of employed members per household, urban households had between 1.2 (± 0.8) and 1.1 (± 0.7) employed members per households in Queenstown and Phalaborwa respectively, 0.6 (± 0.6) and 0.7 (± 0.8), in the township households, and 0.4 (± 0.4) and 0.3 (± 0.5) in the rural areas. Not unsurprisingly therefore, the average household income earned through employment was several times higher in urban centres than township or rural areas. Cash income to rural households from employment was only 5.0 % to 6.0 % of that earned by urban ones, with township households being intermediate.

This could be due to the fact that urban areas have much more employment opportunities than the more rural areas, where formal and permanent jobs are rare (Deshingkor, 2007). In addition to this, sub-Saharan Africa is characterized by massive educational deprivation. A large number of children, especially girls, are denied access to school. In the Mopani District of the Limpopo Province for example, 37.8 % of the rural population have not completed any form of schooling, with 13.7 % having only completed some form of primary education (Mopani District Municipality IDP, 2007/2008). With such low levels of education, finding wage employment is difficult because a large proportion of the poor lack the necessary skills and knowledge for the formal labour market. The reasons for the substantially higher average annual income in the urban areas is therefore likely the result of more employment opportunities, higher wage rates, a higher standard of education as well as more skilled jobs in urban areas when compared to rural areas (Davenport *et al.* 2012). It is therefore not

surprising, when looking at the employment levels, that reliance on the income from government grants as well as natural resources is highest in the rural areas where employment levels are significantly lower.

3.3.3 Total income composition

In examining the livelihood portfolios and incomes in relation to the position on the continuum, several pertinent observations were made. Firstly, it was noted that in both Queenstown and Phalaborwa, urban households relied predominantly on the income from formal and informal employment. With participants in secure employment, their livelihood base is typically less diverse than that of township and rural households. They generally enjoy reduced household vulnerability as a result of job security. Unlike in the rural areas, where the poor can produce their own food, urban residents generally show a dependence on earned income to obtain food, although engagement in agriculture was widespread for food production and other benefits, such as health or hobby. A lack of agricultural land often makes it difficult for the urban poor to successfully rely on land-based income earning activities, such as urban agriculture (Owusu, 2009), although if no private lands are available, they are often innovative in the use of disturbed or vacant lands in the broader landscape (Mougeot, 2005). The contribution of employment steadily decreased along the continuum, with income from employment in rural households being the lowest. Although income from employment was substantially less in rural areas than urban and township areas, employment still ranks as one of the most important contributors to rural livelihoods, barring the rural areas of Phalaborwa. From previous results, it was shown that levels of employment are the lowest in the rural areas and so it is not surprising that the contribution from employment would decrease. According to May (2000) and Lahiff (2003), most studies show that wages are the most important source of income in the homeland areas, and their importance is increasing. This includes both local wage employment and migrant labour.

Secondly, the value of government grants increased from the urban areas towards the rural areas, where they were shown to be the second highest contributor. With employment being substantially lower in the township and rural areas, it is not surprising to see that, with decreased levels of employment, a higher dependence on grants in the poorer areas. As evidenced by earlier results, grants and pensions are a very important source of income for poor households and quite often are the only form of income.

Another interesting point to note, in both Queenstown and Phalaborwa, is that livelihoods become more diversified towards the poorer more rural areas. According to Tacoli (2004), national employment data tends to underestimate the importance of diversification, as they usually record only the primary activity. This neglects the fact that individuals are more likely to engage in multiple activities than rely on only one (Tacoli, 2004). It was identified that in the poorer areas, the contribution from employment decreased while increases in crop agriculture, livestock and wild resources were seen, showing a diversification of the livelihoods of the poor. Livelihood portfolios tend to be more specialised in the urban areas, with a concentration on one or a limited range of activities, while rural livelihood portfolios tend to be more diverse (Scoones, 1998). An increase in activities such as crop agriculture, livestock production, wild resources and remittances increases with distance from urban centres. Without the large contribution from employment that is seen in the wealthier, urban areas, households have to diversify their activities to secure their livelihood. The ability to diversify is beneficial for households at or below the poverty line as alternative options for income generation can make the difference between a viable livelihood and a destitute one (Ellis, 1999). Therefore, households that are able to diversify their activities are less likely to be impoverished as they have a multitude of livelihood options to rely on. According to Lahiff (2003), detailed livelihood studies in the homelands show that most households depend on multiple sources of income, of which agriculture generally contributes a minor part compared to that contributed by wages and grants and pensions, which is supported by the findings from this study.

However, agriculture still accounts for a measurable proportion of the total household income. Agriculture accounts for 5.9 % of township livelihoods and 14.4 % of rural livelihoods in Phalaborwa, a marked increase from that of Queenstown where contributions from agriculture were low. Again, this could be a result of local climatic conditions as well as local economies and cultures, or the drought in the Eastern Cape province at the time of this study. However, this could also be due to a reduced rural market, increasing poverty as people relocate, and a shift within the nature of the rural economy (Nel *et al.* 2011). The downscaling in the traditional farming activities such as livestock and crop production as a result of a reduction in market demand, increased labour costs as well as farm abandonment, coupled with reduced environmental capacity has witnessed a significant loss in the degree to which small towns can rely on the economies of their immediate hinterlands (Nel *et al.* 2011). Up until the 1990s, most rural household surveys found that the sale of crops amounted to

less than 10.0 % of household income, however more recent studies found that this figure may increase, particularly if the savings achieved for home consumption are included. The more recent estimates are between 15.0 % and 28.0 %, which compare favourably with the rural areas in Phalaborwa (Nattras & Nattrass, 1990; Barber & Nieuwoudt, 1992).

Livestock also made a reasonable contribution to annual household income, and remains an important livelihood activity for some households mainly in the rural areas. It has even been argued that, in terms of total returns, the benefits from livestock in the more rural areas can be higher than in commercial farming systems on a unit area basis (Shackleton *et al.* 2005). Livestock as a store of wealth has been largely underestimated and are highly valued for their safety net function, particularly in households with only a few animals (Davenport & Gambiza, 2009). According to Pica-Ciamarra *et al.* (2011) the poor and landless households derive a higher share of their income from livestock than wealthier households. This pattern can be seen in Queenstown, where 0.6 % and 0.4 % of the urban and township household income comes from livestock, compared to the 17.5 % in the rural areas. These results compare favourably with a study conducted by Adams (1993) in Pakistan where livestock contributed about 20.0 % to the total income of poor households. Similarly, Akter *et al.* (2007) found that livestock contributed over 25.0 % to the income of the poorest households, and around 7.0 % to the income of the wealthier households. Ellis *et al.* (2003) found that in Malawi, livestock contributed less than 5.3 % to income of wealthier households and around 7.5 % of poorer households. Results therefore indicate that the contribution of livestock to income is larger for the poorest households.

Another pertinent observation was with the contributions from wild natural capital. In the rural areas of South Africa, there is widespread use of wild resources (Shackleton *et al.* 2007b). There have been many valuation studies on woodland resources in southern Africa (Cavendish, 2000; Dovie, 2001; Twine *et al.* 2001; Campbell. *et al* 2002), however many are not reflected in a total livelihood context (Dovie *et al.* 2002). Of the few studies conducted in southern Africa, natural resources have been shown to contribute between 15.0 % and 28.0 % of total livelihoods (Dovie *et al.* 2002). This is substantially less than the contribution of wild resources to livelihoods in Phalaborwa. In Phalaborwa, wild natural capital was found to be the largest contributor to total livelihoods in the rural areas (48.0 %), contributing nearly half of the annual household income. This value is comparable to the findings from a study conducted by Narendran *et al.* (2001) in the Nilgiri Biosphere Reserve in southern India, where natural resources were found to contribute over 50.0 % of total livelihoods. Similar

findings were reported by Wollenberg and Septiani (1998) and Cavendish (2000), where the contribution to households was approximately 40.0 % of the total annual income. The majority of this is made up of firewood (37.9 %), wild vegetables (32.3 %) and edible insects (24.8 %). In the rural areas of Phalaborwa, the contribution from natural resources surpasses that of employment and grants, which were the highest contributors in all other areas of Queenstown and Phalaborwa. Equally significant was that income from wild resources was the second highest contributor to even urban households in Phalaborwa, more than the usual traditionally focussed sectors such as grants or rentals. This indicates that in resource rich regions of the country, the value of biodiversity needs to be communicated to urban planners and decision-makers, who frequently view land simply as space for building. This is especially significant as it is the poor households that rely on natural resources.

In addition to this, the contribution from wild natural capital in Queenstown was lower than that for households in Phalaborwa. However, this is not to say that rural households in Queenstown are not collecting resources, as previous results have indicated a high percentage of households collecting natural resources. Households may just be harvesting smaller amounts of natural resources that are of lower value and therefore the contribution to their livelihoods is less (Ambrose-Oji, 2003).

The high value of consumption of wild resources allows locals to direct their cash incomes to other sources. With such a high proportion of people's livelihood coming from natural resources, considerations should be given to natural resources as a possible vehicle for poverty alleviation interventions. However if the use of natural resources become unsustainable in a particular region, then poverty amongst those users will eventually intensify and go undetected (Ngwenya & Hassan, 2005).

3.3.4 Income composition by gender

In examining the livelihood portfolios and incomes in relation to the gender of the household head, several pertinent observations can be made. Firstly, and previously well known, is that male-headed households typically have higher incomes than female-headed ones (Horrell & Krishnan, 2007; FAO, 2009). This is a result of many issues, including the typically higher education status of males relative to females, the prescriptions on females finding work when they are 'expected' to be at home, and the still prevalent disparities in wage levels between males and females in South Africa, even for the same job type. Women have less access to the employment market than men, and in developing countries discrimination with regards to

employment is common (Ellis, 1999; Klasen *et al.* 2011). Women's work is frequently confined to the home, where domestic work is carried out (Niehof, 2004). This is often caused by cultural factors such as norms and traditions in the labour market itself (Klasen *et al.* 2011). Even in childhood, some households invest less in girls' schooling, which already predetermines the opportunities available to them. As there is greater value placed on male labour, it is rational for parents to emphasize the education of boys over girls (Ruwanpura, 2004). Other studies which highlight the cultural reasons restricting women to access wage labour include Kumar *et al.* (1999) and Dunlop and Velkoff (1999). Women are typically employed in lower paid, less secure and informal occupations and face limited access to the labour market (Niehof, 2004). Even if female employment is high, women are often paid significantly less than men. In addition to this, full-time jobs with set hours exclude mothers from employment and this perpetuates their confinement to domestic work (Klasen *et al.* 2011).

Secondly, male-headed households tended to have greater contributions from the cash income streams, especially employment and private pensions, whereas female-headed households had greater contributions from social grants, reflecting their overall lower income status. This is a reflection of the greater employment levels amongst males, and the higher salaries they are paid (Klasen *et al.* 2011). Though both men and women work, there are significant gender differences in the nature and conditions of work and wages. Both in the formal and informal sectors, women face less favourable conditions, have less access to education, training and thereby have lower skills. Women are not in a favourable position in the labour market since patriarchal beliefs influence perceptions of women workers. These beliefs relegate women into secondary status in the family and society (Ruwanpura, 2004). The activities undertaken by women, such as care-giving, are unpaid and undervalued and are perceived as the prime responsibilities of women. On the other hand, men have the task of working, a paid and valued activity (Ruwanpura, 2004).

For this reason, women dominate the informal sector where work may be poorly paid. Female-headed households are therefore more reliant on the contributions from social grants. As stated earlier, these government grants pay a pivotal role in mitigating the impact of poverty and improving the access of households to food and education which would, without these grants, be destitute (Greenberg, 2008). Although socio-economic changes have transformed the role of women from basic domestic tasks to the working world, patriarchal

norms that determine people's perceptions and behaviour appear resistant to change (Ruwanpura, 2004).

Thirdly, other than livestock, female-headed households had a greater reliance on a wider diversity of income streams, which included agriculture, wild resources, remittances and rentals. Very few people obtain all their income from any one source, hold all their wealth in the form of a single asset or use their assets in any one activity (Barret *et al.* 2001). The need to diversify one's portfolio is therefore very important for the survival of female-headed households. Horrell and Krishnan (2007) state that consideration of indicators of the household's ability to diversify reveals that female-headed households have fewer people engaging in remuneration activities and are more constrained in the number of income-generating activities they can engage in. With a smaller proportion of total household income coming from employment, the diversification of activities is a vital strategy for female-headed households. For agriculture alone, income is six times greater than that of male-headed households. Comparative literature on this subject is however lacking, since not many livelihood studies, considering all income streams, have broken their results by gender.

Fourthly, when considering both towns together, the differential in income between male- and female-headed households across the different livelihood sectors is most marked for wild resources and remittances. The income from remittances in female-headed households in Queenstown is triple the amount received in male-headed households, and more than four times the amount received in male-headed households in Phalaborwa. Similar findings were reported in a study by Tacoli (1998) and Horrell and Krishnan (2007), where the level of remittances was found to be considerably higher in female-headed households. Despite this however, female-headed households remained significantly poorer than male-headed households (Horrell & Krishnan, 2007). Social networks in female-headed households extend beyond the boundaries of the nearby community, with extended family members sending money to households on a weekly or monthly basis. Income from remittances is an important source of income for developing countries and aids in reducing income volatility, especially in female-headed households (Clarke & Wallsten, 2003). Such an effect is very important for female-headed households which are often considered more volatile than male-headed households. With a lack of cash income from employment, the reliance on remittances is high. Remittances can also offset income shocks, protecting households' productive assets (World Bank, 2007a). According to Horrell and Krishnan (2007), female heads receive high levels of cash from extended family living away from the household, and this was found to be an

important element in meeting the households' income needs. The higher remittances calculated in female-headed households could also be as a result of the male migrant labour system (Beall & Kanji, 1999). In South Africa, female-headed households are common, especially in the rural areas due to migration of males from the household. Men migrate in search of better employment opportunities and then send money home to their families. In fact, labour migration and remittances are a strategy that households can rely on when other strategies are under threat, such as crop agriculture and livestock production (Young, 2006). Men working away from home have been found to contribute more than two-fifths of the household income (Horrell & Krishnan, 2007).

The income from natural resources has been strongly linked to gender (Cavendish, 2000). Female-headed households are generally more vulnerable than male-headed households and have been found to be more dependent on the contribution from natural resources. This study supports these findings, as the income from natural resources in female-headed households is double that of male-headed households, both in Queenstown and Phalaborwa. A number of studies have indicated that among households headed by women, natural resources often contribute significantly more to household income than is the case for households headed by men (Clarke *et al.* 1996). As a result of the discrimination of women in the labour market, and the cultural norms and traditions that confine women to domestic work (Klasen *et al.* 2011), alternate sources of income and savings are vital for the survival of female-headed households. For example, women traditionally concerned with household food security are largely responsible for the collection of natural resources, while men are involved more in off-farm activities or agriculture. The collection of natural resources represents a direct cost saving to households (Shackleton *et al.* 2002a; Shackleton & Shackleton, 2004a). Households can engage in the increased use of natural resources to supplement income, and since this activity is usually carried out by women, an increase in income from natural resources in female-headed households is evident (Shackleton *et al.* 2001).

Chapter 4

Coping strategy changes along rural-urban continua

4.1 Introduction

Poverty can be defined as “a pronounced deprivation of well-being related to lack of material income or consumption, low levels of education and health, vulnerability and exposure to risk, lack of opportunity to be heard and powerlessness” (World Bank, 2001). Despite major global efforts to reduce poverty, it remains a major challenge, particularly within the developing world (Sunderlin *et al.* 2005). Poverty in sub-Saharan Africa results from vulnerability to a range of different shocks and stresses. A household’s ability to escape poverty is impaired by its vulnerability to shocks (Heemskerk *et al.* 2004), where vulnerability is defined as the “exposure of individuals or collective groups to livelihood stress as a result of social and environmental change, where stress refers to unexpected changes and disruption to livelihoods” (Adger, 1999). Poverty is multidimensional, complex and affected by numerous variables. While some households manage to overcome poverty, its general nature within poor households is chronic (Paumgarten, 2005). The poverty of a household is related to its assets, its capacity to organise and mobilise these assets as well as its available coping mechanisms (Hossain, 2005).

Households, particularly those in the developing world, are subjected to a range of risks and shocks that impact the bio-physical, social and economic environments in which they live (Adger, 1999). A shock can be described as an unexpected event that triggers a temporary or permanent decline in well-being, such as climate change, crop failure, HIV/AIDS, loss of employment, unstable economies, or death (Heemskerk *et al.* 2004). Households regarded as the most vulnerable include female-headed households, those affected by HIV/AIDS as well as young households. A household’s response to adversity depends on a number of factors, such as the nature of the shock, its duration and intensity as well as the assets (including natural resources) households have at their disposal (Paumgarten & Shackleton, 2011). Even though any household can suffer shocks and stresses, not all households have the same probability of recovering from the consequences of such shocks (del Ninno & Marini, 2005). Households aim to maintain and secure a sustainable livelihood where they are able to cope with adversity by drawing on available assets, although poor households are often insufficiently insured and therefore more vulnerable. In addition to this, by causing

unpredictable fluctuations in household earnings, shocks reinforce powerlessness and can force poor households towards destitution (Heemskerk *et al.* 2004).

The range of coping strategies households may utilize is typically as diverse as livelihood strategies themselves (Paumgarten & Shackleton, 2011). However, some households have low diversification of strategies and assets, either because they are specialists in particular activities, or they have insufficient resources, especially human capital, to participate in a diversity of options (Sallu *et al.* 2010). Households with less diverse livelihoods thus also have less diverse options to cope with shocks. Generally, poor households have developed numerous ways to cope with risk, both pre-emptive and post-shock. Faced with shocks and stresses, households sell assets, borrow from family or relatives, reduce their expenses and diversify their income-generating activities. In addition to this, poor households derive multiple benefits from the goods and services available in their immediate environment (Shackleton & Shackleton, 2004b). During hardship, it is also common for households to turn to an increased use of natural resources to cope with risk (Delacote, 2009; Paumgarten & Shackleton, 2011). For example, McGarry and Shackleton (2009) showed how children in households highly vulnerable to HIV/AIDS hunted and consumed small wild animals (birds, rodents, insects) more than households with lower vulnerability to HIV/AIDS.

Gender also plays a large role in the shocks experienced and the coping strategies employed. Gender is probably one of the most prominent individual attributes along which differentiation takes place. Men and women have different assets, access to resources and opportunities, and for this reason the shocks they experience and the coping strategies they use are likely to differ to some extent (Ellis, 1999). Women may have less land, wealth, property, and education whilst having higher burdens of work with caring for household members and ensuring the survival, reproduction and security of the household. In some contexts, women are fed less, educated less and more physically restricted. In addition to this, throughout much of sub-Saharan Africa women are typically employed in lower paid, less secure, informal occupations. To some extent, gender hierarchy governs how people live (Sen & Ostlin, 2007). In contrast, men typically have greater wealth, better jobs, more education as well as fewer restrictions on behaviour.

This chapter explores the main shocks experienced by households along the rural-urban continuum, as well as the coping strategies used in the face of such shocks and livelihood insecurity. In addition to this, the shocks and coping strategies are considered from a gender

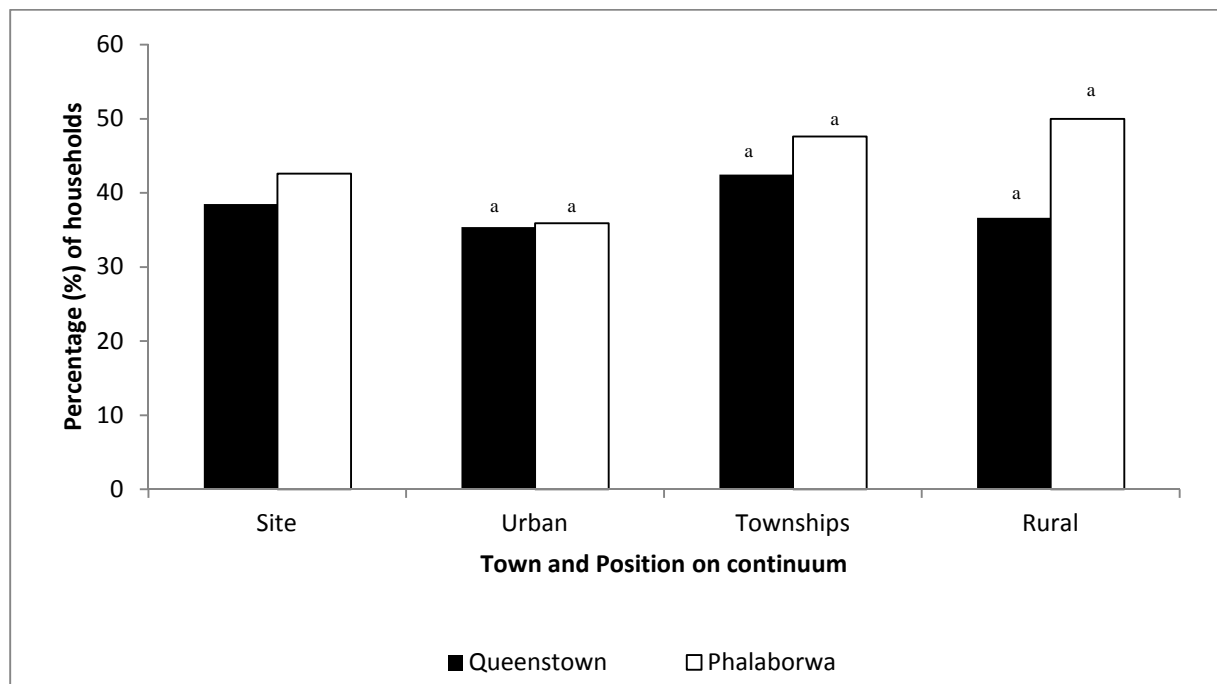
perspective, exploring the different shocks that may affect households headed by males and households headed by females, and the different coping strategies used by each.

4.2 Results

4.2.1 The rural-urban continuum

4.2.1.1 Households experiencing shocks

Households experiencing at least one shock in the last two years increased, although not significantly, along the rural-urban continuum in Phalaborwa from 35.9 % in the urban areas, to 47.6 % in the township areas, and a further increase to 50.0 % in the rural areas. In Queenstown, shocks were highest in the township areas (42.5 %), however not significantly so (Figure 4.1).



Note: Unlike superscripts represent significant differences per site along the continuum.

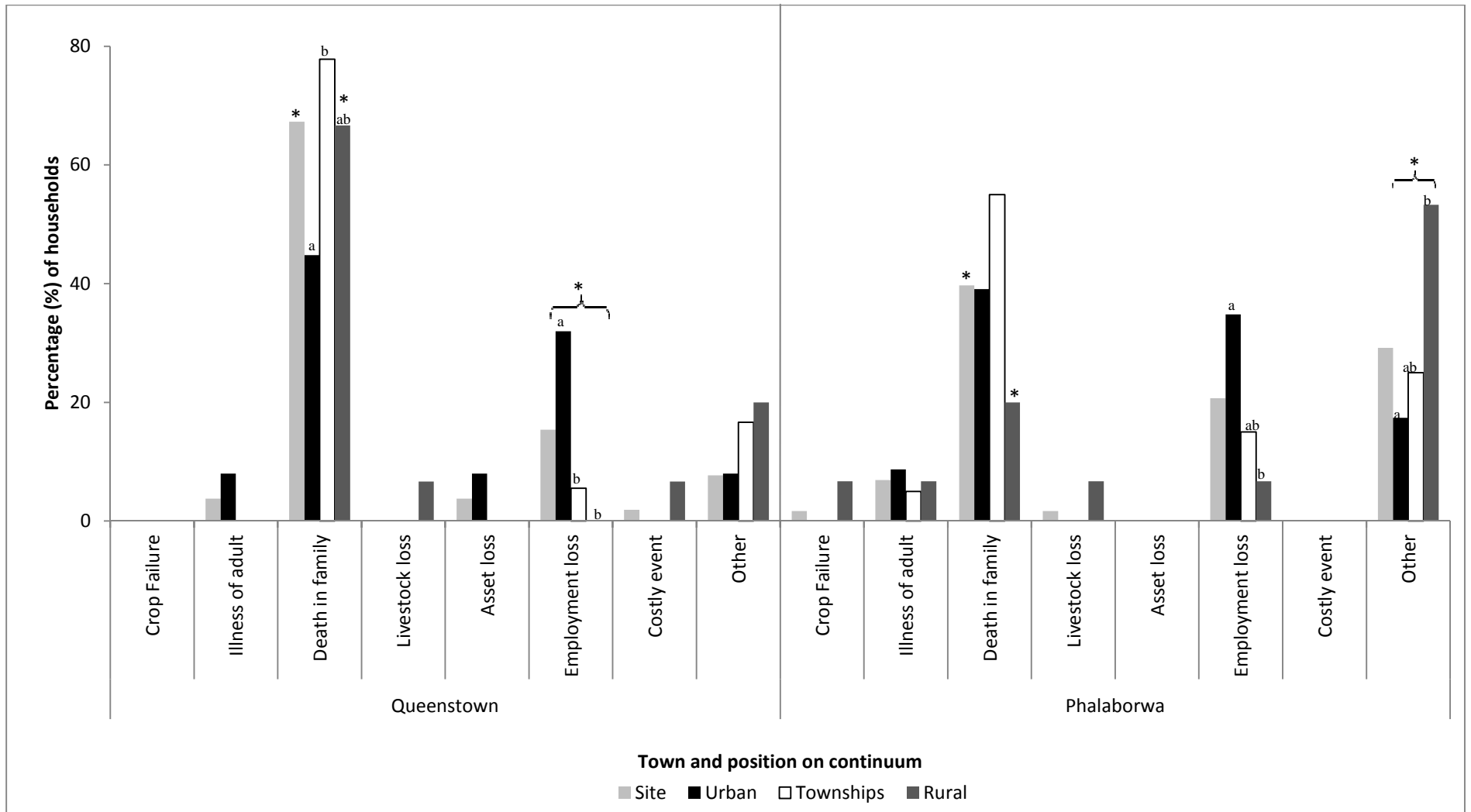
Figure 4.1: Percentage (%) of households experiencing at least one shock in the last two years

4.2.1.2 Shocks experienced along the rural-urban continuum

Significant differences were found with regards to the type of shocks experienced along the rural-urban continuum in Queenstown ($\chi^2=22.1$, $df=12$, $p<0.05$). The main shock experienced was death in the family which occurred in 44.8 % of urban households, 77.8 % of township households and 66.6 % of rural households (Figure 4.2). Significant differences were found

between urban and township households with regards to death in the family ($\chi^2=4.9$, $df=1$, $p<0.05$). Significant differences were also found between a loss of wage employment along the continuum in Queenstown, being significantly higher in the urban areas of Queenstown than in the township and rural areas ($\chi^2=9.2$, $df=1$, $p<0.05$). In the urban areas, 32.0 % of households reported losing a job and this decreased to 5.5 % in township households and 0.0 % in rural households. Additional shocks included asset loss, which only occurred in the urban areas, as well as livestock loss and costly social events such as weddings and funerals, which only occurred in the rural areas, although no significant differences between position on the continuum and these shocks were found. 'Other' shocks in Queenstown included costs of traditional initiation of teenage sons, car accidents and attacks.

No significant differences were found with regards to any household shocks experienced along the continuum as a whole in Phalaborwa. However, significant differences within the various shocks were found. The urban and rural areas of Phalaborwa showed significant differences with regards to loss of wage employment ($\chi^2=3.9$, $df=1$, $p<0.05$). The urban areas of Phalaborwa had a much higher percentage of employment loss than the rural areas, 34.8 % and 6.7 %, respectively. Death in the family in the rural areas of Phalaborwa was significantly lower than in the rural areas of Queenstown ($\chi^2=5.9$, $df=1$, $p<0.05$). As stated previously, 66.6 % of rural households in Queenstown had a death in the family, compared to the significantly lower 20.0 % that was found in the rural areas of Phalaborwa. 'Other' shocks in Phalaborwa included financial problems, divorce and attack. There were significantly more 'other' shocks in the rural areas of Phalaborwa than in the urban areas ($\chi^2=5.4$, $df=1$, $p<0.05$).

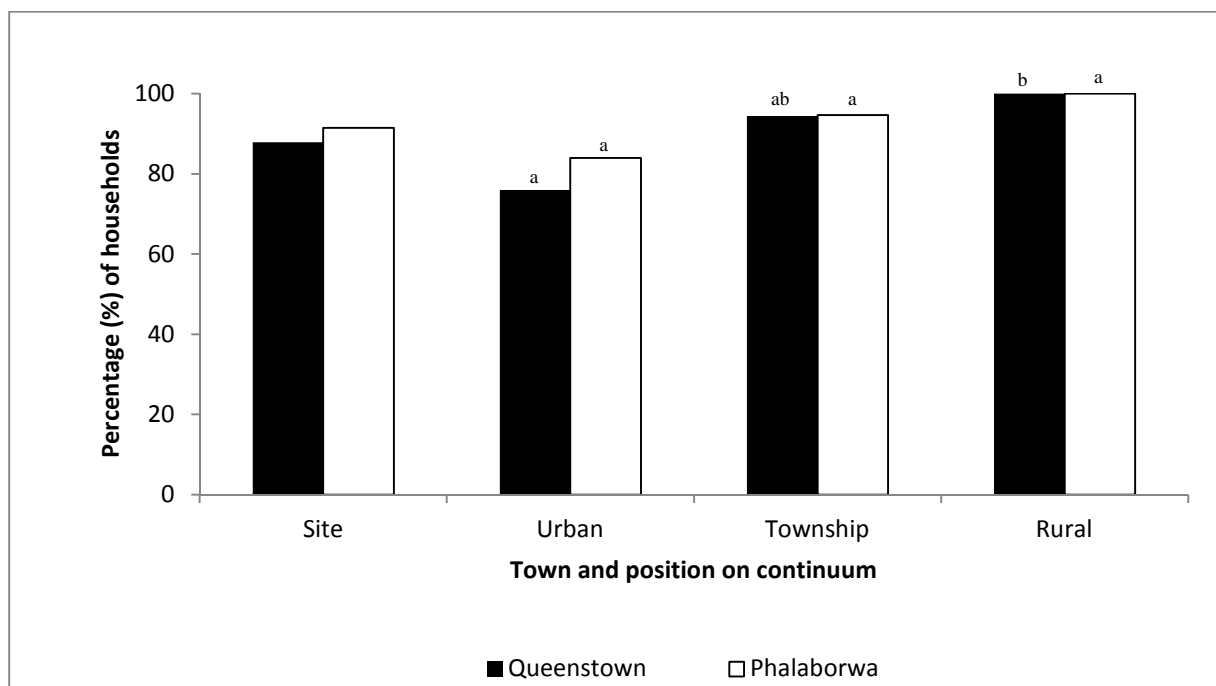


Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 4.2: Shocks experienced by households along the continuum in Queenstown and Phalaborwa

4.2.1.3 Crisis severity changes along the rural-urban continuum

Significant differences were found along the continuum in Queenstown with regards to severe crisis from shocks ($\chi^2=6.1$, $df=2$, $p<0.01$) (Figure 4.3). Fewer households in the urban areas of Queenstown experienced severe crisis from shocks than households in the rural areas ($\chi^2=4.2$, $df=1$, $p<0.05$). Shocks experienced in the rural households had a ‘severe’ rating in all surveyed households, while the urban areas experienced ‘severe’ shocks in 76.0 % of households. There were no significant differences found in Phalaborwa, although the number of households experiencing ‘severe’ shocks increased from 84.0 % in the urban areas, to 94.7 % in the township areas and a further increase to 100.0 % in the rural areas.



Note: Unlike superscripts represent significant differences per site along the continuum.

Figure 4.3: Percentage (%) of households experiencing severe crisis from shocks in Queenstown and Phalaborwa

4.2.1.4 Coping strategies used along the rural-urban continuum

The coping strategies used in Queenstown differed significantly along the continuum ($\chi^2=33.0$, $df=18$, $p<0.05$). The most noticeable coping strategy found in Queenstown, with the highest percentages of respondents, was borrowing from family or relatives (Table 4.1). This far outweighed any other strategy used. Forty-eight percent of urban residents used the borrowing from family and relatives as a coping strategy, 26.1 % of township residents and

52.9 % of rural residents. There were no significant differences found within Queenstown, however differences between Queenstown and Phalaborwa were found, in the urban and townships areas and across the towns as a whole ($\chi^2=10.3$, $df=1$, $p<0.05$). Borrowing from social groups or clubs was also a widely used coping strategy and significant differences were found between the urban and township areas ($\chi^2=10.2$, $df=1$, $p<0.05$). No urban residents reported borrowing from social groups or clubs, compared to the 30.4 % of households using this strategy in the township areas. The cashing in of retirement savings also showed significant differences. In the urban and township areas of Queenstown, no households relied on this strategy, compared to the 17.6 % in the rural areas ($\chi^2=9.5$, $df=1$, $p<0.05$).

The coping strategies used in Phalaborwa showed significant differences along the continuum ($\chi^2=41.7$, $df=26$, $p<0.05$). Borrowing from family and relatives was a widely adopted strategy in Phalaborwa, being used in 17.1 % of urban households, 22.7 % of township households and 11.8 % of rural households. There were however no significant differences in the use of this strategy. Borrowing from a money lender showed significant differences along the continuum ($\chi^2=9.7$, $df=2$, $p<0.05$). In the urban areas, 2.9 % of households borrowed from a money lender, 18.2 % in the township areas and 35.5 % in the rural areas of Phalaborwa. Borrowing from social groups showed significant differences between urban and rural areas ($\chi^2=4.2$, $df=1$, $p<0.05$). Urban residents did not use this as a coping strategy, however 11.8 % of rural households surveyed used it in the last two years. The cashing in of retirement savings showed significant differences between the urban and rural areas of Phalaborwa. Once again, urban residents did not use the cashing in of retirements savings as a strategy, whilst this strategy was used in 11.8 % of rural households.

Table 4.1: Coping strategies used along the continuum in Queenstown and Phalaborwa (data reflect percentages of households using specific strategies) (cont. on next page)

Site	Urban	Townships	Rural	Site	Test statistic	p value
Use more wild products						
Queenstown	0 ^a	0 ^a	0 ^a	0		
Phalaborwa	0 ^a	4.5 ^a	5.9 ^a	2.7	$\chi^2 = 1.9$	>0.05
Test statistic		$\chi^2 = 1.0$	$\chi^2 = 1.0$	$\chi^2 = 1.8$		
p value		>0.05	>0.05	>0.05		
Sold wild products						
Queenstown	0 ^a	0 ^a	0 ^a	0		
Phalaborwa	0 ^a	0 ^a	5.9 ^a	1.4	$\chi^2 = 3.3$	>0.05
Test statistic			$\chi^2 = 1.0$	$\chi^2 = 0.9$		
p value			>0.05	>0.05		
Found casual employment						
Queenstown	6.8 ^a	4.3 ^a	0 ^a	4.3	$\chi^2 = 1.2$	>0.05
Phalaborwa	8.6 ^a	4.5 ^a	0 ^a	5.5	$\chi^2 = 1.6$	>0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 0.1$		$\chi^2 = 0.1$		
p value	>0.05	>0.05		>0.05		
Spent cash savings						
Queenstown	13.8 ^a	8.7 ^a	0 ^a	8.7	$\chi^2 = 2.5$	>0.05
Phalaborwa	8.6 ^a	9.1 ^a	5.9 ^a	8.1	$\chi^2 = 0.1$	>0.05
Test statistic	$\chi^2 = 0.4$	$\chi^2 = 0.1$	$\chi^2 = 1.0$	$\chi^2 = 0.02$		
p value	>0.05	>0.05	>0.05	>0.05		
Sold some household assets						
Queenstown	0 ^a	0 ^a	0 ^a	0		
Phalaborwa	5.7 ^a	0 ^a	0 ^a	2.7	$\chi^2 = 2.2$	>0.05
Test statistic	$\chi^2 = 1.7$			$\chi^2 = 1.8$		
p value	>0.05			>0.05		
Borrowed from family/relatives						
Queenstown	48.3 ^a	26.1 ^a	52.9 ^a	42.0	$\chi^2 = 3.6$	>0.05
Phalaborwa	17.1 ^a	22.7 ^a	11.8 ^a	17.6	$\chi^2 = 0.8$	>0.05
Test statistic	$\chi^2 = 7.1$	$\chi^2 = 0.1$	$\chi^2 = 6.5$	$\chi^2 = 10.3$		
p value	<0.05	>0.05	<0.05	<0.05		
Borrowed from friends/neighbours						
Queenstown	3.4 ^a	4.3 ^a	5.9 ^a	4.3	$\chi^2 = 0.1$	>0.05
Phalaborwa	11.4 ^a	4.5 ^a	5.9 ^a	8.1	$\chi^2 = 1.0$	>0.05
Test statistic	$\chi^2 = 1.4$	$\chi^2 = 0.1$	$\chi^2 = 0.1$	$\chi^2 = 0.8$		

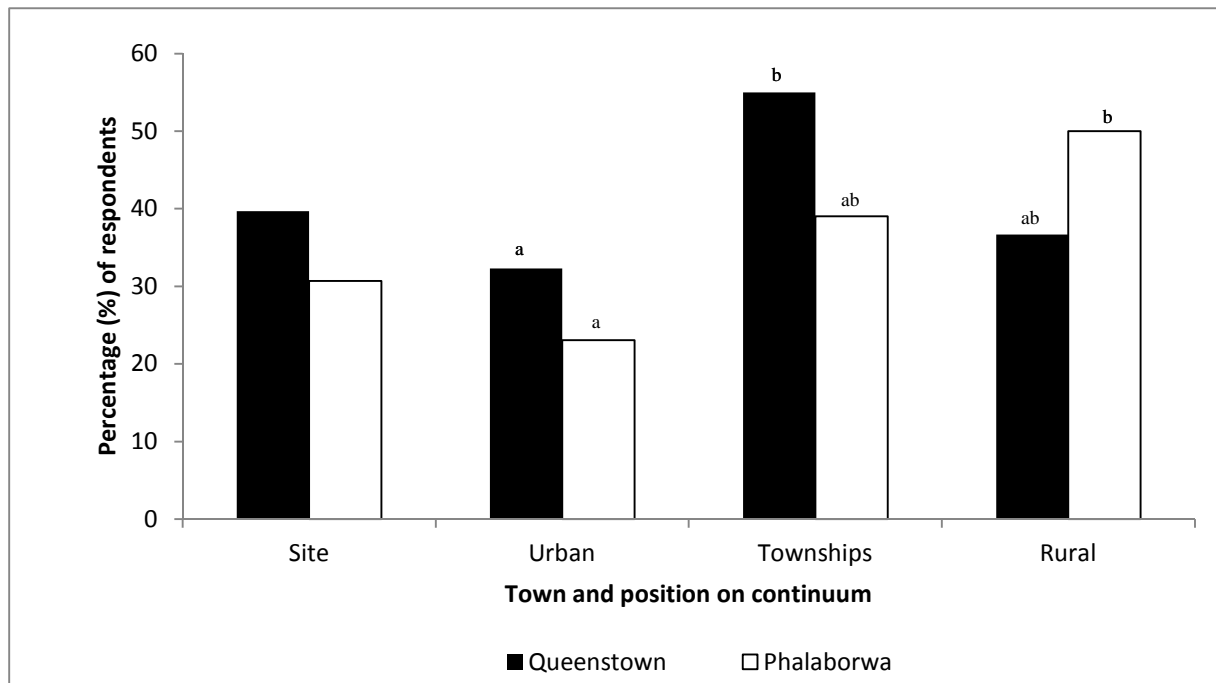
p value	>0.05	>0.05	>0.05	>0.05	
Borrowed from social groups/clubs					
Queenstown	0 ^a	30.4 ^b	5.9 ^{ab}	11.6	$\chi^2 = 12.3$ <0.05
Phalaborwa	0 ^a	4.5 ^{ab}	11.8 ^b	4.1	$\chi^2 = 4.0$ >0.05
Test statistic		$\chi^2 = 5.1$	$\chi^2 = 0.3$	$\chi^2 = 2.8$	
p value		<0.05	>0.05	>0.05	
Borrowed from money lender					
Queenstown	0 ^a	8.7 ^a	0 ^a	2.9	$\chi^2 = 4.1$ >0.05
Phalaborwa	2.9 ^a	18.2 ^b	35.5 ^b	14.9	$\chi^2 = 9.7$ <0.05
Test statistic	$\chi^2 = 0.8$	$\chi^2 = 0.8$	$\chi^2 = 7.2$	$\chi^2 = 6.1$	
p value	>0.05	>0.05	<0.05	<0.05	
Cash in retirement savings					
Queenstown	0 ^a	0 ^a	17.6 ^b	4.3	$\chi^2 = 9.5$ <0.05
Phalaborwa	0 ^a	0 ^{ab}	11.8 ^b	2.7	$\chi^2 = 6.8$ <0.05
Test statistic			$\chi^2 = 0.2$	$\chi^2 = 0.2$	
p value			>0.05	>0.05	
Reduce expenses					
Queenstown	17.2 ^a	13.0 ^a	17.6 ^a	15.9	$\chi^2 = 0.2$ >0.05
Phalaborwa	20.0 ^a	27.2 ^a	5.9 ^a	19.0	$\chi^2 = 2.9$ >0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 1.1$	$\chi^2 = 1.1$	$\chi^2 = 0.2$	
p value	>0.05	>0.05	>0.05	>0.05	
Other					
Queenstown	10.3 ^a	4.3 ^a	0 ^a	5.8	$\chi^2 = 2.2$ >0.05
Phalaborwa	25.7 ^a	4.5 ^b	0 ^b	13.5	$\chi^2 = 8.6$ <0.05
Test statistic	$\chi^2 = 2.4$	$\chi^2 = 0.1$		$\chi^2 = 2.4$	
p value	>0.05	>0.05		>0.05	

Note: nonparametric Chi-squared tests read down for differences between towns, while significant differences along the continuum read across. Superscripts are only relevant within their rows; unlike superscripts reflect significant differences along the continuum.

4.2.2 Gendered coping strategies along the rural-urban continuum

4.2.2.1 Female-headed households along rural-urban continuum

There was a significant difference along the continuum in Phalaborwa with regards to number of female-headed households ($\chi^2=7.3$, $df=2$, $p<0.05$) (Figure 4.4). The percentage of female-headed households increased significantly along the rural-urban continuum, from 23.1 % in the urban areas, to 39.0 % in the township areas, and further increased to 50.0 % in the rural areas. Significant differences were found between the urban and township areas in Queenstown ($\chi^2=5.2$, $df=1$, $p<0.05$), where 32.3 % of households in the urban areas and 55.0 % of households in the township areas had female heads.



Note: Unlike superscripts represent significant differences per site along the continuum.

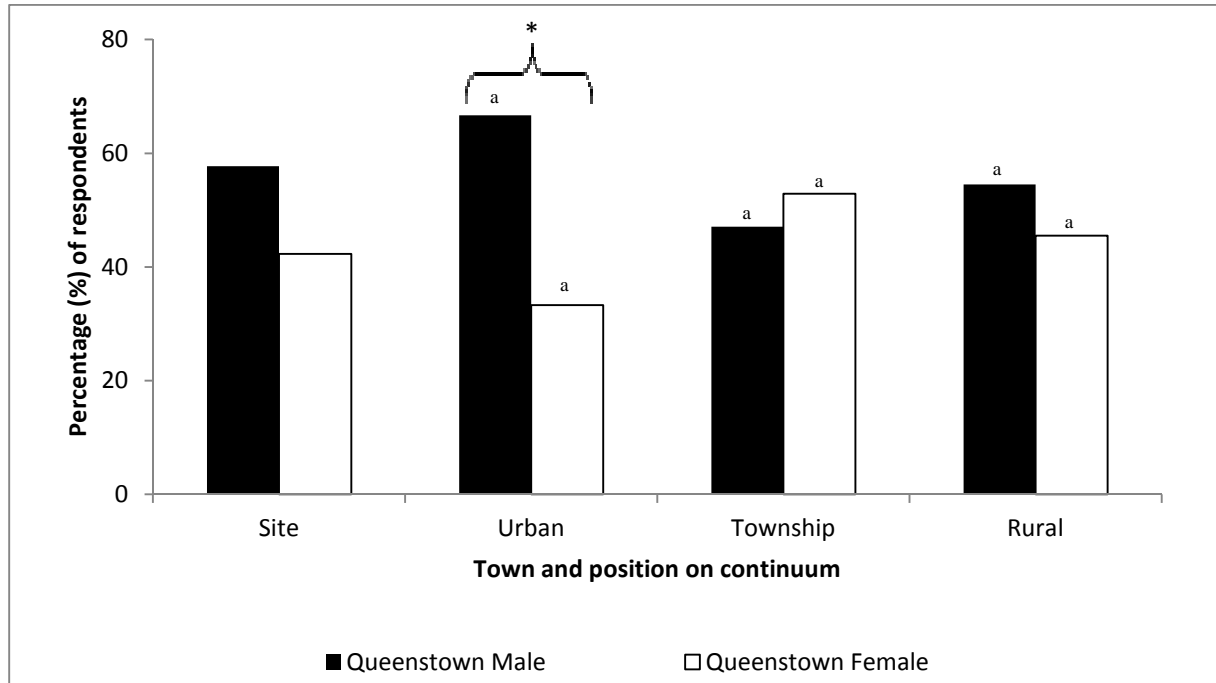
Figure 4.4: Female-headed households along the continuum in Queenstown and Phalaborwa

4.2.3 Queenstown

4.2.3.1 Male- and female-headed households experiencing shocks

There was a significant difference between male- and female-headed households experiencing shocks in the urban areas of Queenstown ($\chi^2=5.3$, $df=1$, $p<0.05$). Of the total shocks experienced in the urban areas of Queenstown, 66.7 % of them are occurred in male-headed households while 33.3 % occurred in female-headed households (Figure 4.5). The

percentage of female-headed households experiencing shocks increased towards the rural areas, however this increase was not significant. The opposite can be said for male-headed households, which decreased in the township and rural areas by 47.1 % and 54.5 % respectively. This decrease, however, was not significant.

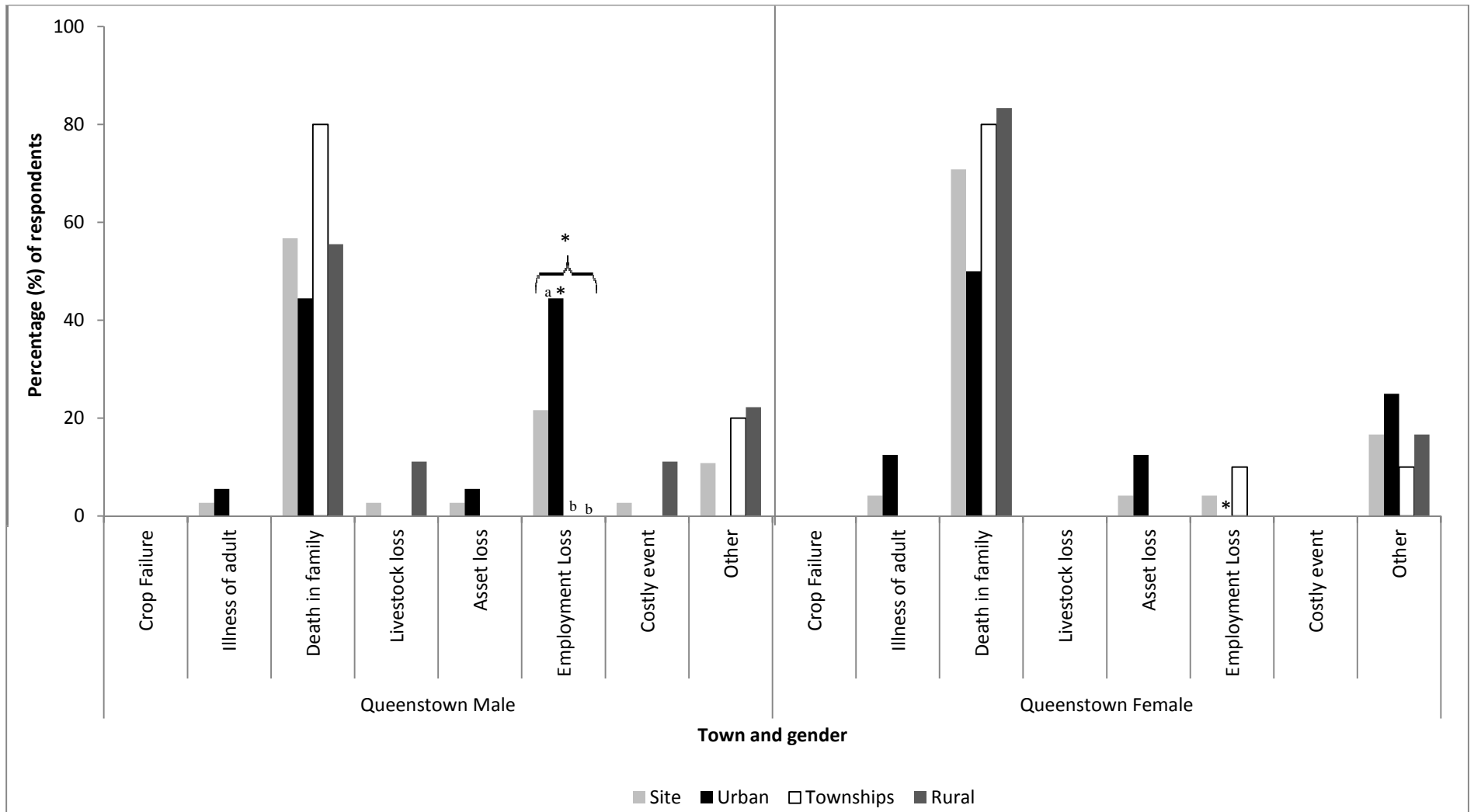


Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 4.5: Percentage (%) of male- and female-headed households experiencing shocks in Queenstown

4.2.3.2 Shocks experienced in male- and female-headed households

Employment loss was highest in male-headed households living in the urban areas (44.4 %) and decreased significantly along the continuum towards the rural areas ($\chi^2=8.0$, $df=2$, $p<0.05$), where unemployment loss was not listed as a shock occurrence (Figure 4.6). In addition to this, there was a significant difference with regards to employment loss between the male- and female-headed households in the urban areas of Queenstown ($\chi^2=5.1$, $df=1$, $p<0.05$). All of the employment loss that occurred in the urban areas of Queenstown was concentrated in male-headed households, with 44.4 % of households experiencing this shock in male-headed households, and a significantly lower 12.5 % experiencing job loss in female-headed households. Death in the family, although not significant, was highest in the female-headed households of rural areas (83.3 %) compared to male-headed households in the rural areas (55.5 %).



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 4.6: Shocks in male- and female-headed household in Queenstown

4.2.3.3 Coping strategies used in male- and female-headed households

The borrowing from family and relatives was a widely adopted strategy in male-headed households and remained high in the urban (50.0 %), township (20.0 %) and rural (60.0 %) areas (Table 4.2). Borrowing from social clubs or groups showed significant differences between male-headed households in the urban and township areas, where 0.0 % of urban and 20.0 % of township residents used this strategy ($\chi^2=4.2$, $df=1$, $p<0.05$).

Significant differences were found between male- and female-headed households with regards to the spending of cash savings in the urban areas of Queenstown ($\chi^2=4.1$, $df=1$, $p<0.05$). A much higher percentage of female-headed households relied on the spending of cash savings as a coping strategy. In male-headed households, 5.0 % relied on spending cash savings as opposed to the 33.3 % of female-headed households relying on this same coping strategy.

In female-headed households, widely adopted strategies included the borrowing from family and relatives, the borrowing from social groups or clubs, the spending of cash savings, as well as the cashing in of retirement savings. Borrowing from family and relatives remained high in the urban (44.4 %), township (30.8 %) and rural (42.9 %) areas. With regards to borrowing from social groups or clubs, significant differences were found between urban and township areas ($\chi^2=4.4$, $df=1$, $p<0.05$), where no urban residents and 38.5 % of township residents used this strategy. Female-headed households in the rural areas used the strategy of cashing in their retirement savings significantly more than urban and township residents ($\chi^2=6.7$, $df=2$, $p<0.05$). In addition to this, 28.6 % of female-headed rural households cashed in their retirement savings as a coping strategy, compared to the 10.0 % of male-headed households. However, no significant differences were found.

Table 4.2: Coping strategies used by male- and female-headed households in Queenstown
(data reflect percentages of households using specific strategies) (cont. on next page)

Gender	Urban	Townships	Rural	Gender	Test statistic	p value
Use more wild products, sold wild products, sold household assets						
Male	0 ^a	0 ^a	0 ^a	0		
Female	0 ^a	0 ^a	0 ^a	0		
Test statistic						
p value						
Found casual employment						
Male	10.0 ^a	10.0 ^a	0 ^a	7.5	$\chi^2 = 1.0$	>0.05
Female	0 ^a	0 ^a	0 ^a	0		
Test statistic	$\chi^2 = 0.9$	$\chi^2 = 1.3$		$\chi^2 = 2.2$		
p value	>0.05	>0.05		>0.05		
Spent cash savings						
Male	5.0 ^a	20.0 ^a	0 ^a	7.5	$\chi^2 = 3.2$	>0.05
Female	33.3 ^a	0 ^b	0 ^{ab}	10.3	$\chi^2 = 7.4$	<0.05
Test statistic	$\chi^2 = 4.1$	$\chi^2 = 2.8$		$\chi^2 = 0.1$		
p value	<0.05	>0.05		>0.05		
Sold some household assets						
Male	0 ^a	0 ^a	0 ^a	0		
Female	0 ^a	0 ^a	0 ^a	0		
Test statistic						
p value						
Borrowed from family/relatives						
Male	50.0 ^a	20.0 ^a	60.0 ^a	45.0	$\chi^2 = 3.6$	>0.05
Female	44.4 ^a	30.8 ^a	42.9 ^a	37.9	$\chi^2 = 0.5$	>0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 0.3$	$\chi^2 = 0.4$	$\chi^2 = 0.3$		
P value	>0.05	>0.05	>0.05	>0.05		
Borrowed from friends/neighbours						
Male	5.0 ^a	0 ^a	0 ^a	5.0	$\chi^2 = 1.0$	>0.05
Female	0 ^a	7.7 ^a	0 ^a	3.4	$\chi^2 = 1.2$	>0.05
Test statistic	$\chi^2 = 0.4$	$\chi^2 = 0.8$	$\chi^2 = 0.7$	$\chi^2 = 0.1$		
p value	>0.05	>0.05	>0.05	>0.05		
Borrowed from social groups/clubs						
Male	0 ^a	20.0 ^b	10.0 ^{ab}	7.5	$\chi^2 = 3.9$	>0.05
Female	0 ^a	38.5 ^b	0 ^a	17.2	$\chi^2 = 11.4$	<0.05
Test statistic		$\chi^2 = 0.9$	$\chi^2 = 1.2$	$\chi^2 = 1.5$		

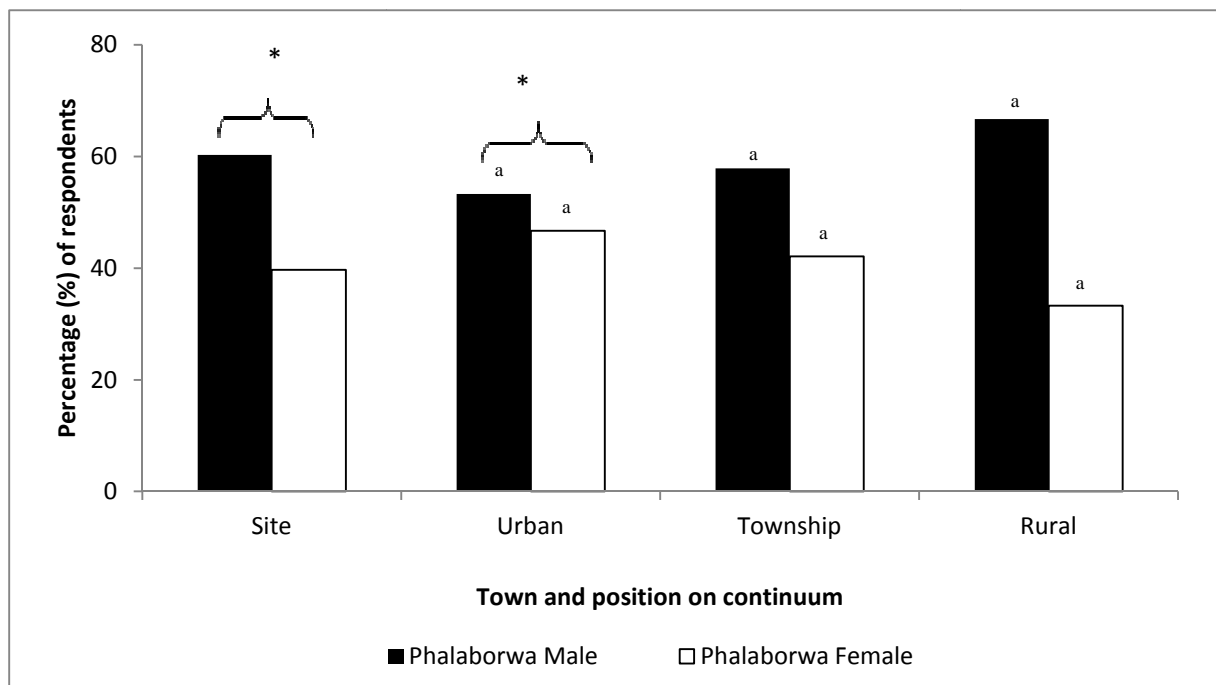
p value		>0.05	>0.05	>0.05	
Borrowed from money lender					
Male	0 ^a	10.0 ^a	0 ^a	2.5	$\chi^2=3.0$ >0.05
Female	0 ^a	7.7 ^a	0 ^a	3.4	$\chi^2=1.2$ >0.05
Test statistic	$\chi^2=0.1$			$\chi^2=0.1$	
p value	>0.05			>0.05	
Cash in retirement savings					
Male	0 ^a	0 ^a	10.0 ^a	2.5	$\chi^2=3.0$ >0.05
Female	0 ^{ab}	0 ^a	28.6 ^b	6.9	$\chi^2=6.7$ <0.05
Test statistic	$\chi^2=0.9$			$\chi^2=0.7$	
p value	>0.05			>0.05	
Reduce expenses					
Male	15.0 ^a	20.0 ^a	10.0 ^a	15.0	$\chi^2=0.3$ >0.05
Female	22.2 ^a	7.7 ^a	28.6 ^a	17.2	$\chi^2=1.6$ >0.05
Test statistic	$\chi^2=0.2$	$\chi^2=0.7$	$\chi^2=0.9$	$\chi^2=0.1$	
p value	>0.05	>0.05	>0.05	>0.05	
Other					
Male	15.0 ^a	0 ^a	0 ^a	7.5	$\chi^2=3.2$ >0.05
Female	0 ^a	7.7 ^a	0 ^a	3.4	$\chi^2=1.2$ >0.05
Test statistic	$\chi^2=1.5$	$\chi^2=0.8$		$\chi^2=0.5$	
p value	>0.05	>0.05		>0.05	

Note: nonparametric Chi-squared tests read down for differences between towns, while significant differences along the continuum read across. Superscripts are only relevant within their rows; unlike superscripts reflect significant differences along the continuum

4.2.4 Phalaborwa

4.2.4.1 Male- and female-households experiencing shocks

There was a significant difference between male and female-headed households experiencing shocks in the urban areas of Phalaborwa ($\chi^2=5.3$, $df=1$, $p<0.05$). Shocks were experienced in 53.3 % of male-headed and 46.7 % in female-headed households in Phalaborwa (Figure 4.7). The percentage of male-headed households increased towards the rural areas from 53.3 % in the urban areas to 66.7 % in the rural areas. Female-headed households showed a decrease towards the rural areas, from 46.7 % in the urban areas to 33.3 % in the rural areas. These differences, however, were not significant.



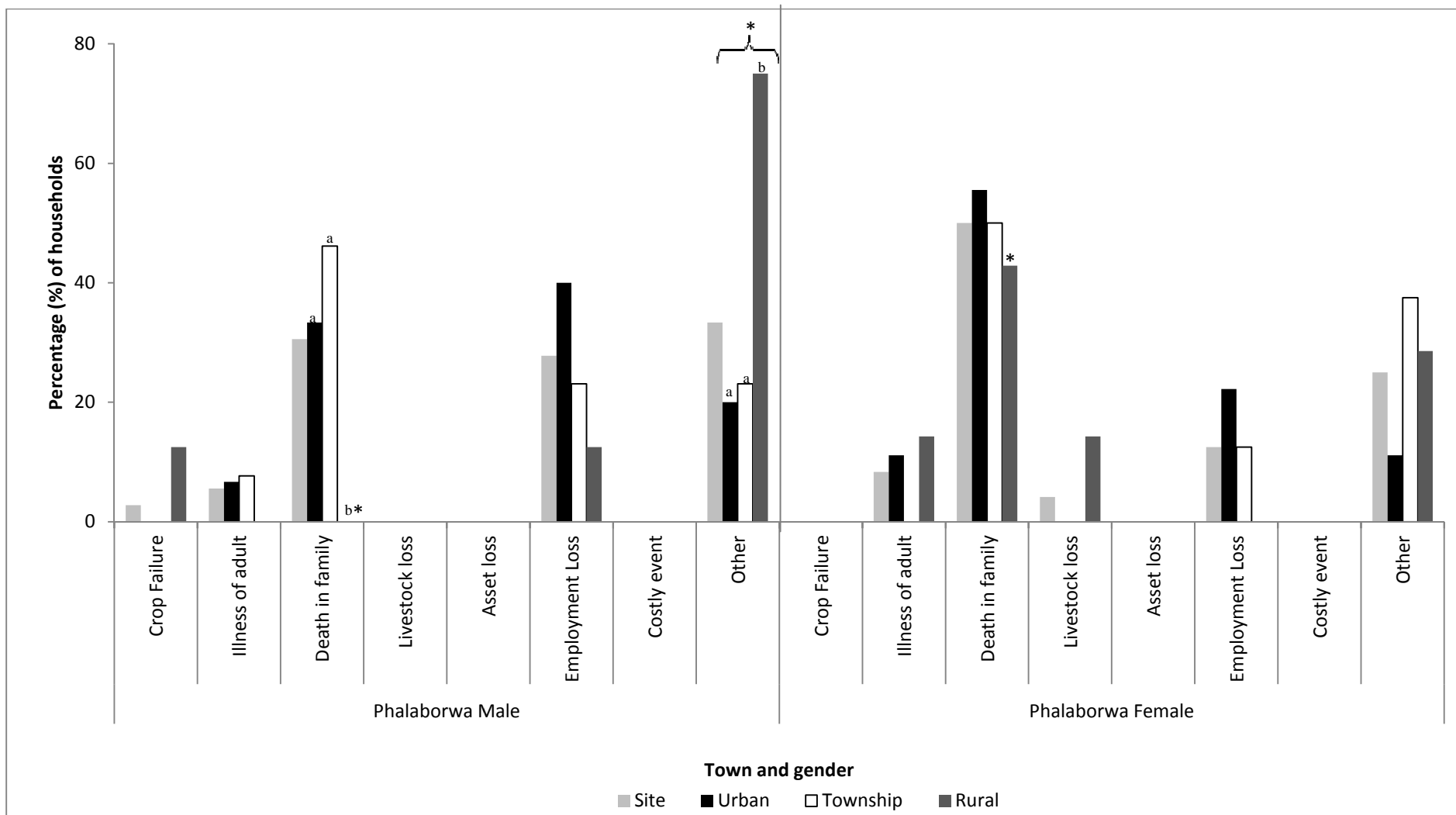
Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 4.7: Percentage (%) of male- and female-headed households experiencing shocks in Phalaborwa

4.2.4.2 Shocks experienced in male- and female-households

The most significant differences occurring between male- and female-headed households in Phalaborwa was with regards to death in the family (Figure 4.8). While death in the family was generally higher in female-headed households, male-headed households showed significant differences along the continuum. Significant differences were found between

urban and rural areas ($\chi^2=5.1$, $df=1$, $p<0.05$) and between the township and rural areas ($\chi^2=5.1$, $df=1$, $p<0.05$) of male-headed households. Thirty-three percent of male-headed households in the urban areas and 46.1 % of male-headed households in the township areas reported the shock of a death in the family. No male-headed households in the rural areas reported a death in the family. There was also a significant difference between male- and female-headed households in the rural areas of Phalaborwa ($\chi^2=3.8$, $df=1$, $p<0.05$). Forty-six percent of female-headed households in the rural areas reported a death compared to the 0.0 % in male-headed households. ‘Other’ shocks showed a significant difference along the continuum with regards to male-headed households, where 75.0 % of male-headed households experienced ‘other’ shocks ($\chi^2=8.0$, $df=1$, $p<0.05$).



Note: Unlike superscripts represent significant differences per site along the continuum while * represents significant differences between sites.

Figure 4.8: Shocks in male- and female-headed household in Phalaborwa

4.2.4.3 Coping strategies used in male- and female-households

In Phalaborwa, the main coping strategies used in male-headed households were borrowing from a money lender as well as cashing in retirement savings (Table 4.3). There was a significant difference along the continuum ($\chi^2=7.0$, $df=2$, $p<0.05$) and between the urban and rural areas ($\chi^2=7.3$, $df=1$, $p<0.05$) with regards to borrowing money from a money lender. In the urban areas, 3.7 % of households used this coping strategy, compared to the 36.4 % in the rural areas. When considering the cashing in of retirement savings, significant differences were found along the continuum ($\chi^2=6.8$, $df=2$, $p<0.05$) as well as between the urban and rural areas ($\chi^2=5.1$, $df=1$, $p<0.05$). The urban areas did not make use of cashing in retirement savings compared to the 18.2 % in the rural areas.

Borrowing from social groups and clubs showed significant a difference between male- and female-headed households in Phalaborwa. Significant differences were found between the mean ($\chi^2=5.4$, $df=1$, $p<0.05$) as well as between the rural areas of male- and female-households ($\chi^2=4.1$, $df=1$, $p<0.05$). Eleven percent of female-headed households borrowed from social clubs, whereas no male-headed households used this strategy in Phalaborwa. When looking at the rural areas specifically, significantly more female-headed households relied on the borrowing from social clubs as a survival strategy, 0.0 % in male-headed households and 33.3 % in female-headed households.

Female-headed households showed a significant difference with regards to borrowing from social groups or clubs between the township and rural areas ($\chi^2=4.5$, $df=1$, $p<0.05$). In the rural areas, significantly more female-headed households borrowed from a social group or club (33.3 %) than in the township areas (0.0 %).

Table 4.3: Coping strategies used by male- and female-headed households in Phalaborwa
(data reflect percentages of households using specific strategies) (cont. on next page)

Gender	Urban	Townships	Rural	Gender	Test statistic	p value
Use more wild products						
Male	0 ^a	0 ^a	9.1 ^a	2.1	$\chi^2 = 3.3$	>0.05
Female	0 ^a	8.3 ^a	0 ^a	3.7	$\chi^2 = 1.2$	>0.05
Test statistic		$\chi^2 = 0.5$	$\chi^2 = 0.5$	$\chi^2 = 0.1$		
p value		>0.05	>0.05	>0.05		
Sold wild products						
Male	0 ^a	0 ^a	9.1 ^a	2.1	$\chi^2 = 3.3$	>0.05
Female	0 ^a	0 ^a	0 ^a	0	$\chi^2 = 1.2$	>0.05
Test statistic			$\chi^2 = 0.5$	$\chi^2 = 0.5$		
p value			>0.05	>0.05		
Found casual employment						
Male	7.4 ^a	11.1 ^a	0 ^a	6.4	$\chi^2 = 1.0$	>0.05
Female	11.1 ^a	0 ^a	0 ^a	3.7	$\chi^2 = 2.0$	>0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 1.4$		$\chi^2 = 0.2$		
p value	>0.05	>0.05		>0.05		
Spent cash savings						
Male	11.1 ^a	0 ^a	9.1 ^a	8.5	$\chi^2 = 1.0$	>0.05
Female	0 ^a	16.7 ^a	0 ^a	7.4	$\chi^2 = 2.7$	>0.05
Test statistic	$\chi^2 = 1.0$	$\chi^2 = 1.6$	$\chi^2 = 0.5$	$\chi^2 = 0.1$		
p value	>0.05	>0.05	>0.05	>0.05		
Sold some household assets						
Male	3.7 ^a	0 ^a	0 ^a	2.1	$\chi^2 = 0.7$	>0.05
Female	11.1 ^a	0 ^a	0 ^a	3.7	$\chi^2 = 2.6$	>0.05
Test statistic	$\chi^2 = 0.7$			$\chi^2 = 0.1$		
p value	>0.05			>0.05		
Borrowed from family/relatives						
Male	22.2 ^a	33.3 ^a	9.1 ^a	21.3	$\chi^2 = 1.7$	>0.05
Female	0 ^a	16.7 ^a	16.7 ^a	11.1	$\chi^2 = 1.6$	>0.05
Test statistic	$\chi^2 = 2.4$	$\chi^2 = 0.7$	$\chi^2 = 0.2$	$\chi^2 = 1.2$		
p value	>0.05	>0.05	>0.05	>0.05		
Borrowed from friends/neighbours						
Male	11.1 ^a	0 ^a	9.1 ^a	8.5	$\chi^2 = 10$	>0.05
Female	11.1 ^a	8.3 ^a	0 ^a	7.4	$\chi^2 = 0.6$	>0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 0.8$	$\chi^2 = 0.5$	$\chi^2 = 0.1$		

p value	>0.05	>0.05	>0.05	>0.05	
Borrowed from social groups/clubs					
Male	0 ^a	0 ^a	0 ^a	0	
Female	11.1 ^{ab}	0 ^a	33.3 ^b	11.1	$\chi^2 = 3.2$ >0.05
Test statistic	$\chi^2 = 3.0$		$\chi^2 = 4.1$	$\chi^2 = 5.4$	
p value	>0.05		<0.05	<0.05	
Borrowed from money lender					
Male	3.7 ^a	22.2 ^{ab}	36.4 ^b	14.9	$\chi^2 = 7.0$ <0.05
Female	0 ^a	16.7 ^a	33.3 ^a	14.8	$\chi^2 = 3.2$ >0.05
Test statistic	$\chi^2 = 0.3$	$\chi^2 = 0.1$	$\chi^2 = 0.1$	$\chi^2 = 0.1$	
p value	>0.05	>0.05	>0.05	>0.05	
Cash in retirement savings					
Male	0 ^a	0 ^{ab}	18.2 ^b	4.3	$\chi^2 = 6.8$ <0.05
Female	0 ^a	0 ^a	0 ^a	0	
Test statistic			$\chi^2 = 1.2$	$\chi^2 = 1.1$	
p value			>0.05	>0.05	
Reduce expenses					
Male	18.5 ^a	22.2 ^a	0 ^a	14.9	$\chi^2 = 2.5$ >0.05
Female	22.2 ^a	33.3 ^a	16.7 ^a	25.9	$\chi^2 = 0.6$ >0.05
Test statistic	$\chi^2 = 0.1$	$\chi^2 = 0.3$	$\chi^2 = 1.9$	$\chi^2 = 1.3$	
p value	>0.05	>0.05	>0.05	>0.05	
Other					
Male	22.2 ^a	11.1 ^a	0 ^a	14.9	$\chi^2 = 3.1$ >0.05
Female	33.3 ^a	0 ^b	0 ^{ab}	11.1	$\chi^2 = 6.7$ <0.05
Test statistic	$\chi^2 = 0.4$	$\chi^2 = 1.4$		$\chi^2 = 0.1$	
p value	>0.05	>0.05		>0.05	

Note: nonparametric Chi-squared tests read down for differences between towns, while significant differences along the continuum read across. Superscripts are only relevant within their rows; unlike superscripts reflect significant differences along the continuum

4.3 Discussion

4.3.1 Coping strategy changes along the rural-urban continuum

4.3.1.1 Incidence of shock

Households, particularly those in the developing world, are subjected to a range of risks and shocks that impact the bio-physical, social and economic environments in which they live (Adger, 1999; Sallu *et al.* 2010). These shocks may threaten livelihoods and impact negatively on their welfare (Makoka, 2008). The incidence of shocks is defined as the proportion of households affected by various shocks which gives an indication of the hazardous environment in which the surveyed households reside. In this study, households experiencing shock generally increased towards the rural areas (although not significantly), in agreement with much literature about the inherent vulnerability of rural livelihoods in southern Africa (Twyman *et al.* 2004). Thirty-five percent of households in the urban areas of Queenstown, and 35.9 % of households in the urban areas of Phalaborwa reported experiencing at least one shock in the last two years. This percentage increased slightly in the township areas, with 42.5 % and 47.6 % of households experiencing at least one shock in Queenstown and Phalaborwa respectively. Households in the rural areas of Phalaborwa experienced the most shock, with 50.0 % of rural households experiencing at least one shock in the last two years. Whilst high, these results are lower than the incidence of shock in a two year period reported by Paumgarten and Shackleton (2011) where all households reported at least one shock, which was in close agreement to the 95.0 % of households reported by Weyer (2011) for several countries in southern Africa.

4.3.1.2 Type of shock

There are a range of risks, shocks and trends to which households are vulnerable and their response to different degrees and types of shock may vary (Paumgarten & Shackleton, 2011). Households and communities face the risks of suffering from a range of shocks such as economic and financial crisis, death in the family or natural disasters (del Ninno & Marini, 2005). The shocks that poor households experience is often different from those experienced by wealthier households (Makoka, 2008). Even though any household can be affected by shocks, not all households have the same probability of recovering from the consequences of such shocks as poor households often lack the physical and human capital to recover (del Ninno & Marini, 2005). While some households manage to overcome poverty, its general

nature within poor households is chronic (Paumgarten, 2005). Certain households are more vulnerable to shocks that threaten their livelihood or even their survival, and some households live in a constant state of impoverishment (del Ninno & Marini, 2005). Households who are poor are likely to remain poor, given that they have a lower level of human and physical capital and therefore have a diminished chance of recovering from shocks.

The main shock experienced along the continuum in Queenstown and Phalaborwa was death in the family. Queenstown, however, had on average significantly more death in the family than Phalaborwa households. In Queenstown, death in the family was highest in the township and rural areas, whilst in Phalaborwa, death in the family was highest in the township areas. It is assumed that many of these deaths are related to the high incidence of HIV/AIDS. In sub-Saharan Africa, as many as 23 million people are living with HIV/AIDS. Of the 23 million people infected, southern Africa is home to 11.3 million, and 5.6 million of those people live in South Africa alone (USAID, 2011). While it is obvious that the occurrence of death in households cannot be attributed only to HIV/AIDS, in many cases in the rural areas this was found to be the reality. A study conducted by the SA Institute of Race and Relations (SAIRR) shows that 31.0 % of all deaths in 2011 were AIDS-related, and by 2015 the proportion is expected to rise to 33.0 %. Alarmingly, in 2025, there will be 121.0 % more AIDS deaths than there were in 2000. It is widely documented that the great majority of the population in the country's most affected by HIV/AIDS live in rural areas, where the percentage of death is highest (United Nations, 2004). There is an increasing body of work describing the ravages of HIV/AIDS to household resilience, and the role of natural capital as an important asset for coping during such times, especially as other coping mechanisms are eroded (Hunter *et al.* 2007; Kaschula, 2008; Challe & Price, 2009). HIV/AIDS leads to the depletion of household assets, including the loss of labour, leaving vulnerable households impoverished (Niehof, 2004; Hunter *et al.* 2011). The situation is worsened by the fact that the majority of these households are so poor that they have almost no asset base at their disposal other than their own labour. Many of the households who hold few disposable assets (e.g. livestock, cars, bicycles) end up selling them to supplement their consumption in the face of these shocks and stresses (Makoka, 2008). Most studies suggest that AIDS drastically alters household organisation and challenges households' capacity to cope with the disease. These effects are partly due to the economic and emotional shocks to households as well as broader social networks (Schatz *et al.* 2011), and there is no doubt that these households face

enormous strain from costs related to illness, funerals and care for orphaned children (Campbell *et al.* 2008). Another impact of HIV/AIDS is on social relations, with networks of kinship and support becoming eroded (Niehof, 2004). In addition to this, higher death rates in the rural areas may be attributed to reduced access to health care. Distance and longer travel times to health facilities remain key barriers to accessing health care in rural areas (WHO, 2007).

The loss of employment was the second main shock experienced both in Queenstown and Phalaborwa. Loss of wage employment was significantly higher in the urban areas of both towns, decreasing towards the rural areas. It is not surprising that employment loss was significantly lower in the rural areas, as the number of households with employed members is less, therefore reducing the risk of suffering that particular shock. More households in the urban areas have an increased risk of employment loss with the higher rates of employment. The recent global financial crisis has had a major effect on the urban population through the direct effects of a worsening economy and job loss. According to Baker (2008), the slow growth due to the financial crisis is likely to result in the reduction of wages and employment, particularly in the urban areas. As a result of this, the urban poor are particularly vulnerable in times of crisis due to their heavy reliance on the cash economy (Baker, 2008).

Shocks resulting from “on-farm” activities were only found in the rural areas. This includes crop failure and livestock loss. These shocks were not very common, affecting roughly 7.0 % of the surveyed rural households. In itself this was interesting as there was a severe drought in the Eastern Cape province at the time of the field work for this project. Therefore, one would have expected drought to be high on the minds of those households that do engage in agriculture. In not being mentioned as a shock it perhaps can be read that not many households in and around Queenstown actually engage in agriculture to any meaningful extent, even in years of good rainfall. This would confirm the perceived decline in the importance of agriculture in local livelihoods in the Eastern Cape province as mentioned in Chapter 3. Crop production is a shock that is highly correlated with wealth. Wealthier households are less engaged in crop production than poor households, where crop production is common. This could explain why crop production was only reported in the rural areas, as poorer households show higher percentages of crop production (Makoka, 2008).

4.3.1.3 Crisis severity

Vulnerability is very dynamic, coupled with the range of scales and lengths at which shocks are felt, which can make assessing a household's vulnerability context difficult (Adger, 2006; Sallu *et al.* 2010). The complex nature of vulnerability, as well as the dynamic nature of different communities, means that households will experience a variety of types and degrees of vulnerability. Within these different communities, the severity of an impact or shock will therefore vary greatly. In this study, the severity of impacts that affected households was recorded. The severity of shocks experienced in urban households was less than that of township and rural households where shocks were felt more severely, particularly in Queenstown. This is probably a reflection of the lower income and asset base of the rural households (Chapter 3). The severity of shocks in the rural areas of Phalaborwa did increase, however not significantly so. All surveyed households experiencing shock in the rural households of both Queenstown and Phalaborwa experienced severe crisis from shocks. In Queenstown, this is significantly more than the 76.0 % of households that felt severe crisis from shocks in the urban areas.

According to the Sustainable Livelihoods Framework, "a livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is deemed sustainable when it can cope with and recover from stresses and shocks and maintain its capabilities and assets both now and in the future, while not undermining the natural resource base" (Serrat, 2008). A household's ability to cope, and recover, is influenced by a number of factors such as: wealth, social networks, composition of household members (i.e. age, gender) as well as a household's asset base. Household wealth assets are important to lessen financial burden of households during stress events or shocks (Shariff & Khor, 2008). Therefore, it can be said that households with savings and assets are more likely to cope with and recover from shock (Brandolini *et al.* 2010), lessening the burden on the household unit, whereas households without an asset base are likely to suffer severe repercussions from shock. As discussed in Chapter 3, urban households possess significantly more assets than both township and rural households and are therefore more likely to cope with and recover from shocks when compared to the poorer, more rural households who are likely to feel severe repercussions from shock.

4.3.1.4 Coping strategies

In a response to their vulnerability to shocks, households have developed a number of risk-management and coping strategies. A household's response to crisis may vary, depending on a number of factors (Schutte, 2005). If shocks occur collectively, a household's ability to cope may become more difficult, as households are having to deal with multiple shocks. The nature of shock, its intensity as well as household attributes and assets determine how a household will respond to shock (Schutte, 2005).

Household strategies can be differentiated into either individual or risk-sharing strategies, as well as risk-management or risk coping. Risk sharing strategies are common amongst people living in close knit communities, and includes relatives or family as well as non-relatives. Individual strategies are not determined by social capital (Dekker, 2004). Risk management strategies are individual strategies that households implement before a crisis to reduce the potential risk to household income. Lastly, risk coping refers to the strategies used after a shock has occurred in order to reduce the impact of a shock on the household (Dekker, 2004).

In this study, the most noticeable strategy found in Queenstown was the borrowing from family or relatives, which was also a widely adopted strategy in Phalaborwa. No significant differences along the continuum were found in either town which suggests that this coping strategy is not correlated with wealth and is used widely irrespective of wealth. This is contrary to the findings of Paumgarten and Shackleton (2011), who found several wealth related differences in coping strategies employed. There is growing evidence that as land and water resources become increasingly scarce, poor households are responding by adopting new livelihood coping mechanisms, including those based on expanding social capital (Kadigi *et al.* 2007). As a coping strategy, informal arrangements can develop between members of a group or village to support each other during times of hardship, this strategy can operate within extended families, ethnic groups or between neighbour groups (Dercon, 2000). Paumgarten and Shackleton (2011) reported that kinship was a coping strategy used by the greatest proportion of households (85.0 %) in two South African villages. Dekker (2004) and Hossain (2005) highlight the importance of kinship as a household coping strategy and found that the poor mostly maintain their relationships with relatives, friends and neighbours who live in the same community as them, as social networking plays an important role in coping in the majority of households. It is argued that households with a diverse range of good social networks are in a stronger position to confront poverty and vulnerability than

households with weak social ties (Kadigi *et al.* 2007). In addition to this, Rakodi (1995) and May (2000), emphasize the importance of kinship in times of crisis, stressing that widows are often very dependent on friends and family for food and support. Social networks between family and community members is an important component of household security and the maintenance of these ties is a crucial livelihood strategy that can be drawn on in times of need.

Reducing expenses was the next most prevalent coping strategy in both Queenstown and Phalaborwa. This strategy did not show any significant differences with regards to position on the continuum. In the urban areas, 17.2 % and 20.0 % of households reduced their expenses as a response to shock, 13.0 % and 27.2 % in the township areas and 17.6 % and 5.9 % in the rural areas of Queenstown and Phalaborwa respectively. Paumgarten and Shackleton (2011) also found that a reduction in household spending was the second most widely adopted strategy used by households, with 74.0 % of households reportedly using this strategy.

Other strategies that households used included the borrowing of money from social groups or clubs (i.e. stokvels), which was higher in Queenstown, as well as the borrowing of money from a money lender (loan sharks). In Phalaborwa, the use of this strategy increased significantly along the continuum towards the rural areas. The cashing in of retirement savings was only found in the rural areas. No one in the urban and township areas cashed in their retirement savings in response to shock, however, in the rural areas 17.6 % of Queenstown households and 11.8 % of Phalaborwa households used this strategy. This suggests that obtaining cash fast in the form of borrowing money is a strategy used predominantly by the poorer, more rural households. These are risk coping strategies and are used after the shock has occurred to reduce the impact (Dekker, 2004). In many cases, households resort to the borrowing of money or the cashing in of retirement savings to obtain cash income fast. While borrowing money is useful as it provides immediate access to the necessary funds, the high interest on repayments may result in households going further into debt. Paumgarten (2007) reported that households regarded borrowing money from a money lender as a last minute resort, as interest rates are high and so it often becomes a struggle to pay back the loan. The borrowing of money therefore leads to increased debt and undermines the livelihoods of households in the long run. Morduch (1998) states that this form of informal insurance can carry heavy economic and social costs and can lead to a delay in economic growth and social mobility. These strategies are short term strategies, adopted out

of necessity and differ from long term strategies such as finding local casual employment which aim to invest in the future capacity to build livelihoods (Meikle *et al.* 2001).

Much work has examined the role of natural capital, in particular NTFPs, in assisting households to cope in times of adversity from sudden changes in the economic, social or bio-physical environment (Pattanayak & Sills, 2001; Shackleton & Shackleton, 2004b; Nkem *et al.* 2010; Paumgarten & Shackleton, 2011). These include the shocks and stresses discussed earlier. In this study, the use of natural resources as a coping strategy was very low as compared to much of the previous literature, including from South Africa (McGarry & Shackleton, 2009; Hunter *et al.* 2007; 2011; Paumgarten & Shackleton, 2011; Weyer, 2011). However, all previous work has been conducted exclusively in rural areas. The majority of households did not report using natural resources as a coping strategy to recover from stresses or shocks, except for 5.9 % of households living in the rural areas of Phalaborwa. This is surprising as certain coping strategies identified as being used by households are usually associated with an increase in the use of natural resource substitutes, such as reduced spending which was a widely used strategy in many households (Paumgarten & Shackleton, 2011). In addition to this, the majority of households reported using at least one resource, which means that the safety net option of these resources is available to them, however it is not often utilized.

On the other hand, Belcher *et al.* (2005) state that the contribution made by natural resources highlights the need to consider this livelihood strategy in terms of total contribution towards total livelihood portfolio rather than an independent strategy. If this is the case, there is a large amount of evidence supporting the use of natural resources as a livelihood strategy especially in the rural areas, as seen in Chapter 3. For example, 48.0 % of the total household income of rural households in Phalaborwa consisted of the benefits from natural resources (Chapter 3). This research therefore suggests that the use of natural resources is possibly a risk management strategy and not a risk coping strategy. In this study, the fact that natural resources were not highlighted as a major strategy used by poor households was because the focus of this study was on risk coping, and not on risk management, a strategy for which natural resources are extensively used.

Poor, rural households are used to the risks associated with everyday survival. According to Dekker (2004), households do not wait to see how adverse shocks will affect their livelihoods. On the contrary, they have developed various strategies to deal with these risks, strategies

that form part of their livelihood systems, so that when shocks occur the impact is mitigated to some degree. Households in Queenstown, and particularly in Phalaborwa, use a wide range of natural resources to support their livelihoods. As a result of this, a household may not report the use of these resources as a possible coping strategy, as the use of these resources is firmly embedded in their everyday lives, forming such a large component of their coping strategies.

4.3.2 Gendered coping strategy changes along the rural-urban continuum

4.3.2.1 Incidence of shocks

The perception is growing around the world that poverty is becoming increasingly feminized and that an increasing proportion of the world's poor is female (Moghadam, 2005). The incidence of female headship is believed to have increased worldwide and in developing countries a large percentage of these women are in the poorest sectors of society, with associated increased vulnerability and reduced livelihood security (Bongaarts, 2001; Niehof, 2004; Horrell & Krishnan, 2007). Moffitt and Rendall (1995) report that about half of all women will experience single motherhood at some point in their lifetimes. The fact that female-headship is steadily increasing in the developing world (Bongaarts, 2001) suggests that female-headed households are the poorest of the poor and in need of various forms of intervention (Momsen, 2002; Chant, 2003). Female-headed households are often associated with a higher dependence as well as a lower socio-economic status (Posel, 2001; Chant, 2007). Female headship results from a variety of causes such as widowhood, divorce, unwed mothers or illness or migration of male partners. In Zimbabwe female headship is common, with around 40.0 % of households living on the rural communal lands headed by women (Campbell *et al.* 2002). In Phalaborwa, the percentages of female-headed households increased significantly towards the rural areas where they were found to reach the 50.0 % mark. Female headship was found to be the greatest in the township areas of Queenstown, where 55.0 % of households were headed by females. Typically, men migrate to work in towns, mines or commercial farms while their wives farm the land. However, female headship is also becoming more frequent as the occurrence of HIV/AIDS increases (Horrell & Krishnan, 2007). Although female headship is connected to the historical patterns of patriarchy and apartheid which created the gendered, racial, and spatial segregation that is unique to South Africa, it is increasingly connected to macro-economic conditions and premature death brought on by HIV/AIDS (Gilbert *et al.* 2010).

When focusing only on the male- and female-headed households experiencing shocks, the percentage of female-headed households experiencing shock was lowest in the urban areas increasing gradually towards the more rural areas of Queenstown. In Phalaborwa, male headed-households experiencing shock were significantly larger than female-headed households in the urban areas, where female-headship showed a decrease towards the rural areas. Understanding the pattern of shock and stress in male- and female-headed households requires an understanding of the type of shock that households experienced.

4.3.2.2 Type of shocks

The type of shocks that occurred may give some indication as to why male-headed households in this study were found to experience more shocks on average than female-headed households. The most significant difference was with the loss of employment. Employment loss was considerably higher in male-headed households than in female-headed households, particularly in the urban areas. No female-headed households reported the loss of employment as a shock, compared to the 44.4 % of male-headed households. Employment loss in Phalaborwa was higher across the continuum in male-headed households when compared to female-headed households, however not significantly so.

Gender is probably one of the most prominent individual attributes along which differentiation takes place. Men and women have different assets, access to resources and opportunities (Ellis, 1999; Dolan, 2004). Men and women may be exposed to different risks, both in terms of the type and extent (van de Walle, 2011). Women's traditional roles are as the primary users and managers of natural resources, primary caregivers, and labourers engaged in household labour (Dolan, 2004; Gaye, 2009). Women have less access to the employment market than men, and in developing countries, discrimination with regards to employment is common (Ellis, 1999; Klasen *et al.* 2011). This is often, although not always, the result of cultural factors such as norms and traditions, and not necessarily by gender discrimination itself. The role of men and women in livelihood systems are regarded as different and consequently men and women have different options and responsibilities in the processes of livelihood generation, for example, women's work is frequently confined to the home, where domestic work is carried out (Niehof, 2004). However, though this is true for many households, women also play both the traditional role and the role of the male in securing cash income, or as Niehof (2004), Holmes and Jones (2011) and Klasen *et al.* (2011), refers the "double day burden". Women have to handle domestic work and the role of main

earner simultaneously, which leads to time and mobility constraints which impacts negatively on household income (Klasen *et al.* 2011). Therefore, female-headed households are open to a greater range of shocks when compared to male-headed households. Women are typically employed in lower paid, less secure, informal occupations. As a result of their different roles in the livelihood system, men and women suffer from different shocks that threaten their livelihoods. As employment is an activity mostly carried out by men, it is not surprising that a higher percentage of employment loss would therefore be found in male-headed households as opposed to female-headed households, where the risk of employment loss is decreased. In addition to this, as shown in Chapter 3, employment levels are higher in the urban areas for a number of reasons. It is therefore understandable that the shock of employment loss would be highest in these areas.

The most significant difference between shocks experienced in male and female-headed households in Phalaborwa was with death in the family. Significantly more death occurred in female-headed households in the rural areas in the last two years when compared to male-headed households. Death in the family was also extremely high in Queenstown, particularly in rural areas, however no significant gender differences were found. Gender discrimination in the allocation of resources, including those related to nutrition and medicines, may also put women and girls at greater risk than men. Barriers to accessing health care services are encountered by many women due to a lack of assets to pay for healthcare, as well as cultural restrictions on their mobility which inevitably may prohibit them from travelling to seek healthcare, particularly in the rural areas (Gaye, 2009). These barriers to accessing health care make female-headed households extremely vulnerable. With respect to gender, women and female-headed households are generally considered a more vulnerable sector of society. According to Klasen *et al.* (2011) female-headed households have higher levels of poverty and are typically disadvantaged with regards to the access to land, labour, credit and insurance markets. For these reasons, the majority of female-headed households are left at a disadvantage, with no means of acquiring the medical attention they need. HIV/AIDS is another large problem. When a male head dies of an AIDS-related illness, his wife or mother may become the head. In this role, women heads are likely to take on much of the financial and physical responsibilities of care giving and sustaining households after an AIDS-death has occurred (Schatz *et al.* 2011).

4.3.2.3 Coping strategies

The predominant strategy in male-headed households in Queenstown was the borrowing of money from family and relatives, which was a strategy widely adopted along the continuum. This again highlights the importance of kinship as a coping strategy for poor households. By maintaining close ties with extended family to make up for their lack of human and physical capital, poor households have the potential to mitigate the impacts of shocks and stresses (Richards & Roberts, 1998). In Phalaborwa, the predominant male-headed strategies were borrowing from a money lender, which increased towards the rural areas, as well as the strategy of cashing in retirement savings (a strategy not found in any female-headed households for that town). These strategies, highlighted earlier, are a way of accessing money fast, which can in some cases worsen a household's circumstances as this leads them further into debt (Morduch, 1998).

Female-headed strategies included the borrowing from family and relatives, the borrowing from social clubs or groups, the spending of cash savings as well as the cashing in of retirement savings. All of the above strategies, as well as those employed by male-headed households, are risk coping strategies and involve the use of strategies once a shock has occurred. Other strategies not used by households, such as finding casual employment and using and selling more wild resources, when incorporated into the livelihoods of the poor can aid in reducing their impact to shock as well as improving their standards of living, while not undermining their livelihoods in the future. These activities could be used before a crisis occurs in order to buffer the impact of the shock (Dekker, 2004).

The main difference that was found between male- and female-headed households was the borrowing of money from social groups or clubs. Significantly more female-headed households used this strategy than male-headed households. This highlights the importance of social capital in female-headed households. This is a nonmaterial asset that accumulates networked benefits of reciprocity among individuals, households and within communities (Rakodi, 1995; Oberhauser & Yeboah, 2011). For example, women frequently form small neighbourhood groups and engage in "rotating credit associations" in which each participant regularly pays a small amount of money into a collective savings. Every week, one partner is paid out and uses the money in some way to generate more money. They are then able to keep the profits and cash is therefore available (Kruger, 2006). Female associations are usually informal, based on shared relationships and are more dependent on social relations for

access to economic and household resources (Oberhauser & Yeboah, 2011). These social groups provide an important insurance network, especially for marginalised populations with limited access to credit. In addition to this, the financial contribution made to these groups plays an important role in establishing and strengthening social ties, kinship and reciprocity and extends well beyond the financial (Lukhele, 1990). In contrast, males do not rely as much on their peers for protection and their social networks are often centred on job information, resource acquisition and financial support from permanent clients (Oberhauser & Yeboah, 2011).

Chapter 5

Conclusion

This thesis presents and discusses the findings from a comprehensive and comparative survey of livelihoods along the rural-urban continuum of two small towns in South Africa. As such it offers insights into the effects of urbanisation on the use and dependency of natural resources in daily lives (Chapter 3) and in times of difficulty or crises (Chapter 4). It builds on the limited work in South Africa and internationally on urbanisation patterns and changes around small-sized towns in the context of much urban literature dealing with large cities or megacities. Additionally, it covers the oft neglected dimension within urban studies of the relative importance of natural resource use. The relative interpretation is important and the Sustainable Livelihoods Framework was a useful construct in bringing the different aspects together, and guiding interpretation of the livelihood activities and the vulnerability context. A further focus on gendered differences is implicit in previous work on sustainable livelihoods, but rarely quantified in the manner presented in this thesis, especially in relation to all cash and non-cash income streams to create a comprehensive picture of local livelihoods along the rural-urban continuum. Having two study towns deepened the analysis by revealing significant differences between the two locations which required interpretation and explanation. The findings in each results chapter have been discussed in detail. This chapter serves to integrate the findings across the two chapters and highlight the main issues in the context of international understanding on urbanisation and livelihoods.

5.1 How do livelihoods change along the rural-urban continuum?

In this study, urban households were found to be wealthier in terms of their asset base as well as their annual household income, and therefore found to be less reliant on land-based activities such as natural resource use, agriculture and livestock production (Shackleton *et al.* 2001). A number of household wealth indicators were identified, such as the number of household assets, number of rooms per person, monthly expenditure, frequency of meat consumption as well as the frequency of households going to bed hungry. The results were reasonably consistent across the different measures, and showed that most urban households had a better asset base and disposable income, as expressed in more meals per day, greater consumption of meat, a lower prevalence of hunger, larger dwellings and higher use of electricity when compared to township and rural households.

In terms of total household income, urban households received between three and eight times more total income than township and rural residents, indicating significantly more wealth. This is not surprising as employment, the largest income contributor to most urban and many rural livelihoods (May, 2000), was extremely low in the township and rural areas. Rural and township households were found to be significantly poorer, having a smaller asset base and a higher reliance on land-based activities due to the low income from employment activities (Shackleton *et al.* 2001). According to May (2000) approximately half of the South Africa population can be characterised as poor and the majority of these people live in the rural areas. As a livelihood strategy, households endeavour to accumulate and maintain a diversity of assets which includes productive assets such as agriculture and livestock. These assets, together with land, are all commodities that households may chose to liquidate to meet financial needs or to allow for investment options in other livelihood strategies (Paumgarten, 2007). Agriculture is often viewed as a major source of livelihoods for poor, rural households. Farming activities are particularly important in developing countries, where farming is the main livelihood for the large majority of rural households. Studies in the rest of Africa show that as much as 71.0 % of Nigeria and 54.0 % of Ghana and Madagascar rural communities engage in farming as their main livelihood activity (World Bank, 2007a). The percentages from this study are comparable to the rest of Africa given that crop agriculture was an activity carried out by the majority of rural residents - 50.0 % and 63.3% in Queenstown and Phalaborwa respectively. However, the relative contribution of arable and livestock farming combined to a household's total income was only about one-fifth for the rural households near Queenstown and Phalaborwa. Thus, the economic returns of agriculture, despite being rural areas, make it only the third or fourth most important income stream in the rural areas.

As to be expected, activities in crop agriculture showed a decrease towards the urban areas, supporting Ellis' (2000) observation that the reliance on agricultural production declines as income levels rise. The study did however show that agriculture and livestock are not solely the domain of rural livelihoods, with a measurable proportion of urban and township households engaging in one or both of these activities. Urban agriculture is common in South Africa (Slater, 2001; Rogerson, 2003; Thorton, 2008; Shackleton *et al.* 2010; Webb, 2011) and needs special recognition and support in governance processes. It provides food in times of hardship and helps ease poverty conditions, therefore improving the livelihoods of urban residents. Urban agriculture should therefore not be excluded as a mechanism for achieving

urban food security and the alleviation of urban poverty (Egal *et al.* 2001). For this to occur, urban agriculture has to be made an integral part of urban land use and planning.

Another much discussed aspect of the livelihoods of the poor is their ability to diversify their livelihoods and particularly their income strategies (Ellis, 1998; Cousins, 1999; Sallu *et al.* 2010). In Malawi, 32.0 % of rural households have two sources of income, 42.0 % have three or more and in China, 65.0 % of rural households operate in both the farm and nonfarm sectors (World Bank, 2007a). The diversification of livelihood strategies is important in order to secure livelihood outcomes, endure adverse times and avoid being dependent on a limited number of strategies or incomes (Shackleton *et al.* 2001; Niehof, 2004). Livelihood diversification has been identified as a strategy for maximising incomes from a variety of sources and opportunities. This has also been seen as a coping strategy, where households aim to reduce and cope with vulnerability by spreading the risk between a number of activities (Paumgarten, 2007; Sallu *et al.* 2010). Households with a greater diversity and a broader asset base are in a better position to cope during times of hardship (Oumer & de Neergaard, 2011). Diversification was found to be associated with improved well-being and consumption, while the diversity of incomes and assets is associated with improved livelihood security (Block & Webb, 2001). There is a range of “off-farm” (waged employment, remittances, government grants) as well as land-based activities such as crop agriculture, livestock, and natural resource use in which households may engage. For the range of these activities, household livelihood portfolios in the urban areas were found to be significantly less diversified than both township and rural households. According to Campbell *et al.* (2002) and Scoones (1998), the bulk of rural households have a diverse portfolio of activities, a result evident in this study. While urban households were dependent mainly on the income from employment, township and rural households showed an increased engagement in other livelihood activities such as grants, remittances, agriculture and natural resource use. By engaging in diversified activities, individuals within the household may be thought of as trying different options that they hope will generate an adequate and sustainable livelihood (May, 2000). According to May (2000), in South Africa involvement in the primary labour market brings the highest returns to rural households, which is contradictory to much of rural sub-Saharan Africa where the largest incomes accrue from land-based activities. The results from Queenstown supported the assertion of May (2000), but those from rural areas of Phalaborwa did not, which highlights the need for context specific information and the danger of generalisation. As township and rural households are

significantly poorer, with a smaller asset base along with significantly lower annual income, social grants constitute a larger proportion of their household income than is the case for urban households. Davenport *et al.* (2012) found that in a study conducted in three small towns in the Eastern Cape province, more households relied on social grants than employment and that dependence on social grants was relatively high across the three towns, ranging from 77.0 % to 87.0 %. In many rural communities of South Africa, there is a high reliance on social grants, which in many cases is the household's primary form of cash income (Paumgarten, 2007; Greenberg, 2008). In this study, annual income from government grants increased along the continuum towards the rural areas and formed, in many cases, the second largest income contributor. In addition to this, a significant percentage of households were found to be reliant on this income. As much as 40.0 % of households in the township and rural areas rely solely on the cash income from government grants and pensions. With such a high dependence on state welfare grants, coupled with the high rate of unemployment, many households without the cash income from these social grants would be destitute. Despite the majority of households depending on income from employment, unemployment, particularly in the township and rural areas, was high and it is therefore not surprising to see such a high dependence on social grants in these areas, a trend which has also been noted by other commentators (Chalmers & Fabricius, 2007; Hebinck & Lent, 2007; Thornton, 2008; Davenport *et al.* 2012).

5.2 Is the importance of natural resources in livelihoods context specific?

From the research findings, it is clear that natural resources form an integral part of the livelihoods of households along the rural-urban continuum, particularly in the poorer areas, as widely noted by previous researchers (Paumgarten, 2005; Stoian, 2005; Shackleton & Shackleton, 2006; Shackleton *et al.* 2007b; Davenport *et al.* 2011). The high proportion of households involved in land-based strategies, such as the use of natural resources, highlights the important contribution these strategies make to rural livelihoods. Natural lands are often considered to be unproductive systems in that they are wasteful, destructive and economically unproductive (Shackleton & Shackleton, 2006). However, over the last decade, research as well as direct observation elucidated the value of natural resources to rural livelihoods and the value of these products has been found to be considerable (Paumgarten, 2005; Shackleton *et al.* 2007a). This study highlights the importance of these systems, particularly for poor households, where the collection of certain types of resources are context specific and therefore highly productive in rural livelihood systems. Key resources, such as firewood and

wild fruits, were widely used by all households along the continuum, and although the percentage of households using these resources was highest in the rural areas, a measurable percentage of urban households also made use of these resources. According to Dovie *et al.* (2002), a study conducted in the Thorndale Village in Bushbuckridge, Limpopo Province, found the demand for some resources to be high, with firewood, edible herbs and twig brushes used by over 90.0 % of rural households. Shackleton and Shackleton (2004b) also identified a number of commonly used resources such as wild spinaches, firewood, wooden utensils, hand brushes, wild spinaches (wild vegetables) and edible fruits which were used by 85.0 % of households. In their study, more than half the households also made use of edible insects, wild honey, bushmeat as well as wood for construction. Davenport *et al.* (2011) also highlighted the importance of these key resources from a study conducted in three small towns in the Eastern Cape province, noting that firewood was the most widely used resource followed by wild fruit, wild herbs, fencing poles and medicinal plants. They also noted that the same resources were used by all households, with higher dependencies for rural households. These resources were also highlighted as being important resources used by a large percentage of households in this study, with firewood being used the most. Therefore, key resources such as the ones mentioned above, are used more extensively than specialised resources in the urban areas. Use patterns for specialised resources were shown to be highly context specific, in that a very small percentage (between one and two percent) of urban households used specialised resources such as wild meat, weaving products, wild vegetables and wild fish. In saying this however, results did indicate that, for the majority of resources, their collection and use is highly context specific, both between and within towns.

When examining the percentage of households using natural resources, the number of resources collected, as well as the average percent contribution that natural resources make to household income, all results point to the extensive use and collection by rural households as well as the much greater contribution these resources make to local livelihoods. Previous work in southern Africa and other continents has intimated that poorer households in rural communities make a greater use of, and are more reliant upon, natural resources than wealthier households. In demonstrating and quantifying the role of natural resources, there has been much effort to determine the monetary value of the resources used, as well as their contribution to total livelihood income (Shackleton & Shackleton, 2006). There have been many valuation studies on woodland resources conducted in southern Africa (e.g. Campbell *et al.* 1997, 2002; Shackleton *et al.* 2002a; Shackleton *et al.* 2007a). However, besides studies

in Zimbabwe by Cavendish (2000) and Campbell (2002), and studies in South Africa by Dovie *et al.* (2002) and Crookes (2003), hardly any explored the value of natural resources in a total livelihood context in relation to other livelihood incomes, and hence could not ascertain their relative importance. When examining the average percent contribution from natural resources, it was found that rural households use a significantly larger number and amount of resources, constituting a greater percentage of their annual household income than with their urban counterparts. Natural resources in the rural areas of Phalaborwa constituted 48.0 % of annual household income. Of the few studies conducted in southern Africa, natural resources have been shown to contribute between 15.0 % and 28.0 % of total livelihoods (Dovie *et al.* 2002; Shackleton *et al.* 2007b), a percentage much lower than the contribution found in Phalaborwa, indicating that in places natural resources contribute significantly more to local livelihoods than previously thought. However, a study conducted by Narendran *et al.* (2001) in the Nilgiri Biosphere Reserve in southern India report contributions of natural resources to total income above 50.0 %, which is more comparable to the results found in Phalaborwa. Similarly, a study by Cavendish (2000) in a communal area in Zimbabwe found that natural resources contributed on average 40.0 % of the total household income for poor households. Another interesting point to note here is that this percentage far outweighs the contribution from employment (20.1 %), undermining Mays' (2000) conclusion that even in rural areas of South Africa wage employment was the main income contributor to livelihoods.

Other pertinent findings were between the two towns as a whole. Phalaborwa households used a significantly larger percentage of natural resources when compared to households living in Queenstown. This once again highlights the context specific nature of natural resource use as the extent and quality of resources available in the Limpopo Province far outweigh that found in the Eastern Cape province. Shackleton and Shackleton (2004b) identified that communities in the savannas of the northern provinces of South Africa regularly use up to 200-300 plant species and that fewer resources appear to be exploited in the Eastern Cape province, patterns which are highlighted in this study. This could be as a result of the lower species diversity, especially in terms of woody plants for timber, firewood and wild fruits. Therefore, natural resources will make a greater contribution to Phalaborwa households than Queenstown households as fewer resources appear to be used in the south-eastern regions, possibly as a result in changes in biodiversity in the landscape (King, 2011).

The fact that poorer households typically have less income or value from other sources (i.e. jobs and pensions) indicates that natural resources are proportionately more important to poor

households than wealthy ones (Cavendish, 2000; Shackleton *et al.* 2008), with poor households being more reliant on the local economy than wealthy households (Shackleton & Shackleton, 2006). This same pattern was also seen in female-headed households, where income from employment was lower than male-headed households as a result of cultural traditions, where lower levels of education, lower paid labour, and a higher reliance on natural resources was found.

Such use of natural resources also represents a direct cost saving to households (Shackleton *et al.* 2002a; Shackleton & Shackleton, 2004a). This cost saving ability is important, particularly in the rural areas, as unemployment is rife and cash income is low, with rural households making greater opportunity of this free resource (Campbell *et al.* 2002; Shackleton & Shackleton, 2006). The contributions from natural resources are significant to local livelihoods, and this is a scenario found throughout South Africa (Shackleton *et al.* 2007b).

Natural lands play an important role in poverty alleviation as they provide a vital safety net function for poor households, are 'free' and in most cases easily obtainable while providing a range of products for both consumption and income smoothing. However, their potential to alleviate poverty appears to fall short of meeting these objectives (Sunderlin *et al.* 2004). On the other hand, it has been noted by Angelsen and Wunder (2003), that while forests do have some role to play in poverty alleviation, it is relatively small, and forest dependent people will continue to be marginalised and experience a low standard of living. Nonetheless, local people need to be the main stakeholders, where natural lands continue to be central to livelihoods, and where meeting their needs on a sustainable level should be the main objective of land management. A large amount of conflict arises over access to natural resources. Therefore, interventions are needed to defend the interests of those people who are marginalised and helpless. Efforts must recognise the current role of natural lands in mitigating and helping to alleviate poverty (Sunderlin *et al.* 2004).

However, the extensive use of natural resources could cause households to be caught in a poverty trap, denying them the skills required in a modern economy (Delacote, 2009). But in situations of low formal employment opportunities, drylands with limited agricultural potential and high human population densities, which prevail in many parts of South Africa, this argument loses relevance as natural resources represent savings, opportunities and safety-nets rather than poverty traps (Shackleton *et al.* 2007b). While the use of natural resources

should not be considered the sole solution to impoverished households, it should be considered as one of many options. Another issue with the extensive use of natural resources is the depletion of these resources. The sustainability of these resources is of great concern, and must be managed and maintained so as not to decrease the standard of living of its users along the rural-urban continuum. Better management plans therefore need to be put in place, because without the contribution of natural resources, some of the poorer households could be left destitute (Shackleton & Shackleton, 2006).

An appreciation of those households most dependent on the goods and services offered by natural resources, and therefore most affected by the changes in availability and accessibility, allows for more effective targeting of interventions at a development and policy level. In addition to this, given that natural resources contribute a significant proportion to household livelihood portfolios, access to and maintenance of this resource must not be undermined unless alternatives are provided (Cavendish, 2000). The rural safety-net role should be communicated to policy developers as well as land-use planners to ensure the sustainable use of natural resources.

5.3 Does gender of the household head matter when considering household livelihood portfolios?

Findings from this study suggest that the gender of the household head does indeed matter. Several pertinent observations were made with regards to the differences between male- and female-headed households and their struggle towards positive livelihood outcomes. In exploring the livelihood portfolio along gender lines, some interesting observations were made. According to May (2000), the poor in South Africa are largely African, rural and women. There are a number of reasons why this statement is of relevance. Firstly, and this is of no surprise, male-headed households typically have higher incomes than female-headed households. Results from this study showed that male-headed households had between two and three times more income from employment than female-headed households. Similar findings were reported in a study by Hao (1996), who found that male-headed households had about three times the average wealth at their disposal than female-headed households. This may be as a result of a number of reasons, such as the higher education status of men relative to women, disparities in wage levels between males and females as well as discrimination towards employment, as women's work is frequently confined to the home where household chores are carried out (Ellis, 1999; Niehof, 2004; Klasen *et al.* 2011). Dollar

and Gatti (1999) state that in the poorest countries in 1990, only 5.0 % of women had any secondary education, half of the level of men, indicating that men are receiving more education than women. In Cote d'Ivoire, as in many African countries, social norms have a strong influence on household strategies. These norms dictate that the childrearing, cooking and household chores are the responsibilities of women, limiting their potential to take advantage of other opportunities (World Bank, 2007a). That being said, in many cases women also have to deal with the double burden of being the sole provider in terms of income from employment as well as care for the children. This burden severely constrains the amount of time available to women meaning that they generally work in lower paid, less secure and informal occupations (Niehof, 2004; World Bank, 2009; Holmes & Jones, 2011). To some extent therefore, gender determines the degree to which households engage in the labour market. As a result of this, female-headed households are more reliant on social grants to sustain their livelihoods. Social grants at both sites were shown to contribute double the income in female-headed households than male-headed households. These grants are very important for female-headed households for a number of reasons. As Schatz *et al.* (2011) stated, social grants provide important stable sources of income that open up other opportunities such as credit, respect as well as reciprocal dependence.

Another significant observation was with regards to diversification. With a significantly smaller proportion of their livelihood income coming from employment, female-headed households rely on a more diverse range of activities to survive. In addition to this, female-headed households have fewer people engaging in remuneration activities and are more strained in the number of income earning activities in which they can engage (Horrell & Krishnan, 2007). Diversification, as noted in previous discussions, is a widely used strategy by poor and marginalised households. However, very few studies considering all income streams have disaggregated their results by gender and therefore comparative literature on this topic is limited. Nonetheless, results from this study indicate a wider diversity of activities carried out by female-headed households, specifically land-based activities such as agriculture and wild resource collection but also including grants and remittances.

The income from remittances showed large differences between male- and female-headed households. Income from remittances in female-headed households in Queenstown is nearly three times as much as that received in male-headed households in Queenstown and more than four times the amount received in male-headed households in Phalaborwa. Income in the form of remittances is a vital strategy for female-headed households (Clarke & Wallsten,

2003). The reasons for the high income from remittances in female-headed households can be attributed to migration as well as the strong social networks that female-headed households maintain in times of need. These networks extend beyond the boundary of the community, with extended family sending money or food to the households on a weekly or monthly basis. Migration is another factor. Apartheid policies included forcible relocation of African populations into rural areas and imposed severe restrictions on mobility (Coovadia *et al.* 2009). While men were recruited to work in the urban areas, their families were not allowed to join them, creating large streams of male migrant labour from rural areas leaving women as heads of rural households. In the rural areas of South Africa, migration in search of different employment opportunities is common, with the male leaving home in search of better job security (Hebinck & Lent, 2007). This has also been noted as a significant livelihood strategy according to Young (2006), and is used by households when other strategies are under threat.

Gender differences can also be found with regards to the collection of natural resources. Female-headed households, like poor rural communities, engage in the extensive collection and use of natural resources, which often contributes significantly more to household income than is the case for households headed by men (Clarke *et al.* 1996). In a study conducted by Dovie *et al.* (2002) in Thorndale village in Bushbuckridge, Limpopo Province, females were the primary harvesters of wild resources in 73.0 % of households compared to the 27.0 % of men, indicating that natural resources are likely to contribute significantly more to female-headed households than male-headed households. According to Cavendish (2000), the income from natural resources has been strongly linked to gender. Women are largely responsible for the household and the activities associated with it, such as the use and collection of natural resources. These resources represent a direct cost saving to the household (Shackleton *et al.* 2002a; Shackleton & Shackleton, 2004a), which is a vital safety net in households that lack income in the form of cash from other “off-farm” activities. In this study, income from natural resources was between two and three times more in female-headed households and represented a much larger percentage of their annual household income than male-headed ones. This is particularly evident in Phalaborwa, where natural resources constituted over 50.0 % of female-headed households’ annual income.

Female-headed households suffer the same general problems as the poor, and poverty alleviation policies should benefit female-headed households as much as male headed ones (Horrell & Krishnan, 2007). More gender-based policies and programmes in livelihood

development are essential to enhance female-headed households' capabilities and skills and therefore their incomes and livelihood strategies (Oberhauser & Yeboah, 2011). Ignoring gender inequalities comes at great cost to people's well-being and countries' ability to grow sustainability and therefore reduce poverty (World Bank, 2009). This may result in projects that negatively affect both women and children.

5.4 Are the shocks and coping strategies along the rural-urban continuum context specific?

Households, particularly those in the developing world, are subjected to a range of risks and shocks that impact the bio-physical, social and economic environments in which they live (Adger, 1999; Sallu *et al.* 2010). As has been identified in previous discussions, rural households have been shown to be poorer than urban households, with a smaller asset base and significantly less annual income. Was this evident in their experiences of and responses to shocks? The findings pointed to a general increase in the incidence of shock towards the poorer, rural areas, indicating that the incidence of shock may be more common in poor households which lack the necessary resources to cope. However, another explanation could be that certain stresses identified as shock in the rural areas might not be identified as a shock in the urban areas, decreasing the urban households' incidence of shock. For example, rural households may report theft or asset loss as a shock that affected the household negatively whereas theft or asset loss may not affect wealthy households as they possess the wealth to deal with the problem more effectively and therefore not let it affect them.

When looking at the type of shocks experienced, results indicated that certain shocks may be context specific. For example, the main shock experienced in the urban areas of both Queenstown and Phalaborwa was the loss of employment. According to Baker (2008), urban households are particularly vulnerable in times of crisis due to their heavy reliance on the cash economy. The loss of employment may be concentrated in the urban areas as the employment rate is much higher. In addition to this, significantly more members in each household in the urban areas are employed, representing a significantly greater chance of employment loss when compared to the rural areas where the rate of employment is less and the number of employed members per household is lower. This could be attributed to the extremely low levels of education found in the rural areas (Chris Hani District Municipality IDP, 2009/2010). The reasons for the extremely low levels of education include a lack of finances for school fees, limited school facilities, lack of adequately trained educators, lack of

educational equipment as well as the legacy of apartheid. Another example in which the shocks experienced may be context specific is with death in the family, a shock experienced significantly more in the township and rural areas of Queenstown and Phalaborwa. It is assumed that the majority of these deaths are AIDS related. AIDS takes a heavy toll on rural populations in Africa, with the mortality among young adults rising sharply (World Bank, 2007a). While it is obvious that the occurrence of death in households can not only be attributed to HIV/AIDS, in many cases in the rural areas this was found to be the reality. It is widely documented that the great majority of the population in the country's most affected by HIV/AIDS live in rural areas, where the percentage of death is highest (United Nations, 2004).

A household's ability to cope is influenced by a number of factors, such as wealth, social networks and the household's asset base, which may lessen the financial burden of stress events. There are different types of households, with different livelihood strategies and different patterns of resource use (Campbell *et al.* 2002). While both urban and rural households experience shock in everyday life, households with savings and assets are more likely to cope and recover (Brandolini *et al.* 2010), while households with a weak or depleted asset base are likely to suffer effects of shocks more severely (Shariff & Khor, 2008). That being said, urban households have been shown to be wealthier than township and rural households. With five times more annual income than rural households, their ability to cope from shock is largely increased, while rural households are more than likely to suffer longer lasting repercussions from shock. One would therefore expect largely different coping strategies from urban, township and rural residents as their income portfolios are different, as found by Paumgarten and Shackleton (2011) in which several wealth related differences in coping strategies employed.

Borrowing from family and relatives was a widely used strategy along the rural-urban continuum, which suggests that this strategy is not correlated with wealth. To have this strategy available, households need to maintain the links between family members. Paumgarten and Shackleton (2011) reported that kinship was also a coping strategy used by the greatest proportion of households (85.0 %) in two South African villages.

Coping strategies associated with acquiring cash fast were the main strategies used particularly in rural environments. These included the borrowing of money from social groups or clubs as well as the cashing in of retirement savings. These coping strategies are

therefore shown to be context specific in that a larger majority of poor, rural households are relying on them. While this strategy is useful for poor households as it provides households the necessary funds, the high interest on repayments may result in households going further into debt (Paumgarten & Shackleton, 2011). The significance of this strategy, which displays context specific characteristics, is interesting as what is perceived to be helping households is only driving them further into destitution and driving the vicious cycle of poverty.

The role of natural resources as a vital safety net for poor households (Pattanayak & Sills, 2001; Shackleton & Shackleton, 2004; Nkem *et al.* 2010; Paumgarten & Shackleton, 2011; Weyer, 2011) did not appear to be a coping strategy used by households in this study. However, since the use of natural resources by poor households is so extensive, they may not be identifying this as an active strategy since it is so embedded in their everyday lives. Supporting this is a statement made by Belcher *et al.* (2005) in which they identify the need to consider the contribution made by natural resources in terms of total contribution towards livelihood portfolio rather than an independent strategy. If this is the case, there is a large amount of evidence supporting the use of natural resources as a livelihood strategy, especially in the rural areas. This also suggests that the use of natural resources is a risk management strategy and not a coping strategy, which formed the emphasis of this study.

Understanding households' own strategies for combating poverty and vulnerability is important to the effective targeting of public safety nets. More recognition is needed of the range of risks to which households are vulnerable and of their existing coping mechanisms. Improving the understanding of these issues is needed to ensure that appropriate measures are taken to address the causes of vulnerability as well as to strengthen a household's ability to cope (Paumgarten & Shackleton, 2011). Rural livelihoods in South Africa are not just about one activity on its own, but rather a mixture of livestock production, natural resource use, crop agriculture, wage employment, remittances, social grants, private pensions and self-employment, the contributions of which are changing all the time as households spread risk, respond to changing circumstances and overcome challenges (Shackleton & Shackleton, 2004b). Therefore, policies and projects need to build upon this diversity of strategies and the abilities of households to move between them in order for households to benefit from opportunities that arise (Ellis 1998). A broader policy of improved natural resource management, which includes all dimensions of land-based livelihood, is required.

5.5 Does gender have any bearing on the shocks experienced or the coping strategies used?

The most noticeable difference with the shocks experienced between male- and female-headed households was with regards to the loss of employment. These results were not surprising given the discrimination of women with regards to employment. Employment loss was significantly higher in male-headed households when compared to female-headed households. In a study conducted by Cho and Newhouse (2011) in 17 middle-income countries, larger drops in male employment were primarily attributable to men's higher initial rate of employment. These results could be extrapolated to low income countries as men typically have a higher education status and are therefore likely to be more employable. Given the large contribution that employment makes in male-headed households along the rural-urban continuum (41.5 % in rural areas, 84.6 % in township areas, and 90.2 % in urban areas), as seen in the livelihood portfolio, this shock is likely to have an adverse effect on these households. Women's traditional roles are as the primary users and managers of natural resources, primary caregivers, and labourers engaged in household labour (Dolan, 2004; Gaye, 2009), and therefore they are less engaged in the labour market than males. Much like the discussion above about employment loss and wealthier households, gender follows the same pattern. As men are more engaged in the labour market, male-headed households are bound to have a higher incidence of employment loss than female-headed households whose work is largely in the informal market. Women are typically employed in lower paid, less secure, informal occupations (Klasen *et al.* 2011).

The other shock which differed along gender lines was with regards to death in the family, a shock experienced by the majority of female-headed households. Accessing health care in female-headed households can be a large problem, especially in rural areas, as well as the cultural restriction on mobility which prohibit women from travelling to seek health care (Gaye, 2009).

In a study by Paumgarten and Shackleton (2011), no significant differences were found with regards to coping strategies between male- and female-headed households. Similar results were found in this study with the only significant difference being the reliance on social groups. Significantly more female-headed households relied on social groups than male-headed households. These social networks provide an important insurance network, especially for marginalised populations (Oberhauser & Yeboah, 2011). Without the reliance

on the income from employment that is often associated with males in the households, women have to find a means of income. These come in the form of stokvels, or rotating credit associations, which provide many benefits to marginalised women (Kruger, 2006). According to Paumgarten and Shackleton (2011), stokvel loans are given out primarily for emergencies and then for consumption and production purposes. This therefore highlights the importance of social capital for female-headed households, which is a pre-emptive coping strategy.

5.6 Conclusion

The research findings have demonstrated that the majority of households in this study make use of a wide range of natural resources from the landscape around them, although the type and amount of resources collected may vary based on a number of factors. These include resource availability and accessibility, location, population densities, employment levels, income levels as well as personal and cultural preferences. Research findings have shown that between 12.0 % to 49.0 % of urban residents, 30.0 % to 88.0 % of township residents and 80.0 % to 100.0 % of rural residents engage in the use of natural resources. Findings showed that the percentage of households engaging in natural resource collection increased with a decrease in employment levels along the continuum. The same pattern can also be seen with agricultural production where, as employment levels increase, agricultural production decreases. Rural households also used a greater number of resources than both urban and township households. Therefore, the poorer the households, the higher the resource collection, both in terms of the number of households collecting as well as the number and type of resources collected.

In terms of household characteristics, rural households differed significantly across the study in asset ownership, number of meals eaten a day, length of stay in town, plot size as well as number of rooms per person. Rural households had stayed in their particular town or neighbourhood longer than urban and township households, had larger plot sizes than urban residents, ate significantly fewer meals than urban residents and had larger families, with fewer rooms per household member. In addition to this, when looking at the wealth indicators identified in this study, rural households were found to be significantly poorer than urban households. Rural households had a significantly smaller asset base than urban households, ate meat less frequently, and more frequently went to bed hungry than urban residents. Township households' characteristic percentages were typically intermediate between those

of urban and rural residents in most of these factors which shows that township households are better off than rural households in terms of wealth.

A larger reliance on government grants were found, especially in the rural areas of both study towns. A larger proportion (40.0 %) of households in the township and rural households relied solely on the income from government grants. With decreased rates of employment, households without these government grants would be destitute. The high reliance on government grants could be promoting the wider use of natural resources as these are “free” resources which require little capital investment or skills and can be widely collected.

In terms of the livelihood portfolio and the percent contribution to annual household income, urban, township and rural households differed. Findings showed that households were dependent on multiple sources of income, particularly in the rural areas. Urban household livelihood portfolios consisted of mainly income from employment and private pensions. When moving along the continuum towards the township areas, the contribution from employment decreased, and a greater reliance on government grants was found. In the rural areas, income from employment decreased further, while the portfolio became more diversified. Income from government grants remained high, while agriculture (mainly in Phalaborwa), livestock (mainly in Queenstown), remittances and natural resources contributed a greater percentage to annual household income. In Phalaborwa, income from wild resources was the highest, contributing nearly half (48.0 %) of rural households’ annual income. Due to the high dependency on government grants, coupled with the high rate of unemployment, the extent of locally based livelihood options is limited; and therefore the contribution from natural resources to local livelihoods is significant.

When separating the income portfolio by gender, some interesting observations were made. Female-headed households had a more diversified income portfolio than male-headed households. While comparative literature on this subject is lacking, since not many livelihood studies considering all income streams have disaggregated their results by gender, these findings were expected. Income from employment was significantly greater in male-headed households than female-headed households. These findings were not surprising as a result of the higher education status of males, the prescriptions on females finding work when they are expected to be at home as well as the disparities in wage levels between males and females in South Africa. Female-headed households were found to have greater contributions from government grants, which is a reflection of their lower income status. In addition to this,

remittances as well as natural resources made greater contributions to the total livelihood portfolio of female-headed households when compared to male-headed households. This shows that without cash income from employment, female-headed households are obtaining their livelihoods from a wider range of sources, including the “free” natural resources to a larger extent. These resources can be collected at any time which also gives women more time to tend to household responsibilities.

Impacts from shocks were more frequent and of greater severity in township and rural households, which is expected given the lower asset base and the subsequent decreased ability to cope from shock. The main shocks affecting households in this study were death in the family and loss of employment. Death was highest in the poorer households of the township and rural areas. The loss of employment was highest in the urban areas. Shocks resulting from “on-farm” activities were found only in the rural areas, which includes crop failure and livestock loss. Coping strategies associated with obtaining cash income fast were favoured over other strategies that involved more long-term cash income, for example: finding casual employment or using more natural resources. Borrowing from family and relatives was a strategy widely adopted along the continuum. Borrowing money from social groups as well as money lenders was also widely adopted and increased towards the rural areas.

When considering shocks and coping strategies from a gender perspective, employment loss was considerably higher in male-headed households than in female-headed households, particularly in the urban areas, while significantly more death occurred in female-headed households. With regards to coping strategies, significantly more female-headed households were reliant on the borrowing of money from social groups or clubs, which highlights the importance of social capital for female-headed households.

Results suggest that, while the use of natural resources as well as crop agriculture is a meaningful source of livelihood for the majority of township and rural households, urban households also engage in these activities as a possibly supplementary income, and their engagement in these activities should not be undervalued. Access to wild natural capital is vital for the sustainability of households, especially in the rural areas. The diversified livelihood strategies of the poor, including government grants, employment, crop agriculture and livestock as well as a heavy reliance on natural resource use, enhances a household’s

ability to obtain a livelihood, while dealing with uncertain conditions which threaten the livelihoods of the poor on a daily basis.

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Appendices

Appendix 1 Standardised Livelihood Questionnaire

(Cont. on next page)

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SECTION A: Interview Details

A1 Date: _____ **A2** Researcher: _____

A3 Translator: _____ **A4** Country: _____

A5 Name of town or village: _____ **A6** Name of suburb or section: _____

A7 Street name: _____ **A8** House no. _____

A9 GPS position: Latitude: _____ Longitude: _____

A10 Position on rural-urban continuum: Rural Urban In between/peri-urban

A11 Who in the household is being interviewed? _____

A12 What is their relationship to the head of the household? _____

A13 Who is the head of the household? _____

SECTION B: Physical Capital & Indirect Wealth Indicators

B1 How long has your family lived in this town/village: _____ (years/months)

B2 How long has your family lived in this neighbourhood: _____ (years/months)

B3: Where did you live before: _____

B4: How far away is it from here: _____

B5: Why did you move: _____

B6 Do you own it or rent this house: Own customary Own with title deed Rent
 Other (give details) _____

B7 How big is the plot: _____ (if they don't know the size, pace it)

B8 How many rooms are there in total: _____

B9 Describe the basic nature of the *main* building:

Roof materials: _____

Wall materials: _____

B10 Describe the basic nature of the fence around the plot (tick more than one if necessary):

no fence stone/brick wall mesh fencing wire fencing

scrap material dead branches live hedge

Other (give details): _____

B11 Does the house have electricity Yes No

B12 How much do you spend on electricity: _____ per week per month

B13 What is the main energy you use for cooking: electricity gas kerosene firewood charcoal

B14 What is the main energy you use for lighting: electricity gas kerosene candles

B15 Does the house have piped drinking water on site: Yes No

B16 If yes, how much do you spend on water _____ per week per month

B17 What is the quality of the water? drinkable needs additional treatment before drinking
 not suitable for consumption

B18 If the house has no piped drinking water on site, where do you obtain water from?

B19 Which of the following assets does your household own (fill in the number of each):

Car Motorbike Bicycle
 Tractor Plough Fridge
 TV Cell phone

B20 Typically, how many meals do members of the household eat per day _____

B21 How often does your household eat meat: 5-7 x/week 3-4 x/week 1-2 x/week
 3-5 x/month 1-2 x/month < 1 x/month
 Never (vegetarian)

B22 Have your family as a group ever had to go to sleep at night feeling hungry: Yes No

B23 If yes, when was the last time: _____

SECTION C: Crop Production

C1 Do you grow any of your own staple foods or vegetables: Yes No

C2 If no, why not? _____

C3 If yes, why? _____

C4 Where do you grow your staple foods and vegetables? Homestead plot Field Both
 Other (specify) _____

C5 What is the status of the land: Owned by family Rented Open land for anyone to use

C6 What is the size of the production area for staple foods and vegetable? (if they don't know, pace it OR express it terms of known ratios which can be paced) (units!!!)

Homestead plot _____

Field 1 _____

Field 2 _____

C7 What are the main staple foods & vegetables grown in each season and how long are they collectively worked on?

	Wet season	Dry season
Homestead plot		
Fields		
Hours a day work on crops		
Days a week work on crops		

C8 Please provide details of *who does most of the work in producing the crops (include hired labour as an option!!)*

Task	Homestead plot	Fields
Preparing the soil for planting		
Plant the seeds/tubers		
Weeding		
Spraying		
Watering		
Harvesting		

C9 What is the daily rate for hired labour around here: _____

C10 If you had to estimate, what proportion of your household staple foods and vegetables needs are self-grown:

	Almost all	More than $\frac{3}{4}$	Between $\frac{1}{2}$ and $\frac{3}{4}$	Between $\frac{1}{4}$ and $\frac{1}{2}$	Less than $\frac{1}{4}$	Tiny amount
Staple foods						
Vegetables						

C11 Please estimate the amount produced in the last planting season and the unit price in the nearest shop or market:

Staple food or vegetable crop	Number of units produced	Type of units	All used at home (Y/N)	Some sold (Y/N)	Approx. % that was sold	Local price

C12 What were the costs associated with the last production cycle:

Input	Used Y/N	Where did it/they come from	How many units	Type of units	If bought, was the cost per unit or in total (indicate which)
Seeds/seedlings					
Fertiliser					
Animal manure					
Vegetable manure (compost)					
Pesticides					
Hired labour					

C13 Do you make use of waste water? Yes No

C14 If yes, for what purpose do you use it? _____

C15 From where do you obtain the waste water? _____

SECTION D: Fruit Production

D1 Do you grow any of your own fruits: [] Yes [] No

D2 If no, why not? _____

D3 If yes, why? _____

D4 Where does the fruit production take place: [] Homestead plot [] Field [] Both
[] Other (specify) _____

D5 What is the size of the production area for fruits? (if they don't know, pace it OR express it terms of known ratios which can be paced) (units!!!)

Homestead plot _____

Field 1 _____

Field 2 _____

D6 What are the main fruits grown?

Homestead plot _____

Field 1 _____

Field 2 _____

D7 Please provide the details of who does most of the work in producing the fruits (include hired labour as an option!!):

Task	Homestead plot	Fields
Planting the trees		
Looking after the trees		
Spraying (chemicals)		
Harvesting		

D8 Approx how many hours a day do they spend working on the trees: _____

D9 How many days a week: _____

D10 What is the daily rate for hired labour around here: _____

D11 If you had to estimate, what proportion of your household fruit needs are self-grown:

[] Almost all [] More than $\frac{3}{4}$ [] Between $\frac{1}{2}$ and $\frac{3}{4}$

[] Between $\frac{1}{4}$ and $\frac{1}{2}$ [] Less than $\frac{1}{4}$ [] Tiny amount

D12 Please estimate the amount produced last year and the unit price in the nearest shop or market:

Fruit	Number of units produced	Type of units	All used at home (Y/N)	Some sold (Y/N)	Approx. % that was sold	Local price

D13 What were the costs associated with the last production cycle:

Input	Used Y/N	Where did it/they come from	How many units	Type of units	If bought, was the cost per unit or in total (indicate which)
Seeds/seedlings					
Fertiliser					
Animal manure					
Vegetable manure (compost)					
Pesticides					
Hired labour					

D14 Do you make use of waste water? [] Yes [] No

D15 If yes, for what purpose do you use it? _____

D16 From where do you obtain the waste water? _____

SECTION E: Livestock Production

E1 Does your household own any livestock or poultry: [] Yes [] No

E2 If your household doesn't own any livestock, why not? _____

E3 If yes, please provide the numbers of livestock and poultry kept as well as the primary purpose for keeping them:

Livestock type	Number	What is the primary purpose for keeping livestock	Poultry type	Number	What is the primary purpose for keeping poultry
Cattle			Geese		
Goats			Ducks		
Sheep			Chickens		
Pigs			Other (specify)		
Horses			Other (specify)		
Donkeys			Other (specify)		

E4 Please indicate the type and the frequency and value of the benefits provided from poultry:

Poultry	Frequency of slaughter to eat by household	Frequency live or slaughtered one is donated	Frequency live or slaughtered one is sold	Local price to buy or sell a whole one	Approximate no. of offspring (babies) last year	No. of eggs collected by hh each day or week or month (specify!!)	Local price of eggs
Chickens							
Geese							
Ducks							
Other (specify)							

NB: Frequency means number per period of time, i.e. per week, per month or per year; therefore MUST specify the period

E5 Please indicate the frequency with which you slaughter or sell animal livestock:

Livestock	Frequency of slaughter to eat by household	Frequency live or slaughtered one is donated	Frequency live or slaughtered one is sold	Local price to buy or sell a whole one	Approximate no. of offspring (babies) last year	Who looks after the livestock	Approx. no. of hours per day they tend the animals
Cattle							
Sheep							
Goats							
Pigs							
Horse/ donkeys							
Other (specify)							
Other (specify)							
Other (specify)							

E6 Other than meat and sales what other tangible products do you obtain from your livestock (NB units!!!!):

Livestock	Milk			Dung			Other (specify)		
	Amount produced per time	Use (at home; sell; donate)	Local price per unit	Amount produced per time	Use (at home; sell; donate)	Local price per unit	Amount produced per time	Use (at home; sell; donate)	Local price per unit
Cattle									
Sheep									
Goats									
Pigs									
Horse & donkeys									
Other (specify)									

E7 Do you use any of your livestock for ploughing or for transport: [] Yes [] No

E8 If yes, please provide details (NB units!!!!):

Livestock	Transport				Ploughing			
	How often do you use it (x per week, month, year)	Approx how many hours per time	Is it for hh use or to rent out for income	What is the local price for the service or next best alternative	How often do you use it (x per week, month, year)	Approx how many hours per time	Is it for hh use or to rent out for income	What is the local price for the service or next best alternative
Cattle								
Horse & donkeys								
Other (specify)								

NB: Frequency means number per period of time, i.e. per week, per month or per year; therefore **MUST** specify the period

E9 Do you every buy or cut/collect food for the livestock? [] Yes [] No

E10 If yes, please provide details:

Livestock	Buy food			Cut/collect food				
	How often	Amount	Cost	How often	Amount	People involved (number)	Approx no. of hours each time	Approx how long does it take to walk to the collection site
Cattle								
Sheep								
Goats								
Pigs								
Horse & donkeys								
Other (specify)								

E11 Please indicate the main costs (other than food) associated with keeping livestock:

Livestock	Type of cost (#)	Frequency incurred	Amount (cost)
Cattle			
Sheep			
Goats			
Pigs			
Horse & donkeys			
Other			

Codes (#)
D = dipping
F = fees, permits, taxes H = herding, shepherding M = medicines
S = overnight shelter

E12 How did you obtain the first few?

Livestock type	Mode of acquisition of starting few (*)	Poultry type	Mode of acquisition of starting few (*)
Cattle		Geese	
Goats		Ducks	
Sheep		Chickens	
Pigs		Other (specify)	
Horses		Other (specify)	
Donkeys		Other (specify)	

Codes (*)
B = bought
G = gift or donation
H = inherited
W = received as payment for herding someone else's livestock or other work, instead of cash

E13 Do you make use of organic waste or compost? Yes No

E14 If yes, for what purpose do you use it? _____

E15 From where do you obtain the organic waste? _____

D16 Do you make use of waste water? Yes No

D17 If yes, for what purpose do you use it? _____

D18 From where do you obtain the waste water? _____

SECTION F: Wild Natural Capital

Firewood

F1 Does your household ever use firewood: Yes No

F2 What are the species that you most commonly use _____

F3 If yes, do you usually collect this firewood or buy it: Usually collect Usually buy it Both

F4 If bought please give details (if **bought only from a supermarket, disregard section**):

How often do you buy firewood	Where do you usually buy it	What is the price per unit

F5 If collected please give details:

Where do you usually collect it	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F6 Has the abundance of firewood in the area you normally collect changed over the last 5 years:

[] Yes [] No [] D/K

F7 If yes, how: [] Increased [] Decreased

F8 What do you think is the cause of this change:

F9 Does your household ever sell firewood: [] Yes [] No

F10 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in		Where do you get the firewood that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

F11 Please show or tell us how much firewood your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

Wild fruits

F12 Does your household ever use wild fruits: [] Yes [] No

F13 If yes, what are the species that you most commonly use _____

F14 Please show or tell us how much wild fruit your household uses in the wet and dry season:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

F15 Do you usually collect these wild fruits or buy them: [] Usually collect [] Usually buy it [] Both

F16 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F17 Has the abundance of wild fruits in the area you normally collect changed over the last 5 years:

[] Yes [] No [] D/K

F18 If yes, how: [] Increased [] Decreased

F19 What do you think is the cause of this change:

F20 If bought, please give details:

How often do you buy wild fruits	Where do you usually buy them	What is the price per unit

F21 Does your household ever sell wild fruits: [] Yes [] No

F22 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the wild fruits that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Wild vegetables/spinaches

F23 Does your household ever use wild vegetables: [] Yes [] No

F24 If yes, what are the species that you most commonly use? _____

F25 Please show or tell us how much wild vegetable your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

F26 Do you usually collect these wild vegetables or buy them: [] Usually collect [] Usually buy it [] Both

F27 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F28 Has the abundance of in the area you normally collect changed over the last 5 years:

[] Yes [] No [] D/K

F29 If yes, how: [] Increased [] Decreased

F30 What do you think is the cause of this change?

F31 If bought please give details:

How often do you buy wild vegetables	Where do you usually buy them	What is the price per unit

F32 Does your household ever sell wild vegetables: Yes No

F33 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the wild vegetables that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Wild mushrooms

F34 Does your household ever use wild mushrooms: Yes No

F35 If yes, what are the species that you most commonly use _____

F36 Please show or tell us how much wild mushrooms your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month OR		
Amount per season		

F37 Do you usually collect these wild mushrooms or buy them: Usually collect Usually buy it Both

F38 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F39 Has the abundance in the area you normally collect changed over the last 5 years:

Yes No D/K

F40 If yes, how: Increased Decreased

F41 What do you think is the cause of this change?

F42 If bought please give details:

How often do you buy wild mushrooms	Where do you usually buy them	What is the price per unit

F43 Does your household ever sell wild mushrooms: Yes No

F44 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the wild mushrooms that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Wild honey

F45 Does your household ever use wild honey: Yes No

F46 Please show or tell us how much wild honey your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month OR		
Amount per season		

F47 Do you usually collect these wild honey or buy them: Usually collect Usually buy it Both

F48 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F49 Has the abundance of wild honey in the area you normally collect changed over the last 5 years:

Yes No D/K

F50 If yes, how: Increased Decreased

F51 What do you think is the cause of this change?

F52 If bought please give details:

How often do you buy wild honey	Where do you usually buy them	What is the price per unit

F53 Does your household ever sell wild honey: Yes No

F54 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the wild honey that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Edible insects

F55 Does your household ever use edible insects: Yes No

F56 If yes, what are the species that you most commonly use _____

F57 Please show or tell us how much edible insects your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

F58 Do you usually collect these edible insects or buy them: Usually collect Usually buy it Both

F59 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F60 Has the abundance of insects in the area you normally collect changed over the last 5 years:

Yes No D/K

F61 If yes, how: Increased Decreased

F62 What do you think is the cause of this change:

F63 If bought please give details:

How often do you buy edible insects	Where do you usually buy them	What is the price per unit

F64 Does your household ever sell edible insects: Yes No

F65 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the edible insects that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Wild meat

F66 Does your household ever use wild meat: Yes No

F67 If yes, what are the species that you most commonly use? _____

F68 Please show or tell us how much wild meat your household uses in the wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

F69 Do you usually hunt or trap the bushmeat or buy it: Usually hunt or trap Usually buy it Both

F70 If hunted or trapped please give details:

Where do you usually hunt or trap	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to hunt/trap there? If yes, state from who
	Walk: Drive:			

F71 Has the abundance of bushmeat in the area you usually get it from changed over the last 5 years?

Yes No D/K

F72 If yes, how: Increased Decreased

F73 What do you think is the cause of this change:

F74 If bought please give details:

How often do you buy wild meat	Where do you usually buy it	What is the price per unit

F75 Does your household ever sell wild meat: Yes No

F76 If yes, please provide details:

What is the selling price per unit	Type of unit	How many units do you sell per day /week /month in -		Where do you get the wild meat that you sell	Did you have to pay for transport? If yes, how much per day/week/month
		Wet season	Dry season		

Wild fish

F77 Does your household ever use wild fish: Yes No

F78 If yes, what are the species that you most commonly use? _____

F79 Please show or tell us how much wild fish your household uses in the rainy and wet and dry seasons:

	Wet season	Dry season
Amount per day OR		
Amount per week OR		
Amount per month		

F80 Do you usually catch these wild fish or buy them: Usually catch Usually buy it Both

F81 If caught please give details:

Where do you usually catch them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to fish there? If yes, state from who
	Walk: Drive:			

F82 Has the abundance of wild fish in the area you catch them changed over the last 5 years:

Yes No D/K

F83 If yes, how: Increased Decreased

F84 What do you think is the cause of this change:

F85 If bought please give details:

How often do you buy wild fish	Where do you usually buy them	What is the price per unit

F86 Does your household ever sell wild fish: Yes No

F87 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the wild fish that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Medicinal plants for self medication of family members

F88 Does your household ever use medicinal plants for self medication: [] Yes [] No

F89 If yes, what are the species that you most commonly use? _____

F90 Please show or tell us how many times you might use them in the wet and dry seasons:

	Wet season	Dry season
Times per day OR		
Times per week OR		
Times per month OR		
Times per season		

F91 Do you usually collect these medicinal plants or buy them: [] Usually collect [] Usually buy it [] Both

F92 If collected please give details:

Where do you usually collect them	How long does it take to walk there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who

F93 Has the abundance of medicinal plants in the area you usually collect changed over the last 5 years:

[] Yes [] No [] D/K

F94 If yes, how: [] Increased [] Decreased

F95 What do you think is the cause of this change:

F96 If bought please give details:

How often do you buy medicinal plants	Where do you usually buy them	What is the price per unit

F97 Does your household ever sell medicinal plants: [] Yes [] No

F98 If yes, please provide details:

What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the medicinal plants that you sell	Did you have to pay for transport? If yes, how much per day/week/month
	Wet season	Dry season		

Household or traditional brooms from plant materials

F99 Does your household ever use booms made from plant materials: Yes No

F100 Please tell us how many you have, of what they are made and how long one lasts:

Number you have at the moment	Materials made of (leaves, twigs, grass, etc)	How long does one last	If one had to buy one, what is the local price

F101 Do you usually collect these materials or buy them: Usually collect Usually buy it Both

F102 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F103 Has the abundance of these in the area you normally collect from changed over the last 5 years?

Yes No D/K

F104 If yes, how: Increased Decreased

F105 What do you think is the cause of this change:

F106 Does your household ever sell raw materials or finished brooms made from weaving materials: Yes No

F107 If yes, please provide details:

Type of product or unit size of raw material	What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the materials that you sell	Did you have to pay for transport? If yes, how much per day/week/month
		Wet season	Dry season		
Raw leaves					
Raw twigs					
Raw grass					
Leaf boom					
Twig broom					
Grass broom					

Plant fibres for weaving mats, baskets, etc.

F108 Does your household ever use plants materials for weaving: Yes No

F109 What are the species you most commonly use? _____

F110 Do you usually collect these materials or buy them: Usually collect Usually buy it Both

F111 If bought please give details (if bought only from a supermarket/formal shop, disregard section):

How often do you buy them	Where do you usually buy them	What is the price per unit

F112 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	How often do you go	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:			

F113 Has the abundance of these in the area you normally collect changed over the last 5 years:

Yes No D/K

F114 If yes, how: Increased Decreased

F115 What do you think is the cause of this change:

F116 Does your household ever sell raw materials or finished products made from weaving materials: Yes No

F117 If yes, please provide details:

Type of product or unit size of raw material	What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the materials that you sell	Did you have to pay for transport? If yes, how much per day/week/month
		Wet season	Dry season		

F118 Please show or tell us how much plant weaving material your household uses in the wet and dry season:

	Wet season	Dry season
Amount per week OR		
Amount per month OR		
Amount per season		

Plant fibres for roofing (grass/reeds/palm leaves)

F119 Does your household ever use plants materials for roofing: Yes No

F120 If yes, what are the species that you most commonly use? _____

F121 Do you usually collect these materials or buy them: Usually collect Usually buy it Both

F122 If bought please give details (if bought only from a supermarket/formal shop, disregard section):

Where do you usually buy them	What is the price per unit

F123 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:		

F124 Has the abundance of these in the area you normally collect changed over the last 5 years: Yes No D/K

F125 If yes, how: Increased Decreased

F126 What do you think is the cause of this change:

F127 Does your household ever sell raw plant materials for roofing: Yes No

F128 If yes, please provide details:

Type of product or unit size of raw material	What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the materials that you sell	Did you have to pay for transport? If yes, how much per day/week/month
		Wet season	Dry season		

F129 Please tell us how many structures in the homestead are roofed with such materials:

Structure	Function	Size (perimeter)	Approx no. of bundles on the roof	Structure	Function	Size (perimeter)	Approx no. of bundles on the roof
1				6			
2				7			
3				8			
4				9			
5				10			

F130 How often do you add new materials to the roof to keep it waterproof and in good state?

- 2x per year 1x per year Every two years
 Every 3-5 years Every 5 – 10 years Longer

F131 How often do you replace the entire roof with new materials?

- 1x per year Every two years Every 3-5 years Every 5 – 10 years Longer

Wooden poles for housing

F132 Does your household ever use poles for building: Yes No

F133 If yes, what species are the ones you most commonly use? _____

F134 Do you usually collect these poles or buy them: Usually collect Usually buy it Both

F135 If bought please give details (if bought only from a supermarket/formal shop, disregard section):

Where do you usually buy them	What is the price per unit	
	Large structural poles	Intermediate support poles

F136 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:		

F137 Has the abundance of these in the area you normally collect changed over the last 5 years:

- Yes No D/K

F138 If yes, how: Increased Decreased

F139 What do you think is the cause of this change:

F140 Does your household ever sell building poles: Yes No

F141 If yes, please provide details:

Type of product or unit size of raw material	What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the materials that you sell	Did you have to pay for transport? If yes, how much per day/ week/ month
		Wet season	Dry season		
Large structural poles					
Intermediate support poles					

F142 Please tell us how many structures in the homestead have some such poles in them:

	Function	Size (peri-meter) (m)	Year built	Approx. number of poles in			
				Walls		Roof	
				No. of large structural poles	No. of support poles	No. of large structural poles	No. of support poles
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Wooden poles and thorn scrub for fencing

F143 Does your household ever use poles or thorn scrub for fencing: Yes No

F144 If yes, what are the species that you most commonly use? _____

F145 Do you usually collect these poles or buy them: Usually collect Usually buy it Both

F146 If bought please give details (if bought only from a supermarket/formal shop, disregard section):

Where do you usually buy them	What is the price per unit		
	Large structural poles	Intermediate poles	Thorn branches

F147 If collected please give details:

Where do you usually collect them	How long does it take to walk or drive there	Who in the household usually goes	Must you ask permission to collect there? If yes, state from who
	Walk: Drive:		

F148 Has the abundance of these in the area you normally collect changed over the last 5 years:

Yes No D/K

F149 If yes, how: Increased Decreased

F150 What do you think is the cause of this change:

F151 Does your household ever sell indigenous fencing poles or thorn branches: [] Yes [] No

F152 If yes, please provide details:

Type of product or unit size of raw material	What is the selling price per unit	How many units do you sell per day /week /month in -		Where do you get the materials that you sell	Did you have to pay for transport? If yes, how much per day/ week/ month
		Wet season	Dry season		
Large structural poles					
Intermediate poles					
Thorn branches					

F153 Please tell us how many fenced areas you have that contain such materials:

Fence	What is the function of the area it encloses	Length of the fence (perimeter) (m)	Approx. height (m)	Year built	Length of section measured (m)	Approx. no. of poles per measured section		
						Large structural poles	Intermediate or cross poles	Thorn branches
1								
2								
3								
4								

F154 For each fence, approximately how many poles do you add per year for repairs and maintenance?

Fence	Approx. number per year in repairs and maintenance		
	Large structural poles	Intermediate or cross poles	Thorn branches
1			
2			
3			
4			

SECTION G: Remittances & Rentals

G1 Does this household receive regular remittances (cash, food, etc.) from people not normally living here? [] Yes [] No

G2 If yes, please supply details:

Nature of the remittance (i.e. what is it – cash, clothing, food)	How often is it received	How much is sent	Who sends it	Who do they send it to

G3 Does this household receive regular income from renting out rooms or land: [] Yes [] No

G4 If yes, please provide details

What is rented out	Income received	Frequency of receipt

SECTION H: Welfare Grants & Pensions

H1 Does this household receive any welfare grants or government or public pensions or investment income?

[] Yes [] No

H2 If yes, please supply details:

Nature of the grant or pension	How often is it received	How much is received each time	Who in the household receives it

H3 Does this household receive any non-cash regular welfare support, such as meals at schools for children?

[] Yes [] No

H4 If yes, please supply details:

SECTION I: Self-employment/Selling of items made

I1 Is anyone in this household self-employed or trades goods (casual, part- or full-time): [] Yes [] No

I2 If yes, please supply details:

Who in the household	What do they do	Approx how many hours do they work per day or per week	Approx how much income do they earn per day, per week or per month	Approx how much of this income is used in the business and how much can be used in the household (express as a fraction to nearest 10 %)

SECTION J: Employment

J1 Does anyone in this household have a part-time or full-time job paid by an employer [] Yes [] No

J2 If yes, please supply details:

Who in the household	What do they do	Approx how many hours do they work per day or per week	Approx how much income do they earn per day, per week or per month	Do they receive any other form of payment besides cash? If yes what and how often	How long have they been in this job	What does it cost for them to get to work and back each time

SECTION K: Household Profile

K1 Please provide us with details of the members of your household:

Name	Relation to head	Year born	Gender (M/F)	Highest education	Still studying (*)	Sleep at home (#)	Eat at home (#)	Occupation

Codes: * P = primary school; S = secondary school; C = college; U = university
 # U = usually; W = mainly weekends; M = mainly a few days per month; R = rarely

SECTION L: Social Capital

L1 Is anyone in the household a member of a social group/association (e.g. church, savings farming, volunteer, etc.) [] Yes [] No

L2 If yes, please supply details (remember to consider all members of the household and indicate on table):

Type of group	Who in the household (consider all members and indicate)	Are they a leader/office bearer in this group
Church		
Savings		
Farming		
Volunteer		
Sports		
Dance/music		
Crèche		
Local governance lobby group		
School parents association		
Health or clinic support group		
Women's group		
Other (specify)		
Other (specify)		
Other (specify)		

L3 Has the household faced any major income shortfalls or unexpectedly large expenditures during the past 2 years?
[] Yes [] No

L4 If yes, please supply details:

Crisis event in the last 2 years	Severity (#)	How did you cope with the crisis (*)
Crop failure		
Serious illness in family (productive age-group adult unable to work for more than two months during past 2 years months, due to illness, or to taking care of ill person; or high medical costs)		
Death in the family		
Land loss (expropriation, etc.)		
Major livestock loss (theft, drought, disease etc.)		
Other major asset loss (fire, theft, flood, etc.)		
Lost wage employment		
Wedding or other costly social events		
Other (specify)		
Other (specify)		
Other (specify)		
Other (specify)		

Codes: **# Severity** 0 = no crisis; 1 = minor; 2 = moderate; 3 = severe

*** Coping**

a = used more wild products b = sold wild products c = found local casual employment d = sent member away to find work elsewhere e = spent cash savings f = took children out of school g = sold household assets	h = borrowed from family/relations i = borrowed from friends/neighbours j = borrowed from members of social group/club k = borrowed from a money lender l = cashed in retirement savings m = reduced expenses n = eat less food o = other (specify)
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SECTION M: Community Typology

M1 Main language you speak at home _____

M2 Main language spoken by your spouse _____

M3 What ethnic group or tribe do you belong to? _____

M4 What ethnic group or tribe does your spouse belong to? _____

M5 Where did you grow up as a child? _____

M6 What was the first language you learned to speak as a child? _____

M7 Where do you think of as your "family home"? _____

M8 Do you stay in contact with family members "back home"? [] Yes [] No

M9 When you are done working or retire, where would you like to live? _____

M10 Where do you want to be buried after you die? _____

M11 Do most of your neighbours come from the same tribe as yourself? [] Yes [] No

M12 Do your neighbours assist you when you need it? [] Yes [] No

M13 In general, do you trust the people in your neighbourhood? [] Yes, most people
 [] Some people, not all
 [] Not many
 [] None, other than family and relatives

M14 What do you like and dislike about living in this area/neighbourhood?

Likes	Dislikes

M15 Do you think your neighbourhood has changed since you first came here? [] Yes [] No

M16 If yes, how? _____

M17 Compared to other households in this neighbourhood, how well do you regard your quality of life?
 [] higher [] about the same [] lower

M18 Thinking about your quality of life five years ago, has it changed? [] Yes [] No

M19 If yes, how: [] Improved [] Declined

M20 What is the reason for this change: _____

