

**ASSESSING LINKAGES BETWEEN LOCAL  
ECOLOGICAL KNOWLEDGE, HIV/AIDS AND  
THE COMMERCIALISATION OF NATURAL  
RESOURCES ACROSS SOUTHERN AFRICA**

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## ABSTRACT

That natural resources (NRs) are important to those experiencing adversity, and, especially, vulnerability associated with HIV/AIDS, is well documented, particularly with respect to food and energy security. What is unclear is where HIV/AIDS ranks in terms of its significance in comparison to other household shocks, the role local ecological knowledge may (LEK) play in households' response to shock, and the types of coping strategies that are employed. Consequently, this research aims to bridge the knowledge gap between HIV/AIDS and the degree to which it is contributing to the expansion of NR commercialisation and to explore the unknowns surrounding the influence of LEK on people's choice of coping strategy. A two phase study was designed to provide quantitative rigour with qualitative depth. Phase one was an extensive, rapid survey of NR traders within urban and rural settings in five southern Africa countries. The principle objective was to profile the trade, the livelihoods of those involved and their reasons for entering the trade, to ultimately establish to what degree HIV/AIDS may have been a catalyst for this. Almost one-third of the sample entered the trade in response to illness and/or death in their households, with 80 % of deaths being of breadwinners. The findings illustrated considerable dependence on the sale of NRs; for almost 60 % of the sample it was their household's only source of income. There was evidently increased blurring of the lines between rural and urban NR use with a greater diversity of products being traded in urban areas. Phase two involved in-depth interviews and work with a smaller sample at two sites selected based on the findings from the first phase. It incorporated three groups of households; non-trading, inexperienced trading and experienced trading households. Key areas of focus were household shocks, coping strategies employed in response to these and the role LEK may be playing in the choice of coping strategies. Within a two year period, 95 % of households registered at least one shock, of which 80 % recorded AIDS-related proxy shocks. Non-trading households were significantly worse-off in this regard, while in the case of non-AIDS proxy shocks, there was no such difference between groups. The most frequently employed coping strategy was the consumption and sale of NRs and was of particular importance when households were faced with AIDS proxy shocks. Trading households emerged as having superior levels of LEK in comparison to non-trading households, even for non-traded NRs, suggesting that prior LEK of NRs opened up opportunities to trade in NR as a coping strategy. Further inspection of the

latter group however revealed that the portion of non-trading households who traded on a very *ad hoc* basis actually had comparable levels of LEK to the trading households. Despite the *ad hoc* trading households' vulnerable state and their disproportionately high level of AIDS proxy measures, they had at their disposal, sufficient LEK to unlock certain key coping strategies, namely the NR trade. In this sense there are apparent linkages between LEK, HIV/AIDS and the expansion of the commercialisation of NRs.

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## CHAPTER ONE: INTRODUCTION

### 1.1 INTRODUCTION

One of the most serious challenges facing the nations of sub-Saharan Africa is integrating the need to alleviate poverty and to protect natural resources (NRs) whilst concurrently being faced with the uncertainties of climate change and the inexorable impacts of the HIV/AIDS pandemic. While these complexities are being played out the poor continue in their struggle for survival, adopting various coping strategies along the way. Included in the range of strategies employed is the use of NRs both for household consumption and for sale (Paumgarten 2005). The trade in wild natural products, whether gathered from forests, grasslands, wetlands or agricultural landscapes, has long offered an important source of cash income for poor rural households (Neumann & Hirsch 2000) and authors are recognising a regional and worldwide trend in growing NR-based self-employment (Shackleton S.E. *et al.* 2008). The question that has been raised though is whether this practice can contribute to the reduction of poverty and vulnerability (Shackleton S.E. *et al.* 2008).

#### 1.1.1 NRs and livelihoods

Despite poor government recognition, NRs are a vital component of the livelihoods of those who use them (Arnold & Perez 2001; Kepe 2003; Paumgarten 2005). A multitude of researchers, using different methods and approaches, have shown that rural, and to a lesser degree urban, households make use of a broad array of NRs to address their daily livelihood needs (Shackleton C.M. *et al.* 2007a). For example 80 % of rural households in South Africa use fuelwood as their primary source of energy, whilst at least 27 million consumers use traditional plant medicines (Mander 1998; Shackleton C.M. *et al.* 2007a). Interestingly Cocks and Bangay (*Submitted*) found that 99 % of urban households (n = 302) in the Eastern Cape, South Africa continue to use NRs.

A synthesis of resource inventories developed by Shackleton C.M. and Shackleton S.E. (2004a) for woodland resources used by households across South Africa found that 85 % or more households met their basic needs of food, fuel, shelter and medicine through utilisation of the NR base. Moreover, it is the poorest households who use NRs most extensively and most often (Campbell *et al.* 2002; Shackleton S.E. & Campbell 2007; Kamanga *et al.* 2009).

Additionally, NRs are frequently used as a coping strategy in the face of adversity (Cavendish 2002; Paumgarten 2005; Kaschula 2008; Shackleton S.E. *et al.* 2008). At times it is for their very survival that the poor turn to NRs (Byron & Arnold 1999; Shackleton S.E. *et al.* 2008). However, in order for the benefits of these resources to be realised, a certain level of local ecological knowledge (LEK) is required on the part of the user. Such knowledge includes what species to use, where to find them and how to harvest and utilise them (Uma Shaanker *et al.* 2004).

The use of NRs can be summarised into three main categories: household consumption, income-generation and as a safety-net (Shackleton C.M. *et al.* 2002; Angelson & Wunder 2003).

#### **1.1.1.1 Household consumption**

Shackleton C.M. and Shackleton S.E. (2004b) refer to this as the 'daily net' role which pertains to direct household provisioning. Shackleton C.M. *et al.* (2001) found that the mean gross value of woodland resources was about R950 per hectare. In comparison with commercial farming land use in adjacent areas, these financial returns were favourable and made a contribution to the welfare of a comparatively greater proportion of households (Shackleton C.M. *et al.* 2001). The same positive trend has been said to apply to comparisons with other land use options like timber plantations (Arnold & Perez 2001).

#### **1.1.1.2 Income-generation**

When not used for subsistence purposes, some resources are sold in markets in raw or processed form (Shackleton S.E. *et al.* 2008). This is frequently on an *ad hoc* basis instigated by a shortage of cash at the time but can progress into a more permanent way of life (Shackleton C.M. & Shackleton S.E. 2004b). It is estimated that in sub-Saharan Africa alone, there are several million people earning their primary cash income from the trade in forest and other NR products (Kaimowitz 2003). Monetary values associated with NRs can exceed income derived from other livelihood strategies adopted by rural people (Magome & Fabricius 2004) and returns per hour are often higher than can be earned in local wage labour, assuming it is available (Shackleton S.E. & Shackleton C.M. 2011). The majority of wild plant resources recorded in Cocks and Bangay's (*Submitted*) study of urban NR use were purchased from vendors, signifying the strong rural to urban link and increasing rural livelihood diversification (Wiersum & Shackleton 2005).



### **1.1.1.3 Safety-net**

The aforementioned *ad hoc* trade is one manifestation of the safety-net role of NRs and has also been termed an 'emergency net' for its provision of a coping strategy for households in times of stress (Arnold & Perez 2001; Shackleton C.M. & Shackleton S.E. 2004b; Fisher & Shively 2005; McSweeney 2005). It is this function of NRs that will be appraised in this study and the way in which it is offering a coping strategy to those made vulnerable by the HIV/AIDS epidemic.

### **1.1.2 NRs as safety-nets**

Several authors (McSweeney 2004; Shackleton C.M. & Shackleton S.E. 2004b; Paumgarten 2005) have shown that NRs can act as safety-nets during times of adversity, for instance the loss of the family breadwinner, or crop loss from drought or disease. In addition to households turning to the trade of one or more resources, they may also begin to use a NR that they would not have in the past or they may increase the use of a particular resource (Shackleton C.M. & Shackleton S.E. 2004b).

McGarry and Shackleton (2009) found that with growing vulnerability due to HIV/AIDS, children increasingly rely more on wild foods. Bearing in mind children's mounting nutritional and energy requirements combined with diminishing food security as a result of HIV/AIDS it is logical that they would resort to the last freely available and consistent food source (McGarry & Shackleton 2009). Kaschula (2008) found that despite the comparatively high nutritional value wild foods offer, sometimes the poor are reluctant to harvest these because the cultural stigma attached to them denotes 'poor people's foods'. However, the vast majority of past work has stressed the importance of wild foods to those in need.

Paumgarten (2005) found that all households interviewed from two sites had experienced some form of crisis over the previous two years and 85 % had turned to kinship as a safety-net. NRs were revealed as the second most important coping mechanism for the poor (70 % of households). Why not all households turn equally to NRs is unknown, but it is undoubtedly influenced by the capital base of the household with regards to financial, social and human assets, but may also be a function of the levels of LEK in the household. This will be one focus of this project. Yet NRs play a vital role both directly and indirectly for the poor. In a study of the marula beer brewing trade in the north-eastern part of South Africa, it was found

that the sharing of this beer plays an important role in the building and maintenance of kinship ties (Shackleton S.E. 2005).

What if shocks to livelihoods are both frequent and severe? Concern has been raised, specifically from a human welfare perspective that this may result in a situation where reliance on NRs for informal insurance may eventually embody a strategy that leaves people more vulnerable in the long-term (Angelson & Wunder 2003; Wood 2003; Fisher & Shively 2005). HIV/AIDS may well epitomize this risk.

### **1.1.3 HIV/AIDS as a shock to households in sub-Saharan Africa**

It is well known that HIV/AIDS prevalence rates are high across sub-Saharan Africa (UNAIDS 2008). Statistics from the Joint United Nations Programme on HIV/AIDS 2008 report on the global AIDS epidemic paint a desperate picture. An estimated 1.9 million people were newly infected with HIV in sub-Saharan Africa in 2008, bringing to 22 million the number of people living with HIV in the region. Two-thirds (67 %) of the global total of 32.9 million people with HIV live in this region, and three-quarters (75 %) of all AIDS deaths in 2007 occurred here.

There are stark contrasts from country to country in terms of the scale and scope of the epidemic. Adult national HIV prevalence is below 2 % in several countries of West and Central Africa, as well as in the horn of Africa, but in 2007 it exceeded 15 % in seven southern African countries (Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe), and was above 5 % in seven other countries, mostly in Central and East Africa (Cameroon, the Central African Republic, Gabon, Malawi, Mozambique, Uganda, and Tanzania). The estimated 5.7 million South Africans living with HIV in 2007 make this the largest HIV epidemic in the world. Meanwhile, the 26 % HIV prevalence found in adults in Swaziland in 2006 is the highest (UNAIDS 2008).

HIV/AIDS has been conceptualised as an extreme form of livelihood shock or a factor that tends to exacerbate the negative impacts of pre-existing shock events through eroding inherent livelihood resilience (De Waal & Whiteside 2003). It is coupled with poverty in a self-perpetuating cycle – “HIV prevalence is highly correlated with falling calorie consumption, falling protein consumption, unequal distribution of income and other variables conventionally

associated with susceptibility to infectious disease, however transmitted” (Stillwagon 2000 in Whiteside 2002).

HIV/AIDS has the potential to increase poverty. Morbidity manifests itself in the form of reduced labour which has particularly negative impacts on those households whom, for example, survive on subsistence farming (Whiteside 2002). It increases expenditure (both in the form of time and money) for care, medicine, treatment and possibly diet alterations; in the inevitable event of mortality, further expenditure occurs when providing funerals (Whiteside 2002). Then, if the household dissolves there are likely to be either children or the elderly who have to fend for themselves – or become the responsibility of another household who may already be struggling to meet their own needs (Whiteside 2002). Frequently, in the post-mortality phase many of the household care and support structures that were in place in the terminal phases disappear and the surviving household members are left to their own, now diminished devices (Ziervogel & Drimie 2008). In addition to this, HIV/AIDS increases the demand for water due to the hygiene dimensions of caring for the sick (Shackleton C.M. *et al.* 2010).

The effect of HIV/AIDS on the economy of a nation is also considerable as governments expend considerable funds trying to curb the epidemic. In South Africa, expenditure on HIV and AIDS reached R4.5 billion in 2007 (Department of Health 2008) while simultaneously a concurrent drop in government revenue and loss of capacity was and is still taking place. This magnifies the importance of NRs to the poor because governments subsequently have fewer funds to cater for poverty alleviation and social services (Whiteside 2002). It also reinforces their importance to government because in the absence of these resources it would have to shoulder the responsibility of providing the same services the poor have been receiving from the environment, namely those pertaining to the fulfilment of basic needs (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton C.M. *et al.* 2007a). There is thus a need for government to take cognisance of this fact and to incorporate it into policy and, more importantly, policy implementation (Kaimowitz 2003; Kepe 2003).

#### **1.1.4 Impact of HIV/AIDS on household use of and reliance on NRs**

Torell *et al.* (2006) summarized three direct impacts AIDS is having on biodiversity: First, an increased rate of NR extraction due to a concurrent increase in dependence on NRs; secondly,

diminishing labour and management capacity as a result of sickness and death resulting in weakened control over resource extraction; thirdly, loss of traditional/indigenous knowledge and skills.

As mentioned earlier, the commercialisation of NRs is one coping strategy households may adopt in the face of hardship (Shackleton C.M. & Shackleton S.E. 2004b). Shackleton S.E. *et al.* (2008), in their appraisal of the NR trade in an area of the Limpopo Province, South Africa found that the following responses were given to the question of why the respondent had entered into the trade:

1. "The death of a breadwinner, illness or retrenchment within the household (usually of their husbands)."
2. "Because they were suffering and hungry and unable to find work."
3. "Had been retrenched from a formal job, usually as a migrant worker."
4. "Had been left with grandchildren to care for following the death of the children's parents, presumably from AIDS."
5. "They preferred to work from home as they had young children or ill or elderly family members to care for, or they themselves were too old or unwell to undertake a full-time job."
6. "They preferred to be with their families than to work as migrant labourers far from home."
7. "The need to support other income earners and augment meagre household incomes."

Several of the reasons provided above are potentially indirectly due to HIV/AIDS effects, e.g. suffering and hunger, retrenchment (due to persistent illness?), the loss of the husband's income, or taking on orphans or grandchildren. However, the role of HIV/AIDS as a catalyst for entering the NR trade was not considered in the study design of the interview schedule. Marcus (2000) found that 40 % of households involved in handicraft production in KwaZulu-Natal, South Africa, had conveyed their responsibility for the care of AIDS orphans, while Campbell *et al.* (2002) found HIV/AIDS to be a contributing factor for people to engage in the woodland product trade in Zimbabwe.

But to what degree can the NR trade assist those in time of need? The principle of 'what you put in is what you get out' certainly applies and is an important differentiating factor between

user groups. For instance, because rural women are often the heads of households as their husband is a migrant labourer or has passed away due to illness, they are restricted in the amount of time they are able to devote to the trade of NRs (Makhado & Kepe 2006). Although a widowed mother may turn to the trade to accommodate for the loss of her husband's income, her ability to really benefit from it is compromised by her need to look after her children. Production then becomes the next alternative for her; she may, for example weave reed baskets from her home and have someone else sell them at the market. However, she is at risk of losing a disproportionate amount to the middleman in the trade (Crook & Clapp 1998). Bene and Merten (2008), in their analysis of the phenomenon of poor women offering transactional sex in exchange for fish for consumption or sale, ascertained that these were typically widows, divorced or single women, characterising the high vulnerability of this group and the safety-net role of this aspect of the NR trade. This also draws attention to the question of whether or not engaging in the NR trade as a livelihood strategy may increase the risk of exposure to HIV.

Shackleton C.M. and Shackleton S.E. (2004b) found that those who were involved daily in their trade earned twice as much as those who traded on an *ad hoc* basis. It would seem then that though the trade of NRs may be entered into purely on the basis of meeting an unexpected need (e.g. the sale of marula beer to pay for a child's school fees because the father, the former breadwinner of the family, has died of HIV/AIDS), the safety-net function can fulfil a more permanent part of people's lives if the conditions are favourable and if some degree of success is achieved from it (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton S.E. *et al.* 2008). Fabricius (2002) states that "individual benefits from the trade of non-timber forest products (NTFPs) can be high when:

- a reliable market is available
- the opportunity cost of land and labour is low
- few people are laying claim to or sharing the benefit
- intra-community conflict and power struggles are manageable."

Taking cognisance of this picture and increasing vulnerability related to HIV/AIDS, what impact then is the commercialisation of NRs having on the NR-base? With reference to consumption of NRs, Hunter *et al.* (2011) describe a tension between the importance of the

safety-net role of NRs and matters of environmental sustainability, especially in the arena of common property resources and ineffective management. Hunter *et al.* (2011) found that mortality-affected households are more dependent on fuelwood and water than non-affected households. The ecological outcomes of harvesting when there is a high dependence on resources accompanied by poor local ecological knowledge can be critical (Uma Shaanker *et al.* 2004). HIV/AIDS could induce such a scenario as it has been hypothesised that with the death of adult family members there may be a break in the chain of indigenous knowledge transfer between generations in addition to the resultant intensification of resource use (Torell *et al.* 2006; Kaschula 2008).

Some have expressed concern that those impacted by HIV/AIDS may adopt a short-term stance on NR extraction. Kaschula (2008) poses the question: “Is HIV/AIDS transforming the manner in which communities utilise non-edible natural resource products, and if so, what are the implications for conservation, as well as HIV/AIDS policy and planning?” Less respect may be shown for conservation rules and regulations as those impacted by HIV/AIDS begin, in light of their situation, to pursue immediate gain rather than the sustainable use of resources (Mutangadura *et al.* 1999; Torell *et al.* 2006; Kaschula 2008). Drimie and Grandure (2005) aver that in Zimbabwe, traditional norms regarding the preservation of biodiversity have eroded on account of the impact of HIV/AIDS. There are however no empirical studies that have examined this. Moreover, commentary, in the absence of empirical studies, has failed to interrogate if this is a weakened sense of stewardship as a consequence of HIV/AIDS or if it could be attributed to the commercialisation of NRs.

Kashula (2008) offers an interesting perspective with reference to the fact that by land lying fallow by reason of its occupants being ill or having died, this may allow time for natural food products to re-colonise the area and present opportunities for the environment to recover. She also raises the point that although wild foods were shown to be an important coping strategy for the vulnerable, the hypothesized increased extraction of these resources may be counteracted by reduced labour availability within a household. It is households fostering orphans that are most likely to intensify their resource extraction activities (Kashula 2008). This finding correlates with those of Hunter *et al.* (2007) from their work in the Limpopo Province of South Africa.

With regards to LEK, little is known about what influence this has on an individual's choice of coping strategy and whether or not this knowledge is likely to diminish as a result of the impact of HIV/AIDS. Local or traditional ecological knowledge is defined by Berkes *et al.* (2000) as “a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.” McGarry and Shackleton (2009) however, found that significant social learning fora existed among the children and that certain knowledge and skills pathways remained open in the face of the impact of HIV/AIDS. In addition to this, those who engage in NR commercialisation may increase their LEK over time by doing so (Godoy *et al.* 1998; Uma Shankar *et al.* 2004) and may also adopt more sustainable harvesting practices. Paumgarten (2005) states that “if the insurance value of NRs is considerable, it may promote resource-conserving behaviour, especially in countries where governments are unable to provide basic services.”

Clearly, NRs are a critical safety-net for those enduring a shock to their household and any occurrence which may leave people with limited or no access to these resources would invariably be at a monetary cost to themselves – a weighty ramification for those living in poverty that cannot afford to spread their meagre income any more thinly. Shackleton C.M. and Shackleton S.E. (2004b) sum up the scenario concisely: “although the local harvesting and consumption may have a negative net annual value, people have limited options, since the alternative requires ready cash, which may not be available, and at a cash cost higher than they can harvest an equivalent good locally.” Rural peoples' small income is used to cover the cost of important needs like the education of children, hence having to use this money to cover needs that the natural environment had met before proves injurious (Shackleton C.M. & Shackleton S.E. 2004b; Paumgarten 2005; Sunderlin *et al.* 2005; Shackleton C.M. *et al.* 2007a).

#### **1.1.5 Significance of HIV/AIDS in driving NR trade as a safety-net and livelihood strategy**

Both success stories and failures are found in very context-specific circumstances when examining the role NRs play in alleviating poverty and in concert, the attenuation of vulnerability associated with HIV/AIDS. Opting for a generalised approach to NRs and their proposed importance would be short-sighted (Shackleton S.E. *et al.* 2008). Rather, it is

important to learn about the conditions under which NRs can and cannot contribute to realising these goals (Arnold & Perez 2001; Berkes 2004).

The above discourse serves to put this proposed research into perspective. It is the extent to which vulnerability associated with HIV/AIDS is driving people to engage in the commercialisation of NRs that will be the focus of this research. It will build on the work of Shackleton S.E. (2005), McGarry (2008), and Kaschula (2008), whose research has provided a platform of evidence in South Africa that suggests the importance of NRs to those made vulnerable by the HIV/AIDS pandemic. The bulk of detailed empirical work on this topic is from South Africa and there is thus a need for studies to be carried out elsewhere in sub-Saharan Africa.

Kaschula (2008) and McGarry (2008), together with Hunter *et al.* (2007; 2011) and Twine and Hunter (2008), have contributed to the knowledge base surrounding HIV/AIDS and household food and energy security but have not looked at the link between HIV/AIDS and NR commercialisation. Hunter *et al.* (2008) expressed the need for research to explore income-generating uses of NRs among HIV/AIDS-impacted households because this may contribute to improved understanding of the ecological costs of the HIV/AIDS pandemic.

Shackleton S.E. (2005) indicated the importance of the trade to those households experiencing adversity or shock but did not directly address the role of HIV/AIDS as a potential cause of this dependency. Cocks and Bangay (*Submitted*) assessed the role and the significance attached to wild resources used in urban areas but did include possible effects HIV/AIDS might be having here. This provides incentive to undertake the abovementioned research aim along a development gradient, in so doing, provide information for both rural and urban contexts. Additionally, Paumgarten (2005) examined the safety-net role of NRs and appraised the frequency and types of shocks experienced at the household level reinforcing this function of NRs. Her research however did not provide insight as to where HIV/AIDS ranks on the list of shocks experienced by households in terms of its level of significance.

Consequently, this research aims to bridge the knowledge gap between HIV/AIDS and the degree to which it is contributing to the expansion of NR commercialisation in urban and rural areas. Moreover, it will seek to explore the unknowns surrounding the influence of LEK on people's choice of coping strategy and whether or not this LEK and the harvesting practices of



people differ between those who have entered into the trade as a result of HIV/AIDS and those that have chosen alternative coping strategies. This may in turn contribute towards a broader understanding of what impact this may have on biodiversity conservation and poverty alleviation in the future.

## **1.2 RESEARCH OBJECTIVE AND KEY QUESTIONS**

### **1.2.1 Objective**

To assess the significance of HIV/AIDS as a livelihood shock which potentially is contributing to the expansion of NR commercialisation and the role LEK plays in responses to shock.

### **1.2.2 Key questions**

1. What is the nature of the NR trade and traders in southern Africa?
2. What are the key differences in such trade between urban and rural areas?
3. Where does HIV/AIDS feature in terms of its significance as a livelihood shock in comparison to other shocks experienced by households of varying degrees of involvement in the NR trade?
4. What coping strategies are households employing when dealing with shocks and where does the NR trade rank in terms of its importance in comparison to other strategies employed?
5. Does LEK underlie the choice of the NR trade as a coping strategy in the face of HIV/AIDS?

## **1.3 APPROACH**

### **1.3.1 Data collection**

The research approach involved two phases. The first was a large-scale, rapid, quantitative survey conducted across several countries and the second a detailed quantitative and qualitative analysis of two of the regions surveyed in the first phase. The research followed the Rhodes University Ethical Standards guidelines and commenced only once the proposal had been approved by the university's Ethical Committee. Clearance was also sought from the relevant authorities at each of the sites that were visited.

### **1.3.1.1 Phase 1: Rapid survey**

The first phase of research involved a rapid survey across several southern African countries, interviewing those involved in the commercialisation of NRs to determine the when, what and why of respondents' engagement in NR trading. Sites were accessed in Malawi, Zambia, Zimbabwe, Swaziland and South Africa through correspondence with researchers either working in those areas at the time or having done so in the past. The sites were therefore recommended either for their having respondents willing to participate in a research endeavour of this nature or having respondents who had already participated in HIV/AIDS-related research in the past. Respondents included traders in rural settings; urban traders trading with locals; and urban traders trading with tourists. By doing so, this provided scope for a comparison of the characteristics of the traders and the trade between rural and urban areas.

The impact of HIV/AIDS needed to be isolated as an independent factor influencing the respondent's coping strategy without deliberate mention of the term so to avoid (1) leading them and (2) reluctance to answer due to the stigma attached to this disease across the continent. For this purpose, HIV/AIDS effects were gauged by proxy, using parameters adapted from the SADC FANR Vulnerability Assessment Committee guidelines (2003). The five HIV/AIDS proxies that were used were: (1) presence in the household of chronic illness (over three months) of a person aged between 0 and 56 years, (2) presence of chronic illness of a person aged between 0 and 56 years and receiving free treatment, (3) recent death (last two years) in the household of someone between the age of 0 and 56 years, (4) recent death in the household of someone between the age of 0 and 56 years who experienced at least three months of chronic illness before death, and (5) the presence of children under 19 years with both parents deceased. The same proxies were used by McGarry (2008) and Kaschula (2008) in their individual research endeavours.

The aforementioned proxies were at times reworded to avoid a temporal mismatch which occurred if a respondent stated that they had been involved in the NR trade for a significant period of time (e.g. >5 yrs) but responded affirmatively to any one or more of the proxies. One would not be able to deduce from this scenario, whether or not HIV/AIDS was the causal factor for the respondent engaging in the trade. Considerable flexibility was therefore required when undertaking interviews to identify the real catalyst for people's involvement in the trade at the time they entered. The following scenario is a possible example of this:

Question: "Why did you take up this trade?"

Response: "I was retrenched from my previous place of employment"

Question: "Why were you retrenched?"

Response: "I was too sick to work"

Question: "I am sorry to hear that. Are you still sick?"

Response: "Yes"

Question: "How long have you been sick for then?"

Response: "6 months"

Question: "Are you receiving treatment?"

Response: "Yes"

Question: "Ok, do you have to pay for this treatment?"

Response: "No"

Question: "Ok, that is good to hear. Well I hope you recover soon..."

In this example the proxies have been incorporated in an indirect way but based on the responses one might deduce that the person is suffering from HIV/AIDS.

With regards to locating informants, the snowball technique was incorporated at each site after the first respondent had been identified by the research correspondent or the local interpreter. A total of 420 interviews were conducted at two to three sites in each of the five countries (Fig. 1.1). People involved in the production and the sale of NRs were incorporated into the study. The process of resource harvesting, production and trade often stays in the hands of the same individual (Shackleton C.M. & Shackleton S.E. 2004b). The interview schedule (Appendix 6.2.1) is in a structured format and contains largely open-ended questions.

### **1.3.1.2 Phase two: In-depth survey**

This phase entailed an in-depth investigation of two of the sites visited during the rapid survey, one site in Malawi and one in South Africa. These two sites were selected based on the AIDS-proxy data acquired during the first phase which provided a platform for further analysis and for addressing the other objectives of the study.

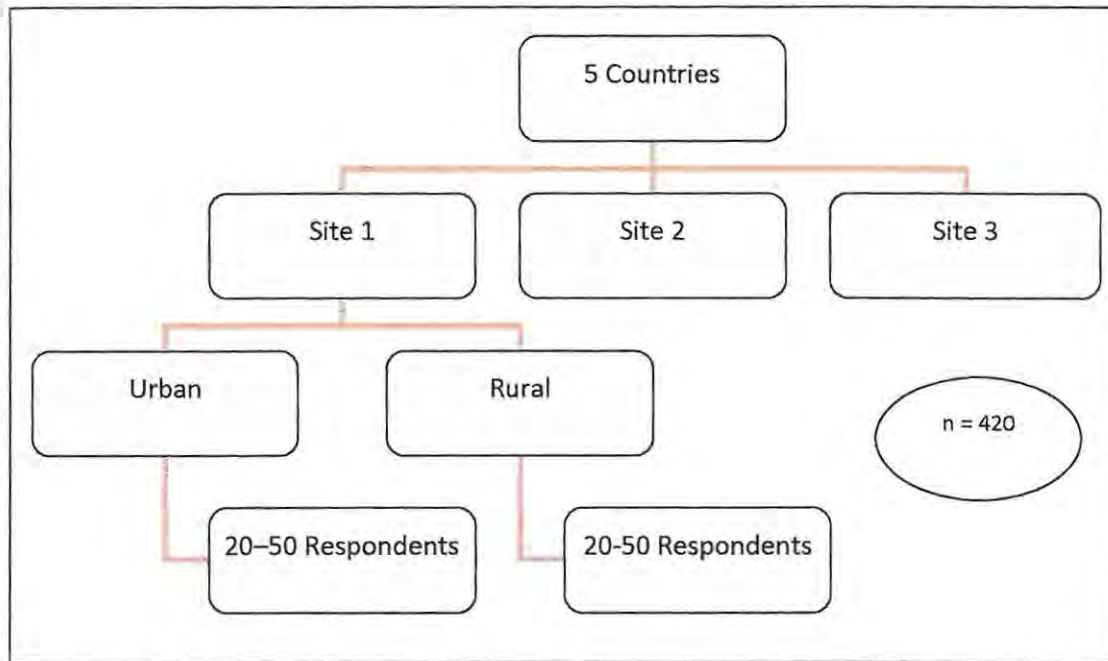


Figure 1.1 Sample size chart

Data collection for the second phase involved both quantitative and qualitative methods. Another structured, open-ended questionnaire (Appendix 6.2.2) drawing out information relating to peoples' perceived livelihood shocks was incorporated. Three groups of households (10 households/group/site;  $n = 60$ ) were sampled, namely non-trading, those with the presence of an inexperienced NR trader, and those with the presence of an experienced NR trader. The focal areas of interest with regards to these households included the following: the household shocks they had encountered within the previous two years and the ranking they assigned to each of these shocks in terms of their level of significance. The coping strategies they employed in response to these shocks and the degree to which NRs were relied upon in these circumstances. Additionally, general household characteristics for example income streams and their relative importance in comparison to NRs were sought.

### 1.3.1.3 LEK analysis

To get a grasp of a households' measure of LEK, three products were selected from each site through prior investigation and *ad hoc* interviews and respondents' knowledge of these was then assessed. These were: (1) the product most commonly used for household consumption; trees used for charcoal and fuelwood in Malawi and South Africa, respectively; (2) the product most commonly traded; fish in Malawi and *Aloe ferox* sap in South Africa; and (3), an ephemerally used product, chosen for the purpose of drawing out deeper levels of LEK due

to the fact not all people would have knowledge of these products. This was necessary to help tease out if high LEK on NRs was a cause or consequence of involvement in the NR trade. In both Malawi and South Africa the product chosen was honey. Therefore, aside from the questions pertaining to the traded product, the same set of questions was used in each country.

A suite of questions were compiled to suit these products and to assess different levels of knowledge, namely:

- Descriptive questions, e.g. where does a particular tree grow the best?
- Ecological questions, e.g. if there has been a dry year does a particular tree still produce flowers or fruit?
- Relationship and functional response questions, e.g. does this species survive fire? How do bees know where the flowers are?

When a household was approached the most experienced trader was interviewed and in non-trading households the household head or *de jure* head. The analysis was of individuals as opposed to whole households and so caution was taken to avoid the influence of other household members during the course of the interview. In the context of shocks households may experience, LEK held by an individual could be used to the advantage of the entire household, for example knowledge of how to harvest a particular NR, process it and sell it to acquire cash to cope with a crisis.

### **1.3.3 Data analysis**

The data consisted of several interrelated variables: (1) a household's measure of vulnerability, based on household size, number of children ( $\leq 17$  yrs), household education, monthly income, number of cash earners and income streams (including government grants), and the proportion of households with savings, assets, livestock and crops; (2) the significance of HIV/AIDS as a household shock in comparison to other shocks encountered; (3) the use of NRs as a coping strategy and its importance in comparison to other strategies a household may employ; (4) a household's level of LEK.

Data analysis involved comparisons between rural and urban samples obtained from the rapid survey, in addition to comparisons between the five incorporated country samples. The in-

depth survey yielded opportunity for contrasting the four trader groups as well as Malawian and South African households. Statistical methods are described in greater detail in the subsequent chapters.

## **1.4 STUDY AREA**

### **1.4.1 Rapid survey**

The first phase of research incorporated 26 study sites located across five countries in southern Africa (Fig. 1.2). The table below (Table 1.1) provides a brief overview of the countries included in the rapid survey. According to the UNDP (2010) human development report, Zimbabwe is lowest ranked country in the world, while Swaziland and South Africa are the only countries in the survey considered to have medium human development. It is worth noting that Malawi is the only country whose HDI value has increased over the last 20 years, suggesting its level of development has improved, although its rank has not changed in the last five years. Malawi has the largest annual population growth, the highest life expectancy at birth, and the lowest adult HIV/AIDS prevalence. Swaziland is at the opposite end of this spectrum.

### **1.4.2 In-depth survey**

Two countries were selected from the initial five for further investigation, based on the findings obtained from the rapid survey; these were Malawi and South Africa. It was challenging to obtain comparable site-specific study area data for the two sites but what ensues is a precise of pertinent issues pertaining to the study in each of these regions.

#### **1.4.2.1 Study site 1: Matamanda, Nkhata Bay District, Northern Region, Malawi**

Malawi is a small, landlocked country located in the south-eastern region of Africa. The country shares a border with Zambia to the west, Tanzania to the north-east, and Mozambique to the east, south, and west. With a land area of 118 484 km<sup>2</sup>, and a population of 13.2 million (Malawian National Statistical Office 2008), it has a population density of 111 people per km<sup>2</sup>. The greater part of the eastern border is adjacent to Lake Malawi (also known as Lake Nyasa), the third largest lake in Africa. Malawi is divided into three administrative regions, the north, central, and south. The site selected for the in-depth survey is a village named Matamanda which is located approximately four kilometres to the west of Mpamba, and 21 km west of Nkhata Bay two of the sites incorporated in the rapid survey (Fig. 1.2). Matamanda is located in the Northern Region of the country within the Nkhata Bay District. The district spans an

area of 4 406 km<sup>2</sup> and is composed of four agro-ecological zones: (1) the islands of Likoma and Chizumulo, (2) a lakeshore zone at 475-600 metres above sea level, (3) an escarpment zone at 600-900 metres above sea level and (4) a less densely populated mountainous plateau zone more than 900 metres above sea level. The annual average rainfall is more than 2 000 mm, with a dry period from April to November, and a mean temperature range from 13 °C in June to 35 °C in November.

The Northern Region contains about 11 % of the countries total population. According to Bekele (2001), this region has the highest rate of deforestation at 51 851 ha/yr. Northern Malawi now suffers from one of the highest rates of deforestation in Africa, 2.4 % per annum (FAO 2003a). Despite this, the Nkhata Bay District remains the second most forested district in the country with 28 % undisturbed indigenous *miombo* woodland, dominated by species of *Brachystegia*, *Julbernardia* and *Isoberlinia* (Campbell 1996). There is however noticeable pressure from urban areas (Bekele 2001) with Mzuzu, Malawi's third largest city by population, 30 km to the north-west. At the time of writing the Malawian government continued to impose a ban on the charcoal trade (Zulu 2010). According to interviewees, this was based partially on the premise that it would be cheaper for people to use electricity, but they complained that the start-up costs required for this meant that many were not in a position to make this change. Interestingly, Madubansi and Shackleton C.M. (2007) found that a decade after the introduction of electricity in a rural region of South Africa, over 90 % of households still used fuelwood for thermal purposes and mean household consumption rates had not changed.

Only northern Malawi retains any significant forest cover outside of protected reserves, providing a wide range of NRs including, among others, high value timber, fuelwood, edible fruits, mushrooms, honey, fodder for animals, medicinal products and bushmeat (Davies *et al. n.d.*). Forestry and community development research has been focused on the southern and central regions of the country where the vast majority of the population is concentrated, but there is extreme poverty in the north.

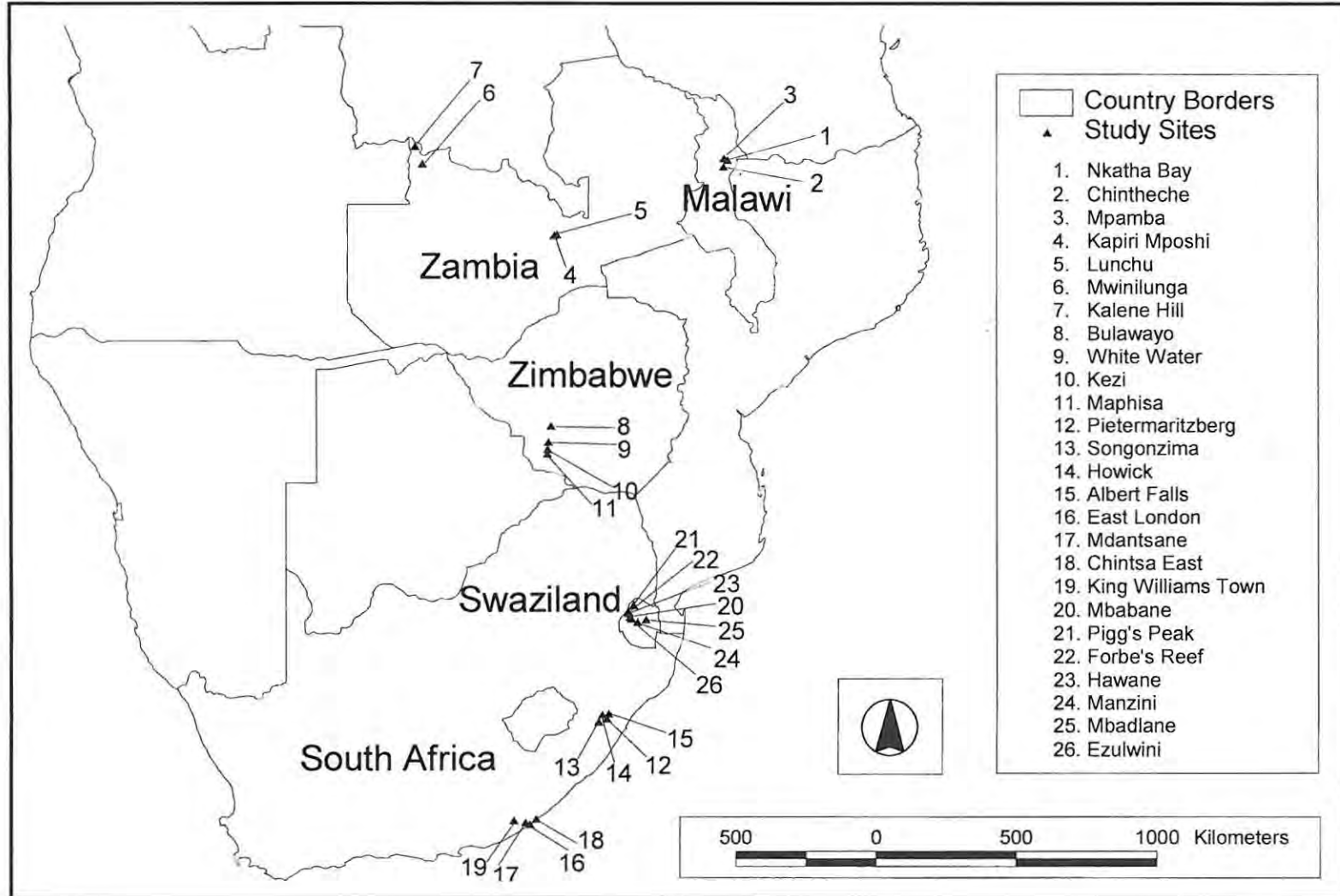


Figure 1.2 Study sites used in the rapid survey



Table 1.1 Human development indices for the countries included in the rapid survey (UNDP 2010)

COMPONENT	UNIT/YEAR	COUNTRY				
		Malawi	Zambia	Zimbabwe	Swaziland	South Africa
HDI rank (out of 169 countries)	2010	153	150	169	121	110
HDI value	2010	0.385	0.395	0.140	0.498	0.597
	1990	0.289	0.423	0.284	0.511	0.601
Gross national income per capita	(PPP 2008 \$)	911	1 359	176	5 132	9 812
Adult literacy rate	(% ages 15 and older: 2005 - 2008)	72.8	70.7	91.4	86.5	89.0
Mean years of schooling	(years)	4.3	6.5	7.2	7.1	8.2
Average annual population growth	(% 1990 - 1995)	1.4	2.8	2.3	2.3	2.4
	(% 2010 - 2015)	2.7	2.4	2.1	1.4	0.5
Dependency ratio	(per 100 people ages 15 - 64)	96.2	97.0	77.3	73.0	53.6
Urban population	(% of total: 1990)	11.6	39.4	29.0	22.9	52.0
	(% of total: 2010)	19.8	35.7	38.3	21.4	61.7
Employment to population ratio	(% of population aged 15 - 64: 1998)	72.1	61.2	64.9	50.4	41.1
Formal employment	(% of total employment: 2000 - 2008)	..	19.1	38.2	..	97.1
Population below national poverty line	(%)	52.4	68.0	..	69.2	22.0
Population without access to water	(% 2008)	20.0	40.0	18.0	31.0	9.0
Population without electricity	(% of population: 2008)	87.6	78.4	62.6	..	24.2
Protected area	(% terrestrial area: 2009)	15.0	36.0	28.0	3.0	6.9
Population living on degraded land	(%)	19.0	5.0	29.0	0.0	17.0
Population affected by natural disasters	(average per yr, per million people)	70 315	36 424	75 240	156 115	33 998
Life expectancy at birth	(years)	54.6	47.3	47.0	47.0	52.0
Infant mortality rate	(per 1 000 live births: 2008)	65	92	62	59	48
Adult HIV prevalence	(% ages 15 - 49: 2007)	11.9	15.2	15.3	26.1	18.1
Youth HIV prevalence	(% males 15 - 24: 2007)	2.4	3.6	2.9	5.8	4.0
	(% females 15 - 24: 2007)	8.4	11.3	7.7	22.6	12.7

The Nkhata Bay District has the lowest household and per capita expenditure of any district in Malawi and amongst the highest proportions of poverty (63 %) and extreme poverty (30 %) ('Extreme' or 'ultra' poverty pertains to households whose total consumption per capita on food and non-food items is lower than the minimum food expenditure in the country) (Malawian National Statistical Office 2008). The staple crop in the north is cassava, known to be a nutrient poor food (Onyango 2003 in Davies *et al. n.d.*); this increases the importance of the nutritional value of wild foods like fish, insects, fruits vegetables and nuts and subsequently pressure on remaining forest.

The main administrative body of the district of Nkhata Bay is the District Assembly who works closely with ten traditional authorities and oversee a population of 216 061 people (Malawian National Statistical Office 2008). While the local economy is dominated by agriculture, with nearly 90 % of all adults engaged in farming (Malawian National Statistical Office 2008), there is also a large proportion of the population who rely on fishing and fish farming for their livelihoods, though fish stocks are dwindling. An appraisal of the countries service delivery performance (Malawi Economic Justice Network 2006), involving a sample of 1080 households, established that in the Nkhata Bay District the average household size was 5.8, 14.1 % of households did not have enough to eat for up to a year, while 28.9 % did not have sufficient food for up to three months. The majority (74 %) of households in the district were classified as being vulnerable, poor or very poor. A large proportion (84 %) of respondents had reason to attend the nearest government health centre in the past 12 months, 77 % having needed to visit the district hospital (the highest percentage in the country). For 58 % of the sample, it takes more than two hours to reach this hospital. According to UNAIDS (2008a), of pregnant women attending the Nkhata Bay District Hospital in 2005, 12.3 % were HIV positive. More recently however, the Malawian National AIDS Commission (2008 in Ndengu 2009) showed that this district has one of the highest HIV/AIDS prevalence rates, with 24 % of the population affected. There are 20 117 registered orphans in the district of Nkhata Bay alone (Nkhata Bay District Assembly 2006). Among other spheres, this is playing havoc with education in the region with the rate of teachers losing their lives to AIDS being higher than the rate of those being employed (Nkhata Bay District Assembly 2006).

#### **1.4.2.2 Study site 2: Ward 7, Nkonkobe District Municipality, Eastern Cape, South Africa**

The second site included in the in-depth survey was a cluster of villages located in a rural area of the Nkonkobe Local Municipality (NLM) in the Eastern Cape of South Africa (Fig. 1.3).

This district municipality constitutes 21 wards and a total of 38 116 households of which 1 443 are located in ward seven where the study was carried out (NLM 2009). The study site lies within the central part of the Kat River Valley which is 80 km in length and covers 1 700 km<sup>2</sup> (McMaster 2002). Summer temperatures range from 20 to 35 °C and winter temperatures between 0 and 20 °C (Magni 1999). The area receives a mean annual rainfall of 600 mm per year varying from 800 mm in the mountains to 400 mm in the lower valley (Midgley *et al.* 1994 in Motteux 2002). The dominant vegetation type within the valleys is Great Fish Thicket (0-1000 m above seal level), while the higher lying areas are dominated by Eastern Cape Escarpment Thicket (450-1 250 m above seal level) (Mucina & Rutherford 2006). Species like *Acacia karroo* occur commonly in areas where heavy grazing has taken place and where the land is lying fallow.

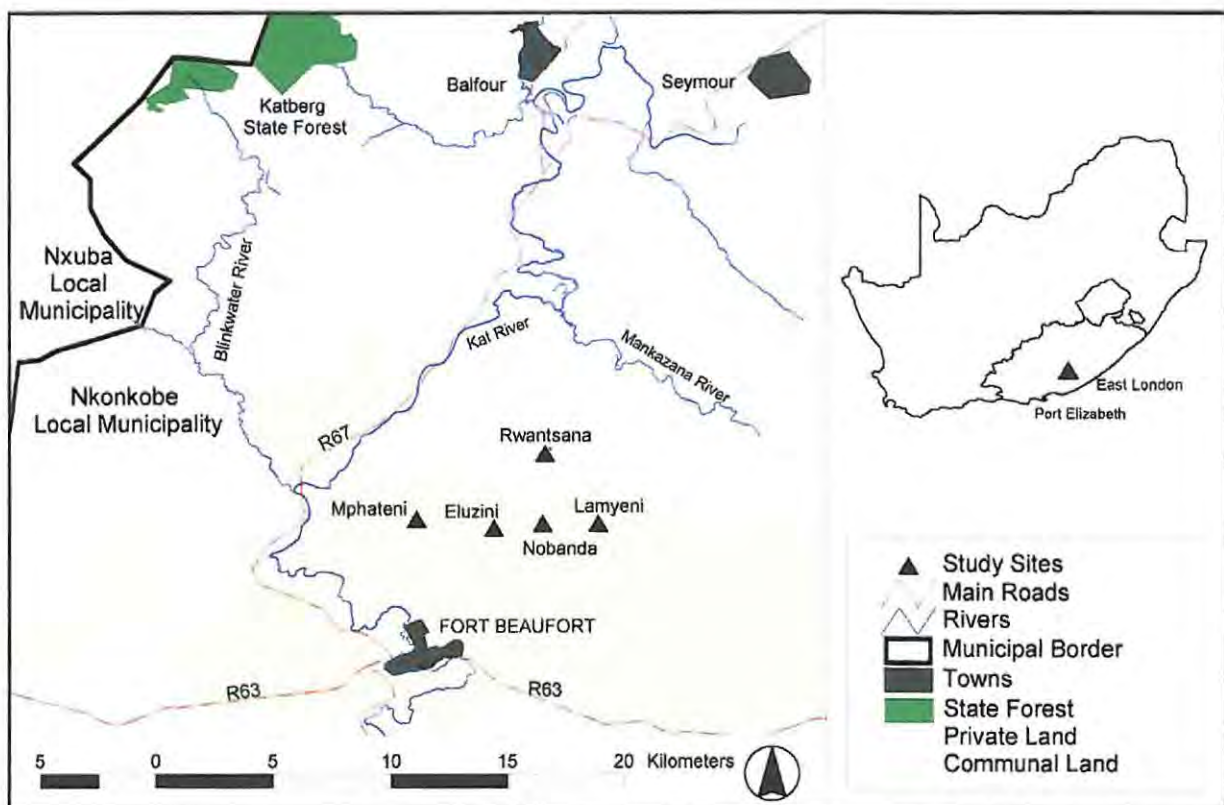


Figure 1.3 Sites selected for the South African sample of the in-depth survey

The site falls within the former Ciskei, an area which was previously designated an independent homeland for Xhosa-speaking people during the apartheid regime. The scars of this era are clearly evident across this landscape where ‘Africans’ were forcibly resettled into an area which, for the number of people put there, was flagrantly small. The area is

accordingly characterised by poor service delivery and low levels of development. To date, residents have been largely reliant on government grants for their survival and the NLM is only able to create jobs for 3.5 % of the economically active population (NLM 2009). The bulk (74 %) of the population is without income at all. It is estimated that over the last five years, 211 600 people have migrated from the Eastern Cape in search of better opportunities (STATSSA 2010).

Statistics obtained from the Eastern Cape Department of Social Development (ECDSD) (2011) describe the population of the NLM to be 130 098 within an area of 3 724 km<sup>2</sup> and a population density of 35 people per km<sup>2</sup>. About one-third of the Amathole District Municipalities' (within which the NLM falls) population is younger than 15 years, and almost 60 % is aged between 15 and 64 years (ECDSD 2011), while the mean age in the NLM is 26 years (NLM 2009). Of a sample of over 3000 respondents over the age of 20 years, 52 % had only received primary education, while 15 % had received no education at all. There is an average of 3.7 people per household in the NLM with 42 % of household heads being either younger than 20 years old or older than 60 years. Half of all households are headed by females.

The region is characterised by a number of different land uses, including commercial citrus and stock farming, subsistence agriculture, small-scale animal husbandry and game farming (Paumgarten 2006; Shackleton C.M. & Shackleton S.E. 2006). According to the NLM (2009) 93 % of the population has access to electricity but, interestingly, the ECDSD (2011) state that 25 % still use fuelwood for cooking and a further 46 % use either fuelwood or charcoal for heating. About 81 % of the population reside in the rural areas of the municipality (NLM 2009).

After the publication of the 2001 census, the NLM (2009) reported a significant decline in the population size and pinpointed HIV/AIDS as a key contributing factor to this. There is currently no data collated and analyzed for the Nkonkobe municipal area concerning the impact of HIV/AIDS (NLM 2009). The national HIV prevalence rate is approximately 10.5 % and the total number of people living with AIDS 5.24 million (STATSSA 2010). For the population between the ages of 15 and 49 years, 17 % are estimated to be HIV positive. (STATSSA 2010). There are currently almost two million AIDS orphans in the country (STATSSA 2010). Of the nine provinces in the country, the Eastern Cape has the sixth highest

adult prevalence (20 – 64 years; 20 %; Dorrington *et al.* 2006). In 2006 among a sample of pregnant women in the Amathole District (Eastern Cape), there was a 28.7 % prevalence rate (UNAIDS 2008b).

## CHAPTER TWO: THE CONTRIBUTION OF THE NATURAL RESOURCE TRADE TO RURAL AND URBAN LIVELIHOODS

### 2.1 INTRODUCTION

The importance of NRs in contributing to the well-being and often the survival of millions of rural poor across the globe has been recognised in a number of disciplines (Shackleton C.M. *et al.* 2007a, 2007b), as have their benefits to society at large, which is appreciated both internationally and within South Africa (Shackleton C.M. *et al.* 2007a). That these resources serve both the rich and the poor (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009), in addition to those residing in urban areas (Cocks & Bangay *submitted*; Stoian 2005; Wiersum & Shackleton 2005), is also beginning to be understood. Both tangible and intangible benefits accrue to people who make use of NRs (Magome & Fabricius 2004).

Land-based activities are important to rural livelihoods both financially and in social terms and could make up a larger contribution to household income than the likes of formal employment and government grants (Shackleton C.M. *et al.* 2001; Fandohan *et al.* 2010). A study conducted in a rural community in the northeast of South Africa revealed that of 45 households interviewed, each household was involved in the harvesting of NRs, keeping livestock and/or crop production (Dovie 2004). In terms of direct-use value, livestock contributed the most towards annual income, followed by NRs and then crops (Dovie 2004).

The use of NRs is an important cost-saving device (Shackleton C.M. & Shackleton S.E. 2006; Shackleton C.M. *et al.* 2007a; Paumgarten & Shackleton 2009). Moshe (2004) found in the northeast of South Africa that of a sample of 110 households from three villages the use of fuelwood for energy and cooking was high despite the fact that two out of three of these villages had electricity. In South Africa, over 80 % of rural households still use fuelwood as their primary source of energy and the direct-use value of this fuelwood was valued at R2 000 per household per year over a decade ago (Shackleton C.M. *et al.* 2007a). Fuelwood is just one product of a vast array of different resources that households use to meet their daily needs (Shackleton C.M. & Shackleton S.E. 2004a). Using the northeast of South Africa as a case example Shackleton C.M. & Shackleton S.E. (2004a) state that any single household in the

Bushbuckridge lowveld may utilise up to 20 edible fruit species, 21 edible herb species, and a similar number of fuelwood species.

Given the role NRs play in meeting people's basic needs, it is necessary that government acknowledge the importance of these resources to the poor and take cognisance of the fact that they themselves would need to bear the cost of these resources and the services they provide, were they to be lost (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton C.M. *et al.* 2007a).

Household consumption is just one important function of NRs. They may also be harvested and processed for sale in markets (Shackleton C.M. *et al.* 2002; Angelson & Wunder 2003; Fandohan *et al.* 2010), an activity that may be engaged in on a regular basis, occasionally to meet a specific need (e.g. school fees), or during times of adversity, typifying its role as an emergency or safety-net (McSweeney 2004; Takasaki 2004). The trade holds significant appeal, because of the relative ease with which people can get involved (the specifics of which will be covered in this chapter) (Shackleton S.E. *et al.* 2007). Subsequently, the income derived from it, although modest for most, can be sufficient enough to improve people's standard of living (Shackleton S.E. *et al.* 2007; Shackleton S.E. *et al.* 2008), and thereby act as an inducement for it to become a regular or permanent livelihood activity.

More often than not however it is the poorest of the poor who lean on NR as a means of getting by (Campbell *et al.* 2002; Shackleton S.E. & Campbell 2007; Kamanga *et al.* 2009). In India, 50 million people, constituting 5 % of the population, are directly dependent on forests for their survival, while in Brazil, 1.5 million (20 % of the Amazon regions population), rely on forest products (Fabricius 2002; Uma Shaanker *et al.* 2004).

The need for income to purchase items like food and household goods can serve as the impetus for people to begin trading (Shackleton S.E. *et al.* 2008; Paumgarten & Shackleton C.M. 2009), although finding a course of weathering shocks provides an even greater impulsion (Shackleton S.E. *et al.* 2008) like having to endure the socio-economic impacts of HIV/AIDS for example (Barany *et al.* 2005). For others, the attraction of a growing and diversifying market (Shackleton S.E. *et al.* 2007) or the growth in demand for low-cost and/or traditional products amongst urban populations (Cocks & Bangay *submitted*; Cocks & Dold 2006) acts as the catalyst for involvement.

Part of the scope of this study was to draw comparisons between urban and rural areas in terms of the contribution that the NR trade is making to livelihoods, in light of growing linkages between these two sectors. An investigation of the linkages between low-income households in the city of Durban (KwaZulu-Natal), with their rural abodes was conducted by Smit (1998) who found that 57 % of the households or household heads had migrated there from rural areas. Of these, 48 % maintained strong rural links characterised by a head of a household who still owns a rural home, returns there once a month, sends money back home and perhaps has children still living there (Smit 1998). The work of De Wet (2011) shows that many urban households maintain more than one homestead, usually spanning rural and urban locations.

According to Stoian (2005), NR research has neglected to evaluate the potential of these products as a livelihood option for the urban poor. His findings of the significant contribution forest products are making to income generation and poverty reduction in urban and peri-urban environments in the Bolivian Amazon, substantiate this (Stoian 2005). In South Africa, the limited work to date verifies this. For example, many studies in major metropolises have shown the extensive urban trade in medicinal plants (Williams *et al.* 2000; Botha *et al.* 2004; Cocks & Dold 2006). Similarly, fuelwood markets are common in poorer suburbs (Shackleton C.M. *et al.* 2007c) Cocks and Bangay (*Submitted*) examined NR use in general by urban households in town areas and found extensive use of several products such as fuelwood, medicinal plants, grass brooms, and edible items such as wild fruits and spinaches.

The list of non-financial or intangible benefits commences when NRs are placed under the banner of biodiversity and ecosystem goods and services where they serve an array of functions, for example water retention, inheritance value, aesthetics, shade, initiation sites, sacred areas and the prevention of soil erosion (Shackleton C.M. *et al.* 2001; Magome & Fabricius 2004).

The cultural and spiritual benefits provided for by NRs are exceptionally easy to overlook because there are great difficulties associated with trying to put a monetary value on them (Magome & Fabricius 2004; Cocks *et al.* 2011). Yet, by meeting spiritual and social needs, they serve to reduce vulnerability and improve the standard of living (Shackleton C.M. *et al.* 2007a; Shackleton S.E. *et al.* 2008; Fandohan *et al.* 2010).



The non-financial benefits accompanying the trade of NRs are irrefutable; when the poor involve themselves in these activities they derive a sense of independence and self-esteem, arguably, regardless of the amount of money they bring home (Shackleton S.E. *et al.* 2008). Pride and dignity are part of the fabric of being able to provide for ones family and the development of skills commands the respect of ones neighbours (Shackleton C.M. & Shackleton S.E. 2004b). Furthermore, communities become more economically equitable as incomes derived from NRs have a role in assisting with the mitigation of income disparities (Umu Shaanker *et al.* 2004; Shackleton S.E. *et al.* 2008; Kamanga *et al.* 2009).

The following sections provide coverage of the NR trade across southern Africa in terms of the nature of the trade, the variety of products being traded, the markets, resource availability and recent growth in the trade. It continues with a focus on the characteristics of the traders themselves, their dependency on the trade, what motivated them to start trading and the contribution this activity is making to their livelihoods in urban and rural sectors.

## **2.2 RESEARCH OBJECTIVE AND KEY QUESTIONS**

### **2.2.1 Objective**

To determine the nature of the NR trade in several southern African countries, evaluating its contribution to livelihoods in both urban and rural areas.

### **2.2.2 Key questions**

1. What is the nature of the NR trade and traders in southern Africa?
2. What are the key differences in such trade between urban and rural areas?

## **2.3 APPROACH**

### **2.3.1 Data collection**

A two phase study was designed to provide quantitative rigour with qualitative depth. Phase one was an extensive, rapid survey of natural resource (NR) traders within five countries across southern Africa. The principle objective was to profile the trade, the livelihoods of those involved and their reasons for entering the trade to ultimately establish (CHAP. 3) to what degree HIV/AIDS may have been a catalyst for this. Because HIV/AIDS is a highly sensitive topic to address, a set of proxies designed by the South African Development

Community, Food, Agriculture and Natural Resource Vulnerability Assessment Committee (SADC FANR VAC 2003) were used. Research only commenced following clearance from the Rhodes University Ethical Committee and the relevant authorities at each site. Phase two involved in-depth interviews and work with a smaller sample at two sites.

Five countries were included in the broader survey and three to eight sites within each were identified by researchers either currently working there or having done so in the recent past. Table 2.1 below details the spread of the sample across the five countries.

Table 2.1 Study sites and sample sizes

COUNTRY	URBAN TOTAL	RURAL TOTAL	SITE	TOTAL
Malawi	35	35	Nkatha Bay	70
			Chintheche	
			Mpamba	
South Africa	57	3	Pietermaritzburg	110
			Elandskop	
			Howick	
			Albert Falls	
	47	3	East London	
			Mdantsane	
			Chintsa East	
			King Williams Town	
Swaziland	35	35	Mbabane	70
			Pigg's Peak	
			Mhlosheni	
			Hawane	
			Manzini	
			Mbadlane	
			Ezulwini	
Zambia	30	30	Kapiri Mposhi	110
	25	25	Lunchu	
			Mwinilunga	
			Kalenie	
Zimbabwe	42	18	Bulawayo	60
			Whitewater	
			Maphisa	
			Kezi	
	271	149		420

Effort was made to include both urban and rural traders in the survey, however rural traders were hard to come by, partly because urban traders were far more localised and visible than rural and accessibility in some of the rural areas was not without difficulty. What also became apparent was the growing attraction urban environments hold for rural inhabitants. The data ultimately obtained provided further explanations for this discrepancy (see section no. 2.4.1.3). Urban respondents made up 64.5 % of the sample and rural respondents 35.5 %.

Respondents were interviewed with the assistance of a local interpreter in both rural and urban settings to examine when, what and why respondents engaged in the NR trade. A sample of 420 informal traders were interviewed, 46 % of which were also involved in the production side of their trade. Those (both producers and sellers) who had been involved in the trade for 10 years or more ( $n = 161$ ) were questioned on the availability of the resource traded and on their perceptions regarding change in the number of producers or sellers over the previous decade. The survey also gathered demographic details of the traders, e.g. age, levels of literacy, previous occupation, etc.

### **2.3.2 Data analysis**

Exploratory principle component analyses were run to investigate possible relationships between variables, following which the relevant significance tests were conducted. Pearson's Chi-Squared Test was used when dealing with frequency data, such as comparisons between urban and rural trader and market attributes. When analysing numerical data, for instance the hours worked by producers and sellers, a t-test for independent samples was used to compare means. In this regard, one-way ANOVA was also utilised and the Fisher LSD post-hoc test where appropriate; this technique was suitable when comparing the data from the five study regions. A p-value of less than 0.05 was accepted as being significant.

## **2.4 RESULTS**

### **2.4.1 Nature of the trade**

#### **2.4.1.1 *Urban and rural natural resource use***

A vast array (49) of different products were sold by traders across the study sample (Table 2.2). A portion of the total sample (17.6 %) sold multiple NRs while others (32.9 %) combined

Table 2.2 NRs sold across the study countries

PRODUCTS	COUNTRY					TOTAL	PRODUCTS	COUNTRY					TOTAL
	MAL	ZAM	ZIM	SWA	SA			MAL	ZAM	ZIM	SWA	SA	
WOOD PRODUCTS							ABIOTIC PRODUCTS						
Axe handles		*		*		2	Clay for cosmetics				*	*	2
Carvings	*		*	*	*	4	Clay pots					*	1
Charcoal	*	*				2	Kaolin				*		1
Fuelwood	*			*	*	3	Limestone	*					1
Furniture	*	*			*	3	Mud		*				1
Spears				*		1	Red Oxide for polish		*				1
Stick brooms				*		1	Stone carvings			*	*	*	3
Timber					*	1	Stones					*	1
Walking sticks				*	*	2							
Wooden fencing					*	1	REED PRODUCTS						
Wooden spoons				*	*	2	Baskets	*					1
							Fishing baskets		*				1
MEDICINAL PRODUCTS	*	*	*	*	*	5	Handbags				*		1
							Hats				*		1
GRASS PRODUCTS							Long-handle brooms				*		1
Baskets				*	*	2	Mats	*	*		*	*	4
Brooms		*	*	*	*	4	Screens/partitions	*					1
Handbags				*		1	Roots					*	1
Mats		*		*		2							
Raw material		*				1	OTHER PRODUCTS						
Thatching			*			1	Arum lillies					*	1
							Bonsais				*		1
WILD FOODS							Palm oil		*				1
Caterpillars		*	*		*	3	Rattan baskets		*				1
Fish	*	*	*			3							
Honey		*		*		2	NO. DIFFERENT PRODUCTS	10	23	10	21	19	
Traditional beer (Munkoyo)		*				1							
Tubers		*				1	% OF TOTAL PRODUCTS	20.4	46.9	20.4	42.9	38.8	
Wild fruit		*	*		*	3							
Wild mushrooms		*				1							
Wild potatoes (Chikande)		*				1							
Wild roots		*				1							
Wild vegetable (Mfushwa)			*			1							

Malawi (MAL); Zambia (ZAM); Zimbabwe (ZIM); Swaziland (SWA); SA (South Africa)

the NR trade with the sale of non-NR items e.g. farm produce or beadwork (this excludes medicinal product traders who in every instance sold a multitude of different products, both fauna and flora). The sale of domesticated fruit and vegetables pervaded every market visited during the rapid survey. Wild foods were the most commonly traded commodities (26.6 % of all products), followed by wood products (24.0 %) and medicinal products (18.7 %). The preponderance (51.7 %) and the greatest diversity of wild foods were traded in Zambia with 90.9 % of wild food varieties sold here.

There was a significant difference in the distribution of products sold between rural and urban areas ( $\chi^2 = 395.2$ ;  $p < 0.0001$ ) (Fig. 2.1). Notably, a greater diversity of products were being traded in urban areas than in rural areas (81.6 % in comparison to 57.1 % of products), although each of the seven categories of products were represented in each of the two sectors. The difference in medicinal product use across urban and rural areas stands out with a far smaller proportion (1.8 % in comparison to 27.3 %) of rural respondents engaged in this type of trade; this disparity is considered in greater detail in section 2.4.1.2. Wild foods showed the opposite trend with 37.4 % of rural respondents trading these in comparison to 22.7 % of urban respondents.

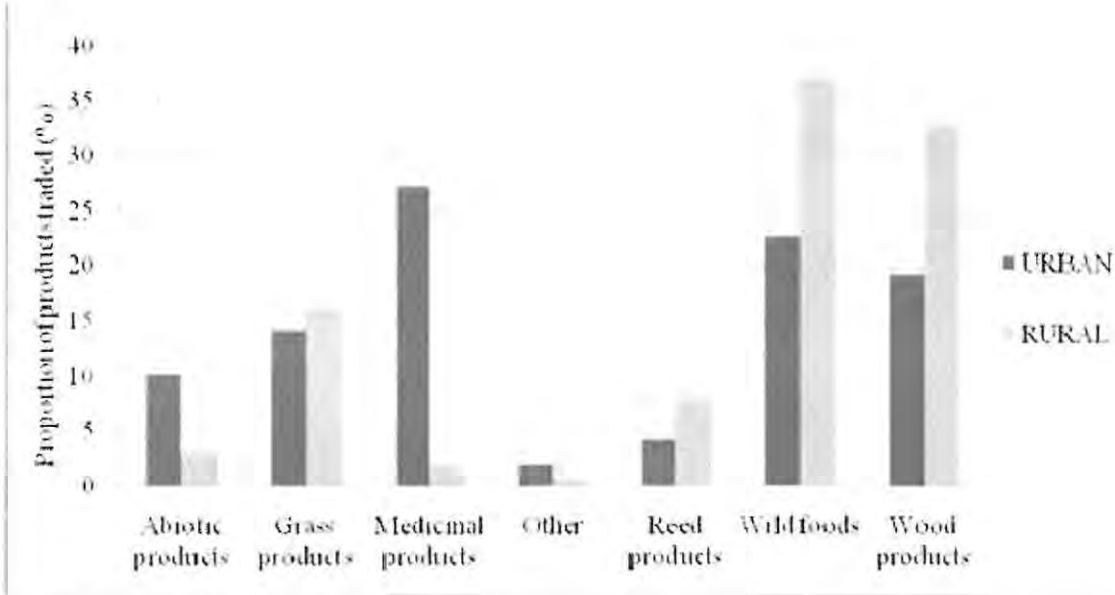


Figure 2.1 NRs traded in urban and rural areas across five countries

#### **2.4.1.2 The medicinal product trade**

Those involved in the medicinal product trade were encountered almost entirely (97.0 %) in the urban centres of Bulawayo (Zimbabwe) and Pietermaritzberg and East London (South Africa). There were fewer (42.4 %) producers than sellers (57.6 %), and of the producers (69.1 %), were found in South Africa. In terms of the knowledge required to be involved in this particular trade, the general opinion was that this was acquired from one's family (54.8 %) or from one's ancestors (26.2 %), through cultural and spiritual practices. The vast majority (98.3 %) of sellers stated that they obtained their products from producers or middlemen who came to them to sell.

The average distance travelled by medicinal product traders was 13.6 km ( $\pm$  24.7). However, in Pietermaritzberg a number of respondents mentioned that they travel from other parts of the country to the city to make their living. The average distance travelled by these traders was 183.2 km ( $\pm$  104.2) excluding two foreign traders encountered, a Malawian and a Basotho. A herb known as *Mpepho* (probably *Helichrysom odoratissimum*; Dold & Cocks 1999), was sold prolifically (83.3 % of traders) in Pietermaritzberg, often in addition to a range of other products from cleaning detergents to cigarettes. The herb is burnt by Zulu people as a medium for communicating with their ancestors.

For those whose trade was confined to the sale of medical products, 68.0 % said that it was their only household income. This specific trade was especially important in Zimbabwe with 96.0 % stating that it was their only source of income and 88.0 % stating that it provided their only household income. Two thirds (66.7 %) of medicinal product traders were female and were predominantly occupied with the sale (82.5 % of those selling medicinal products).

#### **2.4.1.3 Location of markets and travel**

Table 2.3 shows that for the broader sample the largest part of the trade encountered took place in village or town markets (36.9 %), followed by trade at roadside markets (27.6 %). Roadside markets were particularly evident in South Africa, while across the board,

designated trading areas where traders rent a space from which to trade were a common sight. The main customers in almost every country were locals, save for Swaziland which also noted considerable trade with passers-by (97.1 % of main buyers).

In terms of the proportion of traders involved in the production side of the trade when contrasting urban and rural traders, the larger share were those from the rural areas (58.4 % in comparison to 39.1 %). Table 2.2 reflects that it was more common to locate rural respondents trading from their homesteads or from the side of the road than it was to find urban respondents doing so.

Table 2.3 Urban and rural market attributes

ATTRIBUTE	URBAN	RURAL	STATISTICS	COMBINED
Location of markets (%)				
- Homestead	0.7	24.8	$\chi^2 = 94.4;$ $p < 0.0001$	9.3
- Mobile vendor	0.4	0.7		0.5
- Roadside market	33.6	16.8		27.6
- Side of the road alone	9.6	23.5		14.5
- Tourist market	15.5	3.4		11.2
- Village or town market	40.2	30.9		36.9
Main buyer (%)				
- Locals	95.6	84.6	$\chi^2 = 12.0;$ $p < 0.01$	84.0
- Passers-by	62.7	63.1		62.9
- Retailers	39.9	33.6		37.6
- Tourists	18.8	9.4		16.0
Sellers source of stock (%)				
- Middlemen	47.3	46.8	$\chi^2 = 21.8;$ $p < 0.0001$	48.9
- Personal contact/Family	1.8	14.5		5.2
- Producers	50.9	32.3		47.6
Means of obtaining stock (%)				
- Both	12.8	17.5	$\chi^2 = 234.4;$ $p < 0.0001$	14.7
- Middlemen/producers come	57.3	10.5		45.3
- Sellers go	29.9	71.9		40.0
Distance travelled to market (km)				
- All	22.5 ± 61.0	4.3 ± 10.5	$t = 3.7; p < 0.001$	16.0 ± 50.1
- Producers	30.5 ± 72.8	3.3 ± 5.8	$t = 3.5; p < 0.001$	18.2 ± 55.7
- Sellers	17.6 ± 51.3	5.7 ± 14.7	$t = 1.8; p > 0.05$	14.4 ± 44.7

The bulk of traders (both rural and urban) were however located in village or town markets (40.2 % and 30.9 %, respectively). On average, urban traders travelled about 18 km further than rural traders to get to their markets. On closer inspection it was however understood that the average for the distance travelled by urban traders had been inflated by the high number of

migrant rural traders that were found there. The majority were encountered in the bigger urban centres but those who consistently travelled the greatest distances were the fish traders of western and north-western Zambia who, for lack of a bigger market, needed to travel to Mwinilunga (the nearest commercial hub and closest market of any significant size), to earn a living. Of the 25 traders interviewed there the average distance each of them covered was 101.2 km with a range of nought to 411 km.

Across the study area, some migrant traders travelled on a regular basis (e.g. every fortnight). They were predominantly producers (53.7 %), but those that came from further afield (e.g. neighbouring countries or further) remaining in the urban areas for several months at a time, were largely sellers (75.0 %). In East London, South Africa, 28.6 % of the respondents involved in the survey were foreigners coming from Zimbabwe, Kenya, Malawi and Mozambique and were all involved in the tourist trade.

Of the sample, 17.4 % travelled 20 km or more to trade (range: 20 – 411 km). The average distance travelled by these traders was 118.8 km ( $\pm$  111.9). Of the 12 foreign nationals, 75.0 % of which were interviewed in East London, South Africa, the distance covered to get to their nearest border post on major public transport networks was 3 036 km ( $\pm$  1 440); one way. Of the sample travelling 20 km or more, 36.0 % were male while 64.0 % were female.

With a greater proportion (40.3 % in comparison to 24.0 %) of rural traders obtaining help from their household members with the trade, the process of extraction, production and sale was at times carried out by the same family. This is evidenced by the fact that 14.5 % of rural sellers obtained their stock from family members, in contrast with urban sellers for whom this was the case for 1.8 %.

The preponderance (50.9 %) of urban sellers obtained their stock from producers who were largely (58.4 %) from rural areas. These producers travelled the furthest out of all those involved in the sample (30.5  $\pm$  72.8 km). The majority (57.3 %) of urban sellers stated that producers/middlemen come to them in order to sell their wares as opposed to rural sellers who for the vast majority (71.9 %), needed to locate middlemen themselves.



A small number (11.2 %) of traders were located in tourist markets and 93.3 % of these were in urban areas. The ranking exercise (Fig. 2.2) showed that by comparison to traders operating from other locations, the NR trade was not ranked especially highly by those operating from tourist markets. However, the general trade which in most cases involved a combination of NR and non-NR products, they ranked as their most significant income source.

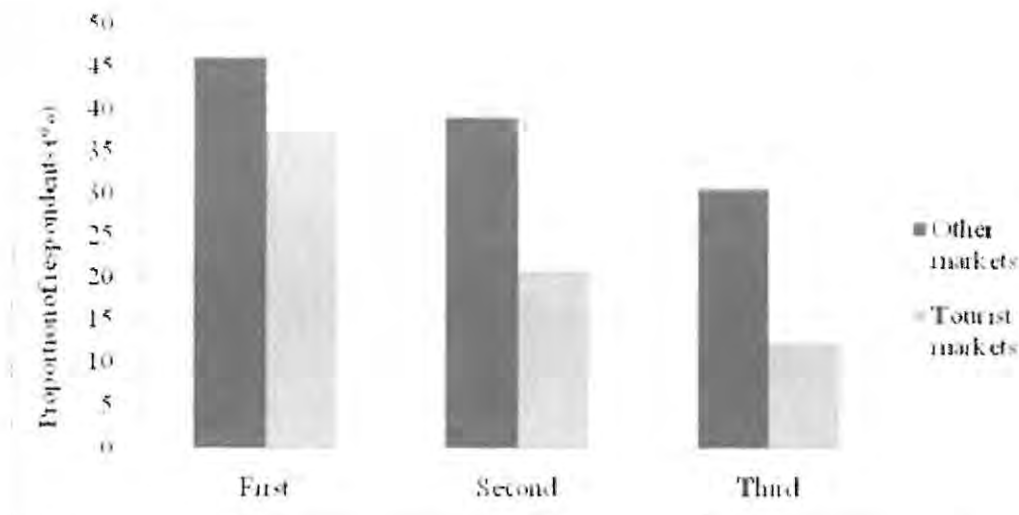


Figure 2.2 Ranking of NR trade contribution to household income by those working in the tourist markets in comparison to others

#### 2.4.1.4 Hours worked

Rural producers spent the least amount of time devoted to their trade while urban sellers spent the most (Table 2.4). Across the survey, traders described working on average almost nine hours per day ( $8.8 \pm 2.6$ ) and roughly six days a week ( $5.7 \pm 1.4$ ), which is about 50 hours per week. Aside from the significant difference in the number of hours devoted to the trade per week between producers and sellers there was also a significant difference ( $t = 5.5$ ;  $p < 0.001$ ) between urban and rural traders (producers and sellers combined), with urban traders dedicating more time to the trade than rural traders.

Table 2.4 Time devoted to the trade

TIME SPENT	URBAN		RURAL		SAMPLE	
	Producer	Seller	Producer	Seller	Producer	Seller
Hr/day	8.9 ± 1.7	9.3 ± 2.0	7.1 ± 3.4	9.7 ± 2.8	8.1 ± 2.8	9.4 ± 2.2
Days/wk	6.0 ± 0.9	6.1 ± 1.0	4.8 ± 1.9	5.6 ± 1.6	5.4 ± 1.6	6.0 ± 1.2
Hr/wk	54.2	56.9	34.4	56.6	45.1	56.8
Stats on Hr/wk	t = -1.3; p > 0.05		t = -5.5; p < 0.0001		t = 5.7; p < 0.0001	

#### 2.4.1.5 The contribution of the NR trade to rural and urban livelihoods

Among the total sample, 57.6 % of respondents stated that the NR trade provided their only source of cash income (Table 2.5). The dependency on the trade was particularly sizeable in Malawi where for 82.9 % of respondents the NR trade was their only source of cash income.

Table 2.5 Dependency on the trade across the study countries

ATTRIBUTE	MAL	ZAM	ZIM	SWA	SA	TOTAL SAMPLE
Household size (permanent members)	7.1 ± 3.9	8.9 ± 7.8	5.8 ± 3.7	6.4 ± 3.9	6.0 ± 5.0	7.0 ± 5.5
Respondent's with household help (%)	32.9	39.1	25.0	31.4	20.0	29.8
Respondent's only source of income (%)	82.9	45.5	65.0	51.4	53.6	57.6
Household's only source of income (%)	55.7	51.8	80.0	54.3	59.1	58.8
No alternative employment (%)	25.7	24.6	41.7	64.3	60.0	43.1

MAL = Malawi; ZAM = Zambia; ZIM = Zimbabwe; SWA = Swaziland; SA = South Africa

For some, the reliance was exacerbated by their household members not earning any income. This was particularly problematic for Zambian traders for example, with an average household of nearly nine members, 51.8 % of the sample were reliant on the trader in the household to support them. Across the survey 58.8 % of NR traders were the breadwinners for their households; in Zimbabwe this was the case for 80.0 % of informants. Furthermore, 43.1 % of all traders revealed that they have no alternative source of employment were the NR trade to no longer be an option. This was the case for 64.3 % of Swazi traders and 60.0 % of South African traders.

Zambia had the lowest percentage (51.8 %) of traders who were the sole breadwinners in their households. It also had the lowest percentage (45.5 %) of traders who were relying solely on the NR trade, with a number having a strong focus on farming with the surplus being sold in

informal markets. Zambians also sold the greatest diversity of NRs; 23 different products in total and 46.9 % of all products recorded in the survey (Table 2.1). By comparison, 80.0 % of Zimbabwean traders were the breadwinners for their households, 65.0 % of whom had no other source of income and 41.7 %, no alternative employment.

A third (34.8 %) of respondents belonged to households receiving only one source of income. This was the case for 53.3 % of Zimbabweans in comparison to 22.7 % of Zambians. In South Africa and Swaziland, despite government grants being made available to some, almost a third (30.9 % and 32.9 %, respectively) of the sample in each case received only one source of income. Even for those belonging to households receiving multiple sources of income, the importance of the NR trade was stressed. Table 2.6 shows this with 94.1 % of traders indicating NR trade as their first or second most important contribution to household income. Coupled with the fact that 58.8 % of traders were the single income earners in their household, this corroborates the importance of the NR trade. A significant difference was not found in the distribution of income streams across the three rankings.

Table 2.6 Respondents' ranking of household income (% of all income streams)

INCOME STREAM	RANKED 1ST (n=240)	RANKED 2ND (n=240)	RANKED 3RD (n=88)
NR trade	48.3	45.8	42.0
Foodstuffs	21.3	22.5	20.5
Grants	7.5	11.7	13.6
Non-NR trade	5.4	5.8	6.8
Mixed trade	5.8	4.6	5.7
Other	11.7	9.6	11.4

Approximately one-quarter (25.2 %) of the entire sample obtained three or more sources of income. Foodstuffs refer to all edible commodities besides wild foods i.e. domestic fruit and vegetables, while the non-NR trade refers to items like second-hand clothing, cigarettes and household products like cleaning detergents. Mixed trade refers to both NR and non-NR combined, while other income relates to the sale of livestock, various forms of employment ranging from formal (e.g. teachers, nurses) to casual (temporary work), and remittances. The strength of the NR trade is further revealed in that the mixed trade (e.g. beadwork and traditional clothing together with NRs) was also ranked fairly highly.

In terms of those respondents with households receiving multiple income sources, the highest proportion were to be found in Zambia (77.3 %; n=110), and the least in Zimbabwe (46.7 %; n=60). Figure 2.3 illustrates that households receiving five income streams were only recorded in South Africa and Swaziland but this could be credited to the government grant systems in each of these countries. South African traders had the significantly highest ( $F = 7.5; p < 0.0001$ ) mean number of income streams ( $2.2 \pm 1.0$ ), Zambia and Swaziland shared the same number ( $2.1 \pm 0.8$  and  $2.1 \pm 1.0$  respectively) and Zimbabwe had the least ( $1.6 \pm 0.7$ ).

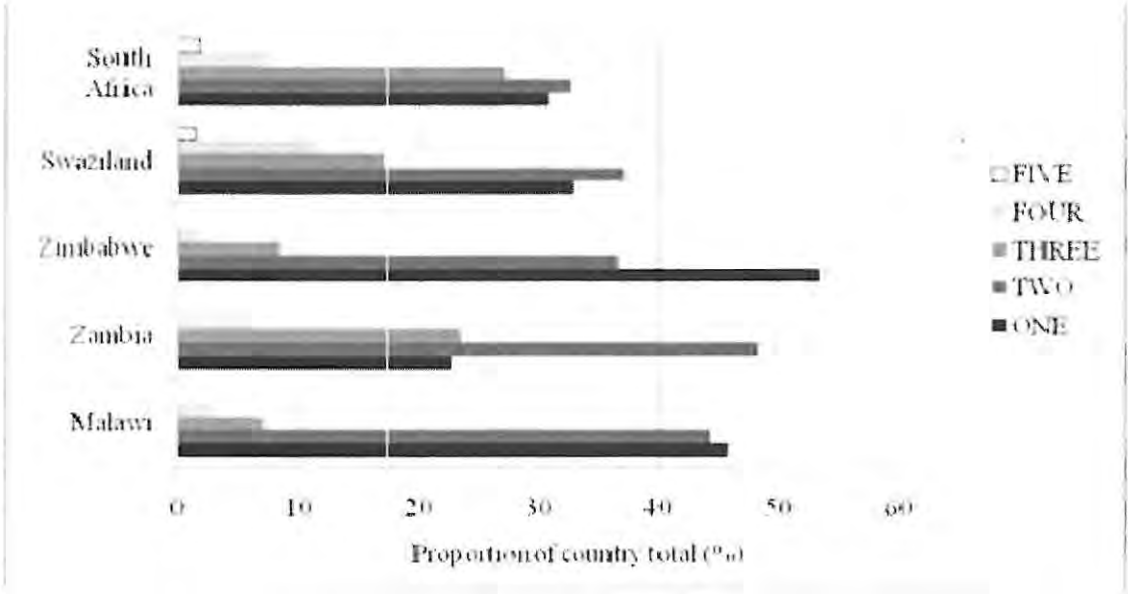


Figure 2.3 Number of household income streams

Two-thirds (67.1 %) of rural traders believed that if they were to no longer be able to trade their particular product they would have an alternative source of cash income. This was the case for 51.3 % of urban traders. The largest proportion of rural traders (31.5 %) would fall back on farming while some (14.1 %) would explore a different avenue of the NR trade. By contrast, the latter was only a consideration for 9.2 % of urban traders. The majority (58.4 %) of rural traders were also the producers of the products they sold. Having these sorts of skills, be it woodcarving or fishing, gives one a greater spectrum of opportunities when faced with the need to alter ones livelihood strategy.

Figure 2.4 illustrates that rural trading households placed a greater importance on the NR trade for its ability to provide income than did urban trading households. In certain households (8.8 %; n=420) there was more than one person involved in the NR trade; of these 56.8 % were

located in the urban areas. Furthermore, 64.0 % of those currently trading who had previously been involved in the trade in some other way were urban respondents.

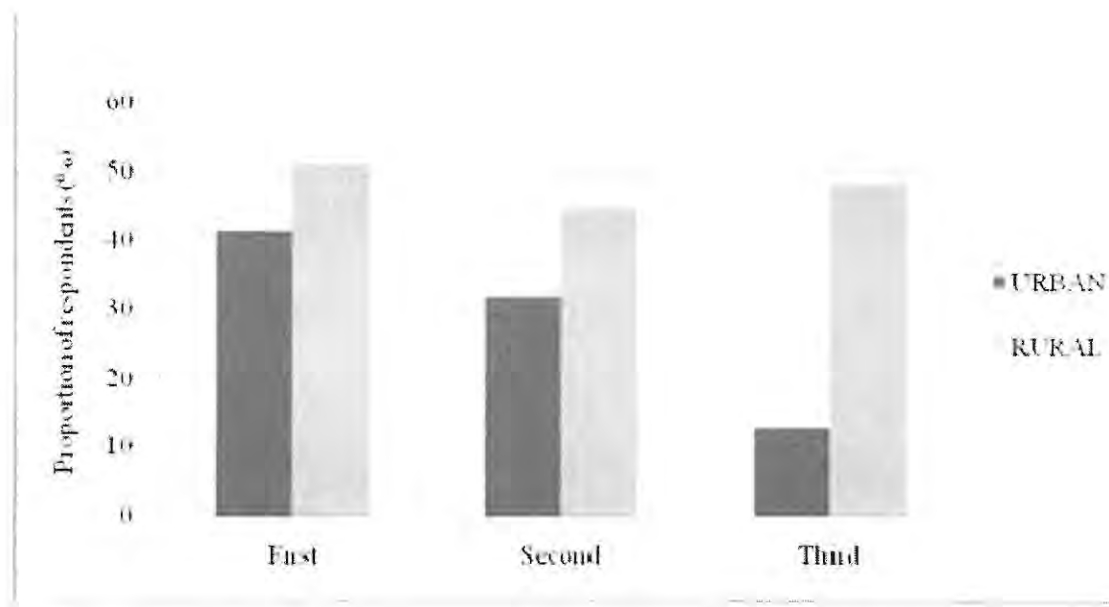


Figure 2.4 Ranking of NR trade by urban and rural households

#### **2.4.1.6 Resource availability**

Almost half (46.0 %) of respondents were involved in the production side of their trade. Of those who had been involved in production for ten years or more (n=89), only 23.8 % stated that the principal resource species used in their production had changed over the course of the last decade and that they were now using a different species. However, 56.1 % believed that the abundance of their principle resource had diminished and this was ascribed largely to increased demand on NRs or loss of land due to privatisation or cultivation (Fig. 2.5).

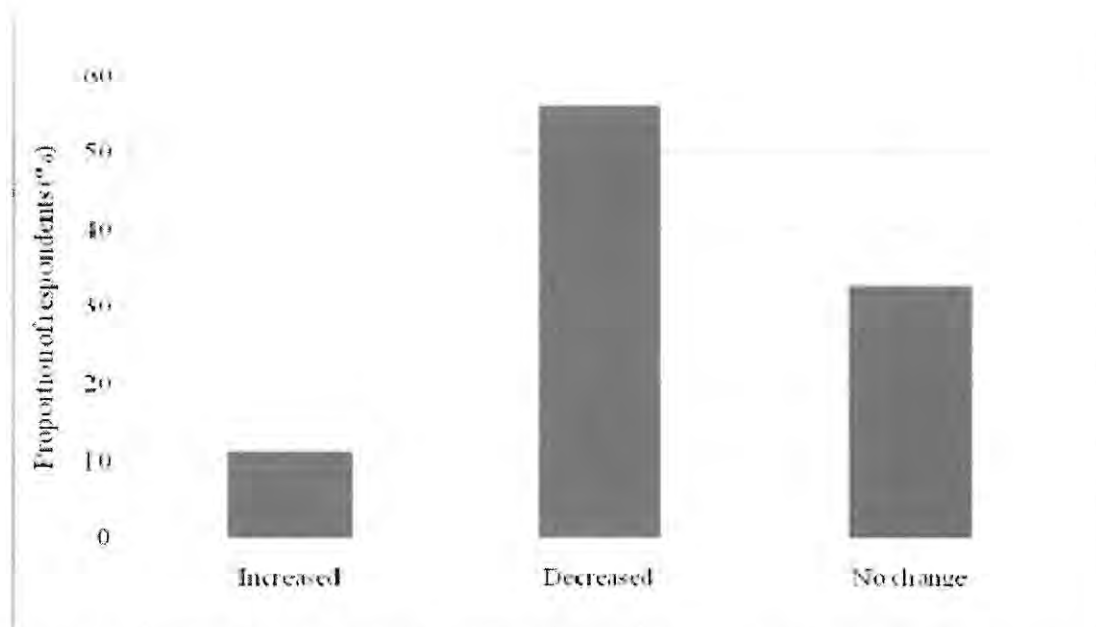


Figure 2.5 Perceived change in traded resource abundance over the last decade

#### 2.4.1.7 *Recent growth in the trade*

Shrinking resource abundance paralleled a perception that the number of sellers and producers had significantly increased over the same period (Fig. 2.6). Producers attributed this trend to the following key themes: increasing demand, particularly for medicinal products due to the perceived increase in the number of ill people, and trade-related appeal, attributable to good markets and low barriers to entry. The vast majority (82.0 %) however believed the increase was due largely to economic problems; burgeoning population with associated lack of employment and subsequent poverty. Medicinal product traders believed there to be a rise in the number of people who have disease (potentially due to the HIV/AIDS pandemic), and an associated increase in demand on their services. Other producers stated that because the trade is expanding and that there is money to be earned, people are copying one another and latching onto a coping strategy that seems to be working for people.

There were few sellers (i.e. those not involved in the production side) who had been involved in their occupation for ten years or more, but of those, 78.4 % expressed an increase in the number of sellers and assigned this also to the economic problems in their respective countries.

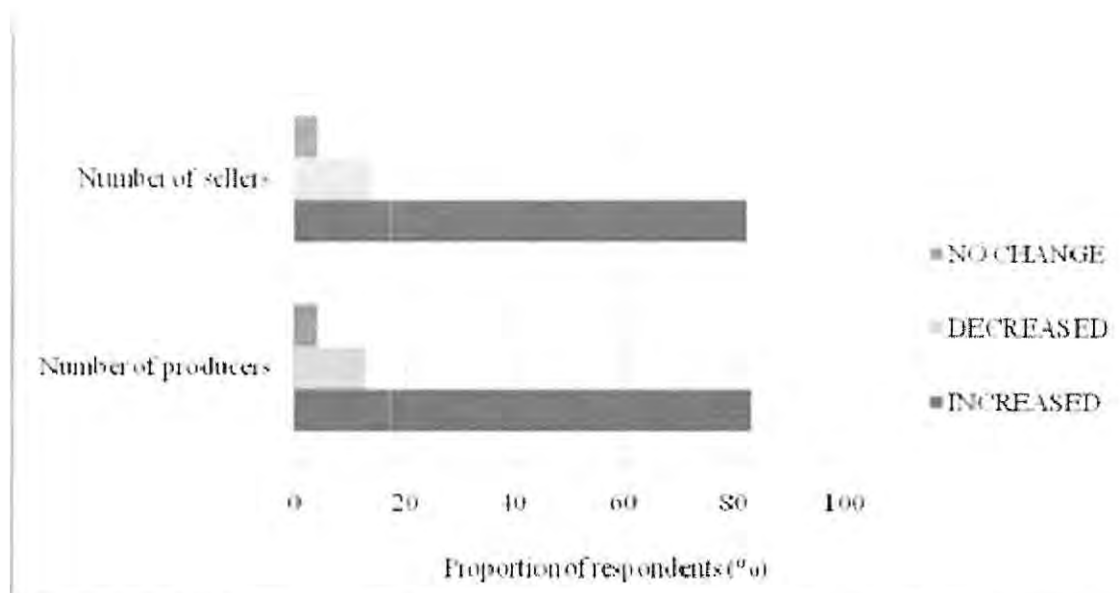


Figure 2.6 Perceived change in the number of producers and sellers over the last decade

#### 2.4.2 Characteristics of the traders

Lack of education is a serious constraint for those seeking employment and South African traders by comparison to those in other countries, (save for Zambians) had poor levels of education (Table 2.7). Perhaps due to their limited options, they took to the trade early, having the highest average for number of years spent in the trade ( $11.2 \pm 10.9$  yr) and being on average the oldest traders ( $45.7 \pm 13.6$  yr). Zambians by contrast, despite having the lowest levels of education, were the most optimistic when faced with the scenario of having to find alternative employment. Only 24.6 % believed they had no alternative, whereas this was the case for almost two-thirds of Swazis and South Africans (64.3 % and 60.0 %, respectively).

Table 2.7 Attributes of traders across the sample area

ATTRIBUTES	MAL	ZAM	ZIM	SWA	SA	STATS
Age	$34.8 \pm 11.0$	$39.0 \pm 14.1$	$41.0 \pm 13.8$	$39.6 \pm 15.7$	$45.7 \pm 13.6$	$F = 7.4; p < 0.0001$
Education	$7.9 \pm 3.1$	$6.6 \pm 3.4$	$8.2 \pm 3.0$	$7.2 \pm 3.8$	$6.9 \pm 4.5$	$F = 2.8; p > 0.05$
No. of years in trade	$8.0 \pm 5.5$	$6.7 \pm 7.2$	$10.6 \pm 9.9$	$10.8 \pm 11.4$	$11.2 \pm 10.9$	$F = 1.1; p < 0.01$
Gender	% ♀	28.6	56.4	61.7	71.4	64.5
	% ♂	71.4	43.6	38.3	28.6	35.5

MAL = Malawi; ZAM = Zambia; ZIM = Zimbabwe; SWA = Swaziland; SA = South Africa

Malawians were comparatively young traders with better levels of education. In a tourist market on the outskirts of Nkhata Bay, 46.2 % of the woodcarvers had received 12 years of education and most had gone straight into the trade for lack of a better opportunity. Zimbabwean traders had the highest levels of education, 38.3 % having received ten years of education or more.

Across the sample more female traders were encountered than males and the only country where this was not the case was Malawi, where 71.4 % were male. This is possibly a result of wood products making up a large proportion of traded goods – an enterprise typically dominated by men (especially woodcarving) (Shackleton C.M. & Shackleton S.E. 2004a).

Table 2.8 signifies that there was no difference between urban and rural traders regarding age, education, and their amount of time spent in the trade, nor was there a difference in the distribution of male and female traders between the two sectors.

Table 2.8 Attributes of urban and rural traders

ATTRIBUTES		URBAN	RURAL	TOTAL SAMPLE	STATS
Age		41.4 ± 38.6	38.6 ± 14.0	40.4 ± 14.2	t = 1.9; p > 0.05
Education		7.5 ± 3.8	6.8 ± 3.6	7.2 ± 3.7	t = 1.9; p > 0.05
No. of years in trade		9.8 ± 9.9	8.6 ± 8.3	9.4 ± 9.4	t = 1.2; p > 0.05
Gender	% ♀	60.1	51.7	57.1	
	% ♂	39.9	48.3	42.9	

#### 2.4.2.1 Knowledge transfer, household size and household involvement in the trade

Table 2.9 indicates that Zambians had the largest average household size (8.9 ± 7.8) with the subsidiary effects being that there were extra hands to assist with the business (39.1 % of Zambian traders received household help; the highest average). This also assists with the passing on of ecological knowledge necessary when engaging in the trade of NRs; 42.0 % of all producers mentioned that their knowledge had been passed on from family members. When this was not the case, such knowledge was obtained from friends or from observing others involved within their communities.



Table 2.9 Trader household attributes across the study area

ATTRIBUTES	MAL	ZAM	ZIM	SWA	SA	STATISTICS
Household size (persons)	7.1 ± 3.9	8.9 ± 7.8	5.8 ± 3.7	6.4 ± 3.9	6.0 ± 5.0	F = 7.6; p < 0.0001
Respondents with household help (%)	32.9 <sup>a</sup>	39.1 <sup>b c</sup>	25.0 <sup>b</sup>	31.4 <sup>d</sup>	20.0 <sup>a c d</sup>	Like superscripts denote significant difference
Producers' knowledge from family (%)	61.3 <sup>a b c</sup>	40.1 <sup>a d e</sup>	61.1 <sup>d f g</sup>	27 <sup>b e f</sup>	36.4 <sup>c g</sup>	

MAL = Malawi; ZAM = Zambia; ZIM = Zimbabwe; SWA = Swaziland; SA = South Africa

Zimbabwean households were the smallest (5.8 ± 3.7) and, perhaps as a result, only 25.0 % of traders received help from their household members. It may be that a greater proportion of Zimbabwean members are migrants, possibly even NR traders). South African traders had the least assistance from their household members. Overall, rural households were larger than urban and their traders received more assistance from household members (Table 2.10).

Table 2.10 Trader household attributes in urban and rural settings

ATTRIBUTES	URBAN	RURAL	STATISTICS
Household size (permanent members)	6.3 ± 4.4	8.3 ± 6.9	t = -4.5; p < 0.0001
Respondents with household help (%)	24.0	40.3	$\chi^2 = 11.0$ ; p < 0.001
Producers' knowledge from family (%)	42.5	41.4	$\chi^2 = 0.05$ ; p > 0.05

#### 2.4.2.2 Urban and rural trader backgrounds

A significant difference was found in the distribution of traders' previous occupations within rural and urban settings ( $\chi^2 = 37.0$ ; p < 0.0001) (Fig. 2.7). A greater percentage of urban traders (26.2 %) had been unemployed before entering the trade in comparison to rural traders

(16.8 %). The former also had a higher percentage of those who had gone straight from school into the trade.

A small proportion of traders (6.0 %; n=420) were previously involved in the NR trade in some way and have subsequently decided to explore a different avenue of the trade, 64.0 % of these were found in urban areas. The vast number (32.9 %) of erstwhile farmers were situated in rural areas. In addition to this, as has already been stated, farming was coupled with the NR trade for a large number of rural respondents (34.9 %) as an alternative livelihood source, notwithstanding the broader household involvement in this activity. This was particularly the case in Zambia (Fig. 2.8).

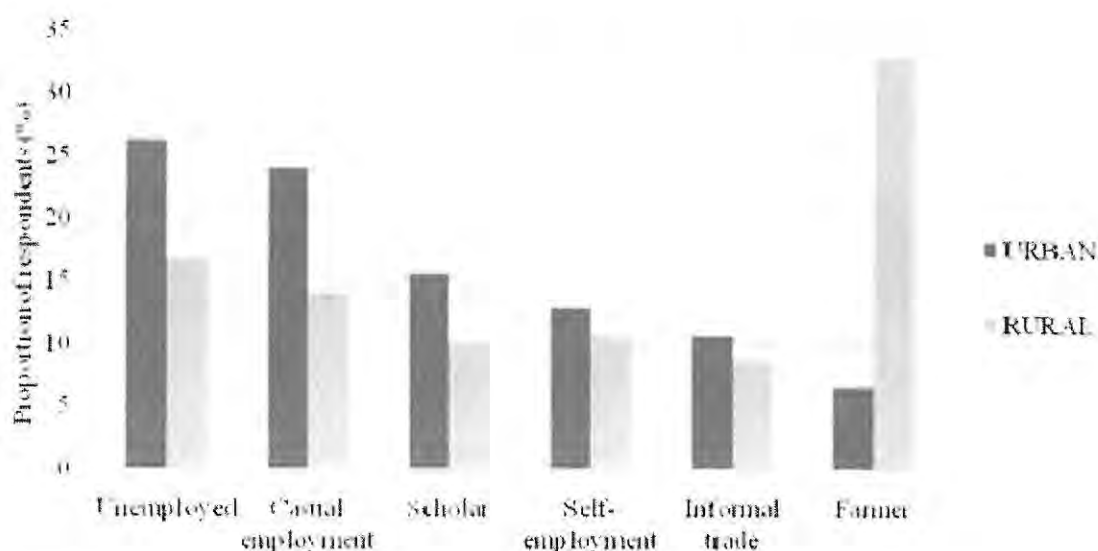


Figure 2.7 Previous occupations of those currently involved in the NR trade

There was a significant difference in the distribution of previous occupations between the five countries in every case save for between Swaziland and South Africa. The most significant difference ( $\chi^2 = 349.6$ ;  $p < 0.0001$ ) was found between Zambia and Swaziland and most notably in the proportion of Zambian respondents previously engaged in farming in comparison to a small proportion of Swazi traders. Proportionately, the greatest number of previously unemployed traders were found in South Africa as was the highest number of those

having been formally employed were also found here (Fig. 2.8). The largest percentage of those entering into the trade straight from school were located in Zimbabwe.

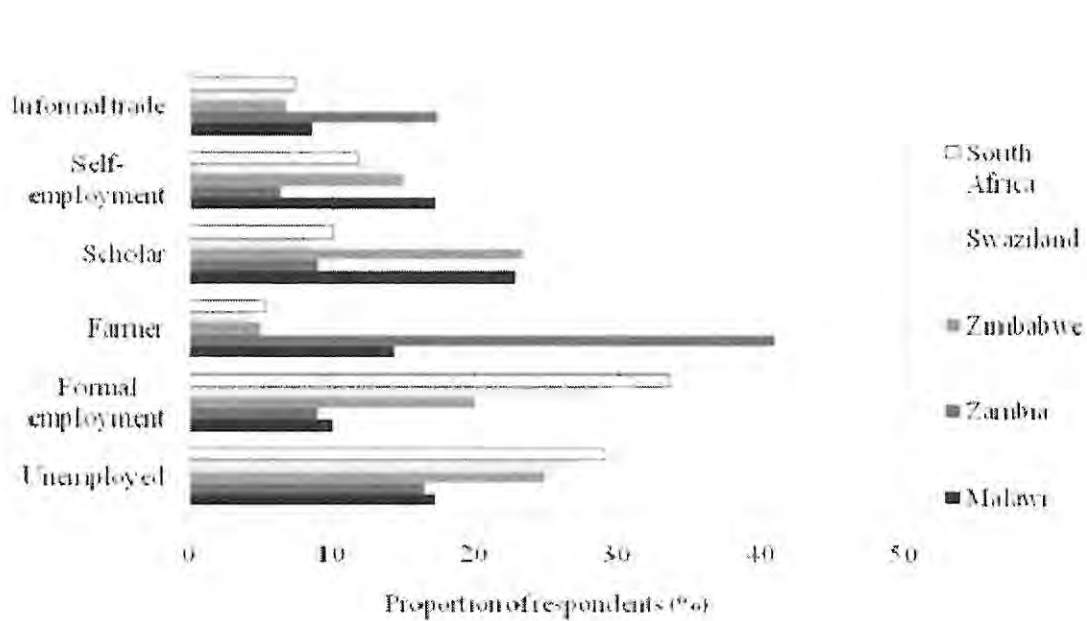


Figure 2.8 Previous occupations of traders from the various countries

### 2.4.2.3 Reason for entering the trade

When respondents were asked what prompted them to engage in the trade a large number of responses (29.8 %) were death or illness related reasons (Fig. 2.9). Considering the four main catalysts for entrance into the trade (Death/illness/espousal of orphans; income needed/poverty; job related appeal/change; and unemployment) there was a significant difference ( $F = 3.7$ ;  $p < 0.05$ ) found with the number of years of education traders had received. Those with the lowest education ( $6.4 \pm 3.7$  yr) started as a result of death or illness typifying a more vulnerable household. On the other hand those commencing as a result of unemployment had the highest levels of education ( $8.2 \pm 3.7$ ). More than two-thirds (67.5 %) of these deaths or illnesses involved males while only 28.6 % involved females. Commonly, traders described a need for income (23.8 %), although often those that were prompted further would go on to say that the breadwinner in their family had passed away and that there was a resultant shortage of money.

The distribution of respondents entering the trade either in response to death or illness or as a result of poverty was significant between all countries except between Malawi and South Africa, and between Zambia and Zimbabwe and Swaziland. The greatest significant difference ( $\chi^2 = 21.7$ ;  $p < 0.0001$ ) was found between Swaziland and South Africa. Zimbabwe had the highest proportion (41.7 %;  $n=70$ ) of traders who entered into the trade as a result of a death or illness in the family, while Swaziland and Malawi had the least (22.9 %). An equal number of traders (30.9 %;  $n=110$ /country) from Zambia and South Africa ascribed their joining the trade to death or illness while the proportion of South Africans ascribing taking up the trade to the need for income or to get out of poverty was the least out of the sample (14.5 %;  $n=110$ ). Of the respondents that entered the trade in response to death, 79.8 % were the deaths of probable breadwinners (i.e. loss of the father, mother or husband).

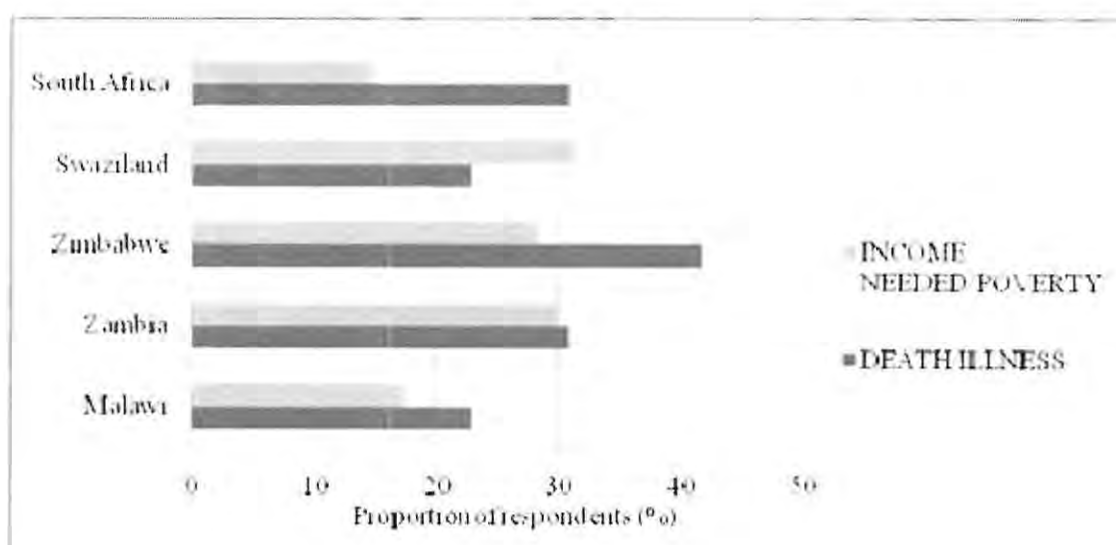


Figure 2.9 Respondents reasoning for entering the trade

A number of respondents (9.8 %;  $n=420$ ) described a string of catastrophes that had befallen their households pressing them to enter the trade. Of this group, the Malawians were the hardest hit with 15.7 % of respondents who faced this, in comparison to 4.3 % of Swazi traders. It was more common (12.8 % in comparison to 4.8 %) to find rural respondents stating the reason for their entering the trade being the need to cover the expense of school fees but this could be attributed to the fact that rural households were larger than urban ones (8.3 in comparison to 6.3).

A relatively high number (20.5 %) of traders were previously formally employed; for 33.0 % their entering the trade was in response to a family death and 14.8 % started trading because their jobs had been terminated (Fig. 2.10). A further 6.8 % believed they had been called by their ancestors to do so; in all cases being medicinal product traders.

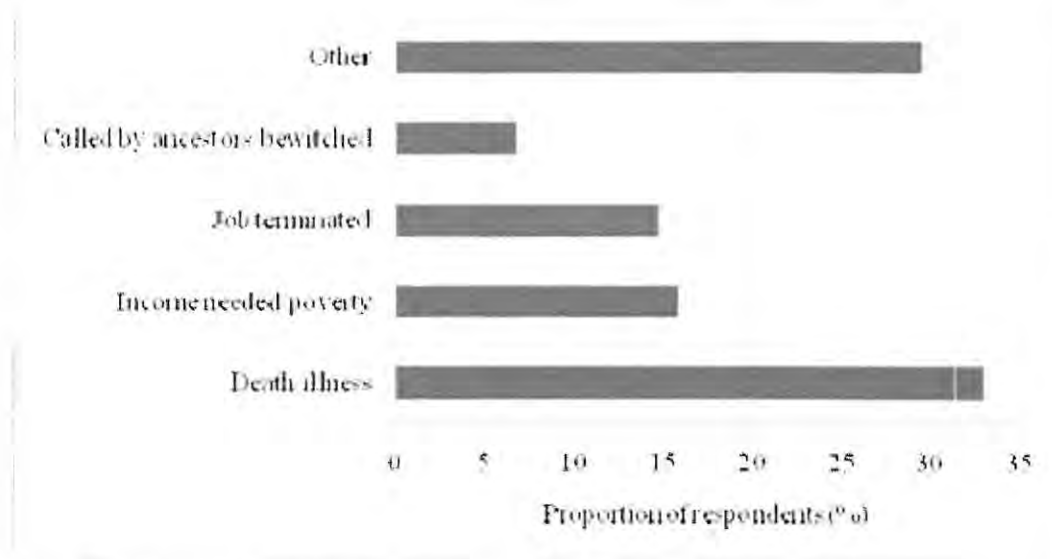


Figure 2.10 Why those formally employed entered the trade

## 2.5 DISCUSSION

### 2.5.1 Rural – urban linkages

There has in the past been a strong focus of research on the role NRs play in the lives of rural people while the importance of these resources to urban inhabitants has been somewhat overlooked (Stoian 2005). Studies have now shown that there is often a strong connection between rural and urban resource use (Cocks & Bangay *submitted*; Stoian 2005). Increasing linkages between rural and urban NR use might manifest themselves in the following ways:

- A pattern of traders (be they producers, middlemen or sellers), travelling from rural areas to urban areas and vice-versa to sell NRs i.e. migrant traders who spend a few weeks or months in the town or city and then return to their families in the villages once they have sold their products.

- Continued involvement of urban residents in rural cultural practices and their sustained use of NRs for utilitarian and cultural practices at their urban abodes (Cocks & Bangay *submitted*).
- Increased commercialisation of NRs resulting in a persistent flow of rural goods and culture to urban areas (Wiersum & Shackleton C.M. 2005).
- Cash and remittances being sent by urban-based household members to their families in rural areas (Wiersum & Shackleton C.M. 2005; Kruger 2006).
- Those in both rural and urban areas utilising a similarly diverse range of products.

From the results it is evident that there is a growing trend towards urban NR use. This was apparent from the great diversity of products being sold in urban areas - even greater than what was encountered in rural areas (Fig 2.1; Table 2.1). When looked at more closely it became clear that a large proportion of the traders encountered in urban areas had in fact come from rural areas or urban areas further afield, some travelling great distances from other countries and other regions of the continent to earn an income selling to urban consumers. This is illustrated in the following example.

One particular fish trader encountered in north-western Zambia made a 636 km round trip from Lukulu on the Zambezi River to the town of Mwinilunga where she sold her goods to traders there. She had been in the trade for 15 years having received four years of education and began the trade when a string of catastrophes occurred in her household. Her uncle died after being ill for three years, leaving five children orphaned, one of which her household took in and, at the same time, her husband died. At the time of being interviewed, she herself was sick and had been so for more than three months, while in the previous two years another household member had also passed away. Her only alternative to the trade would be to farm and her only other source of income was rent which they received from a house her husband had left to them. She was the breadwinner of the family, receiving no assistance from the other five members of her household. She believed the fish trade provided their household with more income than the rent from the house.

The details of the supply chain emerged as traders from rural and urban areas explained how it was they obtained their resources with a large number of rural traders saying that it was often members of their households who produced the products they were selling. Shackleton C.M. (2001) describes how the process of harvesting, processing and sale can often stay in the same hands. One of the benefits of the NR trade is that the trade can take place from one's home, giving other household members the opportunity to be involved (Shackleton C.M. *et al.* 2007a). This is a favourable strategy as it eliminates the transfer costs of working through intermediaries which some authors have argued is a major pitfall when it comes to real benefits being obtained from the NR trade (Crook & Clapp 1998).

Urban sellers typically obtained their goods from producers who had migrated from rural areas to sell their wares. A reverse in the trend was observed by Stoian (2005) in Bolivia who found that peri-urban residents, particularly those who had formally lived in rural villages and farms, were earning their living from NRs which they obtained by visits to rural areas. Extra-regional and long-established residents of the peri-urban study site were also included in Stoian's (2005) sample and it was found that a quarter of the total household income for the total sample was generated from NR-based activities in rural areas. Cocks and Bangay (*Submitted*) found that 99 % of households they surveyed (n=302) across three socioeconomic classes (poor, middle-class and wealthy), in East London and King Williams Town, South Africa, were using wild plant resources. These resources were obtained from urban markets or from their former rural abodes with which 42 % maintained strong links.

There seems then to be an inclination for ex-rural inhabitants who have moved to urban areas to continue to use NRs, obtaining these from urban vendors as well as from rural areas (Stoian 2005). The strength of this relationship has been found to also be affected by the wealth status of the household and its literacy levels (Stoian 2005), with poorer households and those with lower education relying more heavily on NRs (Cavendish 2000; Neumann and Hirsch 2000; Kaimowitz 2003; Paumgarten 2005; Kaschula 2008; Shackleton S.E. *et al.* 2008) and potentially maintaining stronger rural-urban links.

Wiersum and Shackleton C.M. (2005) draw attention to a "gradual differentiation between a 'remote', 'middle countryside' and 'peri-urban' rural conditions" which has an impact on the degree to which rural and urban resource use is linked. This is typically influenced by levels of communication and infrastructure along the continuum (Wiersum & Shackleton C.M. 2005).

## **2.5.2 Products sold**

An impressive variety of products were sold across the study area, indicative perhaps of the diversity of sites visited in terms of the fauna and flora found in those areas. Medicinal products were the only products found to be traded in each of the countries visited, while wood carvings, reed mats and grass brooms were recorded in four of the five countries. The types of products most commonly traded in urban and rural areas could lend some insight into the lives and basic needs of those living there. This study showed wild foods and culturally important NRs such as medicinal products to be used in considerably different measures between urban and rural areas and for that reason have been given special attention in this section.

### **2.5.2.1 Wild Foods**

Wild foods were the most commonly traded products across the study area with products ranging from wild fruit, mushrooms and potatoes, to honey, caterpillars and fish. In Bangladesh 102 species of wild vegetable and 69 of fish are collected (Mazhar *et al.* 2007 in Bharucha & Pretty 2010) and in Cambodia wild fish comprise 70 % of total protein intake in addition to providing a source of income (Guttman 1999 in Bharucha & Pretty 2010). This provides some indication of the degree to which people are relying on the NR base to meet their daily food requirements.

Although bushmeat was a product not encountered in this survey, Barnett (2000) found that in urban regions of Zambia and Mozambique, households are prepared to pay up to 157 % more than those in rural regions. In urban areas wild foods made up the second most commonly traded products after medicinal products, whereas in rural areas they were the most common products being traded which is most likely symptomatic of widespread availability, rendering these products easy to harvest and trade. This particular part of the trade constituted the biggest portion (65 %) of products sold in Zambia and by far the greatest variety of wild foods were sold there.

It has been found that certain wild foods are superior to conventional, 'western' foods in their nutritional quality (Barany *et al.* 2004; Yang & Keding 2009). This is particularly positive for those suffering with HIV/AIDS who may not have access to the latter foodstuffs (Barany *et al.* 2004). Those infected with HIV by and large need up to 50 % more protein, 15 % more energy, in addition to more micronutrients (Haddad & Gillespie 2001). However, in some



cultures wild foods are labelled as ‘poor people’s foods’ and there is the belief that ‘western’ foods offer more in the way of nutrition than do wild foods (Kaschula 2008). Other constraints could be the time and effort required to harvest the resources, which, depending on location and availability, may necessitate travelling large distances (Kaschula 2008). A certain level of knowledge would also be required for the identification and harvesting of the resource (Kaschula 2008). In this sense, high levels of LEK could have positive spin-offs for household health (McDade *et al.* 2007 in McGarry & Shackleton C.M. 2009). When it comes to households who have taken on orphans, though this has obvious impacts in terms of food security, the trade-off is that there is increased labour capacity for the harvesting of resources (Hunter *et al.* 2007).

There is no denying the importance of wild foods for the vulnerable, most especially orphaned children. In one particular study in the Eastern Cape, South Africa, 62 % of all children interviewed were found to be supplementing their diets with wild foods (McGarry & Shackleton C.M. 2009). Almost half were also engaged in the trade of these products and both activities were more prevalent in households with high HIV/AIDS vulnerability scores (McGarry & Shackleton C.M. 2009).

#### **2.5.2.2 Cultural use of NR Products**

Whether medicinal products were the most commonly traded products in urban areas has anything to do with people’s access or lack thereof to health services in these areas was unclear. But it could support the understanding that a number of those who have moved from rural to urban areas are upholding their cultural practices and continue to utilise medicinal products for this purpose (Cocks & Dold 2006). For example, in traditional Xhosa culture (the dominant ethnic group in the Eastern Cape province of South Africa), grass brooms are given to brides as wedding gifts as a sign of the ancestors faith in the newlywed’s home (Cocks & Dold 2006). The broom is also used to shower protective medicine onto the walls and roofs of one’s home (Cocks & Dold 2006). In this study the sale of grass brooms was recorded in four of the five countries visited (all except Malawi) and was found to be most prolific in South Africa with 21 % of respondents trading in these (Table 2.1). Across the study area 12 % of respondents traded grass brooms and 94 % were located in urban areas. Cocks and Dold (2004a) found that 59 % of those purchasing grass brooms in an urban area of the Eastern Cape, were doing so for cultural purposes – an important source of income for rural people who commute to urban areas to make their sales. Kepe (2003) observed high levels of poverty

and the propensity to maintain past traditions, to preserve high value attachment to grass and sedge craftwork in a rural area of the former Transkei in the Eastern Cape of South Africa.

### **2.5.3 Previous occupations and trade-related appeal**

With households having access to a wide variety of different NR products which in most cases were freely available, it is understandable that for many, the trade offered an attractive livelihood option. A relatively high number of respondents had been previously employed before entering the trade and yet a number of them put aside this form of income in preference for the NR trade.

Research into the area of monetary values associated with NTFPs has found that it can exceed income derived from other livelihood strategies adopted by rural people (Magome & Fabricius 2004); whether or not this is the case for urban respondents is unknown. As far as the utilitarian use of NRs goes, when compared to the income derived from arable production and animal husbandry, Shackleton C.M. *et al.* (2001) found that the mean gross value of woodland resources was about R950 per hectare. At the time of the analysis, these financial returns were favourable to those from commercial ranching and made a contribution to the welfare of a comparatively greater proportion of households (Shackleton C.M. *et al.* 2001). The same positive trend has been said to apply to other land use options like timber plantations (Peters *et al.* 1989; Arnold & Perez 2001).

The trade offers low barriers to entry and does not require significant capital to start (Shackleton S.E. *et al.* 2007). A lack of formal education can also be overcome when those involved have LEK of the products they desire to use (Shackleton S.E. *et al.* 2007). Markets, though at times limited, are often dynamic, providing traders with an opportunity to trade a number of different products as the seasons dictate (Shackleton S.E. *et al.* 2007). In addition to this, the trade is flexible, allowing those involved to diversify their livelihoods and to meet the needs of those at home. This is acutely important for women traders in the context of HIV/AIDS who may be responsible for the care of one or more children at home (Barany *et al.* 2001; Shackleton S.E. 2006a; Wieggers *et al.* 2006).

NRs are also useful because they are often easily accessible, being located on state or communal land and they are a suitable alternative when other income sources dwindle and are

less accessible (Fisher & Shively 2005). Fabricius (2002) states that “individual benefits *from the trade of NTFPs* can be high when:

- The unit value of the product is high
- The level of extraction is sustainable, if compared against the level of recovery of the resource base
- A reliable market is available
- The opportunity cost of land and labour is low
- Few people are laying claim to or sharing the benefit
- Government co-operates
- Intra-community conflict and power struggles are manageable.”

The returns to labour for the trading of NRs compare favourably with other endeavours like wage labour in the agricultural sector or self-employment (Shackleton C.M. *et al.* 2007a; Shackleton S.E. *et al.* 2008). For example, traders in West and Central Africa are known to at times earn double the minimum wage and sometimes earn comparable salaries to teachers (Awono *et al.* 2002). This is probably the exception rather than the norm, but variability is a key aspect of this trade with incomes earned being impacted by a number of local and external factors (Shackleton C.M. *et al.* 2007a).

The obvious principle of ‘what you put in is what you get out’ applies here and is an important differentiating factor between user groups. For instance, because rural women are often the heads of households because their husband is a migrant labourer or has passed away due to illness, they are restricted in the amount of time they are able to devote to the trading of NRs (Makhado & Kepe 2006). Fandohan *et al.* (2010) found cultural and ethnic differences in the amount of time women spent selling tamarind, but overall, the more hours they spent, the better the returns.

The income that is derived from the trade of NRs should not be considered in isolation from other income generating mechanisms taking place in the household (Shackleton S.E. *et al.* 2008). For the majority of rural traders, farming had occupied their time before they began engaging in the NR trade but a large number of these respondents continued to farm whilst

still keeping their trade going as a means of diversifying their income streams. This is an important strategy because in the event of one source of income being discontinued, there will be one or more to fall back on. It is the integration of a variety of livelihood options that will improve the lives of rural people, not one option on its own (Shackleton S.E. *et al.* 2008).

Of concern was the high number of Swazi and South African respondents who stated they had no alternative employment besides the NR trade, this, despite the fact that citizens of these countries can qualify for a number of different government grants. What became clearer in the in-depth phase of research (CHAP. 3) in South Africa was a move away from traditional rural practices e.g. farming and NR use or trade towards a reliance on government handouts. For some of these households the single NR utilised in the household was *Acacia karoo* (for fuelwood), which, appropriately, grows well in fallow lands (Shackleton C.M. *et al.* 2007c).

Zambian and Swazi trader households had an equal mean number of household income streams yet almost two-thirds more Swazi traders described having no alternative employment. The difference here is that Zambians diversified their livelihoods to a far greater degree.

The majority (58.4 %) of rural traders were also the producers of the products they sold. Having these sorts of skills, be it woodcarving or fishing, gives one a greater spectrum of opportunities when faced with the need to alter ones livelihood strategy.

#### **2.5.4 Reasons for entering the trade**

Almost one-third of the sample entered the trade in response to death and/or illness in their households. Shackleton S.E. *et al.* (2008) found that the majority of women producers in their study had entered the trade in response to the death of a breadwinner, illness or retrenchment within the household. A large number also stated that they had observed others trading the product and needed income (Shackleton S.E. *et al.* 2008). A fairly common occurrence in this study was that a respondent's immediate response to the question of why they had entered the trade was because they needed income, but when prompted further they would often state that it was in response to a household death or illness. There is a noteworthy stigma attached to the discussion of illness and death, especially if it is rooted in culturally unmentionable topics like HIV/AIDS.

Shackleton S.E. *et al.* (2008) also make mention of the fact that 10 % of broom and mat producers had started to the trade when they were forced to take on orphans subsequent to the death of the children's parents which they presume was the result of AIDS. For some respondents in this study, it was a string of catastrophes that had befallen their households that forced them to enter the trade. Some authors have mentioned that in the event of multiple shocks, the NR trade could lead to a poverty trap (Angelsen & Wunder 2003; McSweeney 2003). The extent to which HIV/AIDS has contributed to people's involvement in the trade and intricacies like the 'poverty trap' notion will be explored in the ensuing chapters.

Household shocks were not the only reason for respondents to enter the trade. Some decided to get involved purely on the basis that it was an appealing option. Of the sample 12.5 % described joining the trade for these reasons. Aside from the tangible benefits of the trade described before, there are several intangible benefits associated with it, for example pride in being able to support one's family when those around you are idle (Shackleton C.M. *et al.* 2007a).

### **2.5.5 Dependency on the NR trade**

The number of respondents for whom the trade was their only source of income and who were the sole income earners in their households, is an indication of the degree to which those involved are dependent on the trade. Additionally, the high proportion of respondents having no alternative source of employment were the trade to no longer be an option, substantiates this further.

Several other factors confirm this dependency on NRs, namely the low levels of education ( $7.2 \pm 3.7$ ) recorded, the number of years that respondents had been involved in the trade ( $9.4 \pm 9.4$ ), and the proportion of traders who were female (57.1 %; a figure influenced by the Malawian sample which was largely [71.4 %] male traders due to the high number of woodcarvers encountered, a trade not normally associated with females). The trade of four edible NRs observed in Cameroon was found to be dominated by females with 94 % of a sample of 1 100 being female (Ndoye *et al.* 1997). In a tourist market on the outskirts of Nkhata Bay, 46.2 % of the woodcarvers had received 12 years of education and most had gone straight into the trade for lack of a better opportunity. This was particularly true for the Zimbabwean traders who had the highest levels of education.

The commonly traded products, wild foods and medicinal products, could indicate the degree to which the environment is being relied upon for the meeting of peoples' basic needs. Cognisance must be taken of the fact that it was products being traded that were documented here as opposed to those being harvested and utilised by the household. Scores of authors have researched the latter aspect of NR use and found that it contributes significantly to meeting these basic needs (Byron & Arnold 1999; Kaimowitz 2003; Shackleton C.M. & Shackleton S.E. 2004b; Sunderlin *et al.* 2005).

A synthesis of resource inventories developed for woodland resources used by households across South Africa by Shackleton C.M. and Shackleton S.E. (2004a) found that the most common were wild spinaches, fuelwood, wooden utensils, grass-hand brushes, edible fruits and twig hand-brushes. All these resources were used in various combinations and at differing intervals by 85 % or more households to meet the basic needs of food, fuel, shelter and medicine (Shackleton C.M. & Shackleton S.E. 2004a).

The hours respondents described spending on the trade on a day to day basis offers further insight into the degree to which households are reliant on the trade. Sellers operating in urban areas spent up to 56 hours working per week; the need to get to their designated market place was both a time and money consuming endeavour, especially for those living on the urban fringe. One particular lady in a roadside market of Pietermaritzburg described some days when her working hours would have to be extended just so that she could earn enough money to catch a taxi home; her situation was considerably forlorn as her husband had been murdered and three of her children had died and she had been left to care for eight orphans.

Rural households spent less time in the trade than their urban counterparts. It was however common for rural producers to state that they simply left their products by the side of the road and continued with other tasks such as farming, while waiting for customers to stop beside their homesteads. This was consistent with the large number of rural respondents found trading from or near their homesteads.

Shackleton C.M. and Shackleton S.E. (2004b) found that those who were involved daily in their trade earned twice as much as those who traded on an ad hoc basis. In this way peoples' involvement in the NR trade can move beyond a temporary strategy to it fulfilling a more permanent part of their lives if the conditions are favourable (Shackleton C.M. & Shackleton

S.E. 2004b; Shackleton S.E. *et al.* 2008). The importance of the trade was further evidenced by how highly it was ranked in comparison to other household incomes – 94.1 % ranking it as their first or second most important contribution to household income.

### **2.5.6 Resource availability and growth of the trade**

Resource availability is an important aspect of the trade, especially when one considers the degree to which those involved are relying on it to support themselves and their families. More than half of respondents believed that the abundance of their principle resource had diminished over the previous ten years. This is a common finding when traders in a commonly marketed NR are questioned on resource sustainability, i.e. the majority perceive a decline (e.g. Shackleton S.E. *et al.* 2008; Avocevou-Ayisso *et al.* 2009). Shrinking resource abundance paralleled a perception that the number of sellers and producers had significantly increased over the same period. Despite widespread increased electrification of villages in a region of South Africa, Madubansi and Shackleton C.M. (2007) found that 90 % of households were still using fuelwood and that the proportion of households purchasing this product had increased perhaps due to increased scarcity of the resource and lower price hikes in comparison to other fuels.

From the responses provided when respondents were questioned around the availability of resources and the growth of the trade, a cycle became apparent whereby impoverished households look to the environment to meet their basic needs (Byron & Arnold 1999; Kaimowitz 2003; Shackleton C.M. & Shackleton S.E. 2004b; Sunderlin *et al.* 2005), and this manifests itself in a number of ways, one being the trade of NRs (Shackleton C.M. & Shackleton S.E. 2004b). With high HIV/AIDS prevalence, burgeoning populations and associated unemployment rates comes a greater reliance on NRs (Shackleton S.E. *et al.* 2008). This may lead to growing numbers of people involved in the trade (Shackleton S.E. *et al.* 2008). With increased demand comes increased pressure on the resources being harvested (Mutenje *et al.* 2011). Sellers require more stock, producers require more of the raw materials and the harvesters job becomes harder and harder as their job begins to require more time as they have to walk further to find the desired resources (Barany *et al.* 2005). Coupled with this is loss of land due to the growing population and privatisation, as well as increased cultivation with increased food requirements. This in turn can lead to indiscriminate harvesting and further loss of NRs (Okello *et al.* 2001).

One fisherman from Mumbeki in Zambia's Western Province stated the following: "we used to use five nets and they would come out of the water full, now we need more nets and have to ask others to help because more people are depending on fish because of poverty." Further demand on the resource base can come from those living in urban areas who maintain ties with their rural abodes and accompanying cultural practices as was seen with the high demand for medicinal products in these areas. According to Mander (1998), there are 300 000 traditional healers in South Africa supplying 27 million customers – an indication of the enormity of the exigency for this trade.

## **2.6 CONCLUSION**

The overall picture portrayed through this work was one of an immense dependence on NRs across both rural and urban areas. Based on the types of products being sold most abundantly (wild foods, wood and medicinal products), it could be deduced that these products are fulfilling an important role for the meeting of peoples' basic needs of food, fuel, shelter and medicine (Shackleton C.M. & Shackleton S.E. 2004a). In addition to this, the dependence on the sale of NRs was revealed by the long hours traders were working, and the large proportion who had no other alternative livelihood and for whom the trade was their household's only source of income. The importance of this source of revenue was also reflected in it being ranked higher than all other income streams (both cash and non-cash).

What was interesting to note was the number of traders who had entered the trade immediately after having completed their schooling and the number who had vacated formal employment in exchange for a prospect in the trade. This was often attributed solely to the perceived benefits of involvement in this occupation, for example its low barriers to entry and the chance of being one's own boss. More often than not though, the move towards the trade was in response to trying times within the home and, in particular, sickness and death – a finding mirrored by Shackleton S.E. *et al.* (2008), who reported similar results. The role the NR trade plays in offering households a means of coping with stress will be covered in the next chapter (CHAP. 3).

It was hard to differentiate between the nature of the trade between rural and urban areas because of the apparent blurring of the lines in NR use between the two areas. A large proportion of traders interviewed in urban areas seemed to have travelled there from rural



areas and would stay for varying amounts of time. Thus, these findings, and those of others (Clarke *et al.* 1996; Kaimowitz 2003; Cocks & Dold 2006; Shackleton S.E. *et al.* 2008; Avocèvou-Ayisso *et al.* 2009), reflect growing linkages between rural and urban areas in terms of their use of NRs. This has important implications in the HIV/AIDS context, with purported links between migration and the spread of the epidemic (Drimie 2002; Torell *et al.* 2006; Masanjala 2007). In my study, traders from rural areas emerged as being worse off in terms of their household AIDS affliction (based on their proxy count), which has obvious repercussions given the mobility of these traders.

## CHAPTER THREE: THE SAFETY-NET ROLE OF THE NATURAL RESOURCE TRADE

### 3.1 INTRODUCTION

Livelihood shocks have been classified into different groups by a variety of different authors; Dekker (2004) separated individual (idiosyncratic) risks from covariate/aggregate risks, while Paumgarten (2006) distinguished between anticipated and unanticipated shocks, with the former referring to those shocks that households were able to plan for in advance because they were predictable (e.g. seasonal crop shortfalls), and the latter referring to unexpected shocks that households could not anticipate (e.g. livestock disease and/or death). This study focused on unanticipated shocks although one could argue that in the case of a disease like HIV/AIDS, households coming to grips with the seriousness of the disease and the strong possibility of that person dying, would generally accept the inevitability of the person's fate and try as best to prepare for that. Twine and Hunter (2008) contrasted households impacted by mortality due to HIV with impacted by a non-HIV death and found that the former were afforded time during the illness to adapt to this form of stress while the latter were forced to cope with a more unexpected state of crisis. However, increasing availability of free or cheap anti-retroviral drugs through government and NGO programmes has reduced this inevitability for many years.

Southern Africa is the global epicentre of the HIV/AIDS pandemic with over 1 600 new infections per day in South Africa alone (Freedman & Poku 2005). The disease is unique in the following ways (Haddad & Gillespie 2001; De Waal & Whiteside 2003; Harvey 2004):

- It is growing to be the prevailing form of illness and death in the worst-affected countries, placing huge burdens on fragile and often under-resourced health services.
- Illness associated with AIDS is particularly destructive because it can be chronic, prolonged and fatal.
- It affects prime-age adults disproportionately, eliminating the most productive members of society, increasing household dependency ratios, reducing productivity and caring capacity and potentially impairing knowledge transfer between generations.
- It is burgeoning the number of orphans

- Increasing burdens on the elderly who take in these orphans and care for HIV affected adults.
- It is often associated with stigma, marginalising those desperately in need of social support.
- As the pandemic intensifies, the capacity to act is decreasing, as mortality relating to AIDS undermines key institutions.

The greatest impact is at the individual and household level (Whiteside 2002; Freedman & Poku 2005). The impact is extensive with illness increasing in frequency, duration and severity, requiring more care, medicine, treatment and possibly dietary alterations (Whiteside 2002; Freedman & Poku 2005; Chuma *et al.* 2007). Then in the event of death the funeral creates additional expense. Time and effort shifts from income (cash and non-cash) generation to care for the sick and, at times, the espousal of orphans from other deceased members of the family or community. Moreover, a labour deficit is caused by morbidity and mortality (Whiteside 2002; Freedman & Poku 2005; Chuma *et al.* 2007). The magnitude and gravity of this shock is influenced by the number of cases in the household, the role that the deceased previously played in the household, the household's composition and asset array and the availability of resources (social networks, treatment, alternative livelihoods by which to cope, etc.) (Whiteside 2002; Freedman & Poku 2005).

Households will use whatever they can to weather misfortune; coping strategies comprise of preventative, impact-minimising or post event coping actions (Few 2003 in Paumgarten 2006). Some authors have however argued, especially in the case of a covariate shock like HIV/AIDS, that a household's endeavours to endure is not accurately termed 'coping' strategy, but rather merely a 'response' strategy (Loevinsohn & Gillespie 2003). Barnett and Whiteside (2002) make a case that "people who are forced to sell the clothes of the dead or their own clothes can hardly be said to be coping; these are the actions of the desperately impoverished." Despite these concerns the term 'coping' strategy will be employed here due to the fact that it is more widely understood.

Some so called coping strategies can prove detrimental to the wellbeing of vulnerable households. In the context of HIV/AIDS, transactional sex, withdrawing children from school or eating less could prove injurious (Harvey 2004). Livelihood diversification is considered a

more non-erosive strategy. Ellis (1998) defines rural livelihood diversification “as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living.” The degree of diversification is an important variable when gauging the impact of a crisis and the ability of a household to cope (Ellis 1998; Bryceson 2002). The ability of a household to alternate between various livelihood activities strengthens their adaptability and resilience in the face of adverse trends and unforeseen shocks (Mutenje 2010). In the dire milieu of HIV/AIDS and the accompanying labour shortfall, this reduces the dependence on a specific type of labour – both in terms of quantity and skills (Haddad & Gillespie 2001).

The degree to which households are able to diversify and, in turn, their susceptibility to shocks, could be impacted by a number of factors, one being the household’s financial position (Pattanayak & Sills 2001; De Waal & Whiteside 2003; Dekker 2004). In Paumgarten’s (2009) study of wealth differentiation of household use and trade in NRs in South Africa, the following attributes were used to classify households into wealth classes: livestock ownership; employment (particularly formal employment); government grants; use of alternative fuels for cooking; the health of household members; the payment of school fees; the size and style of house and a greater number and diversity of accumulated assets and of saving schemes. These criteria were identified by the community themselves. Although the classification of households according to wealth was not an objective of my study from the onset, the differentiation between trading and non-trading households elucidated several salient differences between the two groups in terms of their wealth status and so this feature has been incorporated into the discussion.

NRs offer households a means to diversify their livelihoods and when faced with setbacks or shocks, have been shown to provide an important safety-net (McSweeney 2004; Shackleton C.M. & Shackleton S.E. 2004b; Paumgarten 2005). It has been documented that households facing trial may rely on the NR base in three ways; (1) they may use a particular NR that they have not used before, e.g. if they previously had sufficient funds to purchase vegetables from a market, they may now choose to harvest and consume wild vegetables; (2) they may increase the use of a particular resource; e.g. if they had previously only used fuelwood for cooking and heating in their homes they may also decide to use the resource as a cost-saving device during ceremonies and other cultural practices. A study in Malawi showed that households registering HIV/AIDS mortality were five times more likely to increase their harvesting of fuelwood than

unaffected households (Barany *et al.* 2005). Lastly (3), they may begin to trade one or more NRs in a market, initially on a temporary basis perhaps but an activity that could become a more permanent strategy if some degree of success is achieved from it (Shackleton C.M. & Shackleton S.E. 2004b).

Whether or not households utilise one or more of the abovementioned strategies, would be determined by what other assets they have available to them at the time (McSweeney 2005). However, for both the wealthy and the poor, the ability of NRs and specifically the trading thereof, to fulfil the following vital roles has been realised (Shackleton C.M. & Shackleton S.E. 2004b; Uma Shaanker *et al.* 2004; Shackleton S.E. *et al.* 2008):

- Generating income when other options are not available
- Providing scope for income diversification at the household level thereby taking the dependency off other safety-nets like inter-household loans or state welfare
- Providing a safety-net during hardship or shock
- Investment in key activities, needs (e.g. school fees) or asset accumulation to increase household resilience

A concern is that in the event of shocks that are both frequent and severe (e.g. HIV/AIDS), a self-perpetuating cycle might result where people are forced to rely more heavily on NRs, consequently leaving them to become more deeply entrenched in poverty and leading to degradation of the environment (Angelson & Wunder 2003; Wood 2003; Fisher & Shively 2005; Paumgarten 2005; Shackleton S.E. *et al.* 2008). Moreover, dependence on the safety-net role of NRs may weaken efforts to diversify livelihood strategies (Neumann & Hirsch 2000; Wunder 2001).

Niehof (2004) distinguishes between diversification for “good” reasons and diversification for “bad” reasons. For example, a household that has been successful in agricultural intensification may be able to then finance more lucrative forms of micro-enterprise. In this case diversification took place for “good” reasons. On the other hand, coping with a stress like HIV/AIDS and subsequent withdrawal of children from school as a cost-saving technique and a means of bolstering the household labour force, would be classified as diversification for “bad” reasons (Niehof 2004). According to Harvey (2004) “empirical evidence about the

extent and scope of coping strategies is thin, and there is little consideration of the degree to which these various strategies are actually being employed". This is particularly so for non-agricultural responses. Furthermore, very little is known about the dynamics of household behavioural response to adult death in Africa (Yamano & Jayne 2002 in Harvey 2004). My study sought to examine this knowledge gap as well as provide an understanding of household perceptions regarding the significance of HIV/AIDS as a shock, in comparison to other shocks, and the coping responses or strategies employed, especially in relation to NRs.

## **3.2 RESEARCH OBJECTIVE AND KEY QUESTIONS**

### **3.2.1 Objective**

To determine the degree to which HIV/AIDS may be pushing people into the NR trade due to its use as a coping strategy.

### **3.2.2 Key Questions**

1. Where does HIV/AIDS feature in terms of its significance as a livelihood shock in comparison to other shocks experienced by households of varying degrees of involvement in the NR trade?
2. What coping strategies are households employing when dealing with shocks and where does the NR trade rank in terms of its importance in comparison to other strategies employed (for households of varying degrees of involvement in the NR trade)?
3. To what degree is HIV/AIDS pushing people into the commercialisation of NRs?

## **3.3 APPROACH**

### **3.3.1 Data collection**

A preliminary rapid survey (CHAP. 2) was conducted incorporating both rural and urban sites across Malawi, Zambia, Zimbabwe, Swaziland and South Africa with the objective of establishing the when, what and why of respondents' engagement in NR trading and their measure of AIDS affliction derived using the SADC FANR VAC (2003) proxies. Following this, an in-depth phase commenced based on these results. The rural sample was significantly ( $t = 2.5$ ;  $p < 0.05$ ) worse off in terms of their levels of AIDS affliction. Consequently, two rural sites were included in an in-depth survey, one site in Malawi and one in South Africa. At the country level, Malawi emerged with the highest proportion of households registering at least one proxy and with the most significantly different distribution of proxies in comparison

to other countries. Several small villages in close proximity to one another were selected in South Africa for the purpose of acquiring the desired sample size and representation.

Three groups of households (10 households/group/site;  $n = 60$ ) were purposively sampled, namely non-trading, those with the presence of an inexperienced NR trader, and those with the presence of an experienced NR trader. For a household to be categorised as trading it needed the presence of at least one trader and the intention was to first locate the most experienced. When interviewing non-trading households the household head was targeted but alternatively the *de jure* head was interviewed. The snowball technique was used to locate the desired number of respondents from each of the three trader groups.

During in-depth interviews, conducted with the assistance of a local interpreter, respondents were asked if their households had experienced a shock in the previous two years; if they answered no to this then they were prompted with a list of possible shocks, e.g. drought or death of the breadwinner. Following this they were asked to rank the shocks according to their level of significance. Shocks recorded were grouped into two categories, namely non-AIDS proxy shocks which refer to natural disasters, crop pests and failure, loss of assets and livestock disease and death, and AIDS proxy shocks which refer to those shocks corresponding with the proxies designed by SADC FANR VAC (2003). These proxies were described in Section 1.3.1.1 of Chapter 1. The difference in this case is that shocks prompted for were not limited to the age of the ill person or, deceased, the length of their illness or whether or not, in the case of an orphan, it was paternal or maternal. Though it is acknowledged that death or illness in a household does not necessarily pertain to HIV/AIDS, when this evidence is triangulated with the household proxy status and in the case of traders, their reason for entering the trade, one might positively infer that the household had been impacted by HIV/AIDS. Even if this is incorrect in a small minority of cases the essence of the analysis and interpretation does not need to be altered, as the results still indicate the role of a severe medical complaint or death in driving, or not, the NR trade.

Respondents were then asked what coping strategies their households had employed in dealing with these shocks and the same procedure was used to rank these. To limit the number of cross-comparisons in the data analysis and interpretation, only the top three ranked shocks were incorporated into this section of the interview. Pairwise ranking was the primary exercise used when ranking was done by the respondent. Given the sensitivity of these topics, research

only commenced subsequent to clearance being given by the Rhodes University Ethical Committee and the relevant authorities at each site.

### **3.3.2 Data analysis**

Data analysis involved comparisons between the three trader groups as well as between Malawian and South African households. The data was initially summarised in Microsoft Excel using descriptive statistics to describe the mean, mode, median and standard deviation. Following this, the statistical software, STATISTICA was used. Exploratory principle component analyses were run to investigate possible relationships between variables, following which the relevant significance tests were conducted. Pearson's Chi-Squared Test was used when dealing with frequency data. A p-value of less than 0.05 was accepted as being significant. Numerical data were analysed using a t-test for independent samples in order to compare means. One-way ANOVA was also utilised in this regard and the Fisher LSD post-hoc test where appropriate. Additionally, linear regressions were conducted to explore for significant relationships between attributes of interest.

## **3.4 RESULTS**

### **3.4.1 Household shocks and responses**

#### ***3.4.1.1 Types of shocks registered by households over a period of two years***

A total of 171 shocks were listed by the respondents within the last two years with 95.0 % of households registering a shock (n = 60). The five most frequently recorded shocks were, in order of first to last, natural disasters (61.7 % of households), livestock disease and/or death (46.7 % of households), family morbidity (41.7 %), crop pests and/or failure (36.7 %), and family mortality (26.7 %). Morbidity and mortality associated with the breadwinner were categories of their own but if aggregated with family morbidity and mortality the shocks were recorded by 68.3 % and 41.7 % of households, respectively, making morbidity the most frequently observed shock in households over the two year period.

There was no significant difference in the mean number of shocks encountered by each of the three groups ( $F = 0.4$ ;  $p > 0.05$ ), however non-trading households endured a slightly higher number of total shocks (Table 3.1). At a country level, Malawian households experienced a significantly greater ( $t = 5.3$ ;  $p < 0.0001$ ) number of shocks than South African households (115 vs. 56). A principle components analysis exposed a possible correlation between the



number of shocks recorded by households and their most highly ranked income stream. Households who ranked farm produce and the consumption of NRs as their most important income stream encountered a significantly higher number of shocks ( $F = 7.8$ ;  $p < 0.0001$ ) than those ranking government grants as their most important source of income ( $4.0 \pm 1.5$  and  $3.6 \pm 1.7$  respectively vs.  $1.9 \pm 0.8$ ).

Table 3.1 Mean and total number of shocks per household per trader group over the last two years

TRADER GROUP	MEAN SHOCKS	TOTAL SHOCKS	RANGE	% REGISTERING SHOCKS
Non-trading (n = 20)	$3.1 \pm 1.8$	62	1 - 7	100.0
Inexperienced trader (n = 20)	$2.9 \pm 1.7$	57	0 - 6	95.0
Experienced trader (n = 20)	$2.6 \pm 1.7$	52	0 - 6	90.0

Overall, households registered more non-AIDS proxy shocks than AIDS proxy shocks. Natural disasters were the most frequently endured shock for all groups (Fig. 3.1). In Malawi, flooding destroyed crops and in South Africa, strong winds had destroyed people's homes. Breadwinner morbidity was recorded to a greater degree ( $\chi^2 = 34.6$ ;  $p < 0.0001$ ) in non-trading households in comparison to inexperienced and experienced trading households. Between the trading groups, experienced had the higher incidence rate of this shock ( $\chi^2 = 3.9$ ;  $p < 0.05$ ).

There was found to be a significant difference ( $\chi^2 = 48.5$ ;  $p < 0.0001$ ) in the distribution of different shocks between non-trading households and inexperienced but not between non-trading and experienced trading households and between inexperienced and experienced trading households (Fig. 3.1). Other shocks described were the confiscation of trade goods, lack of access to water, divorce and rape.

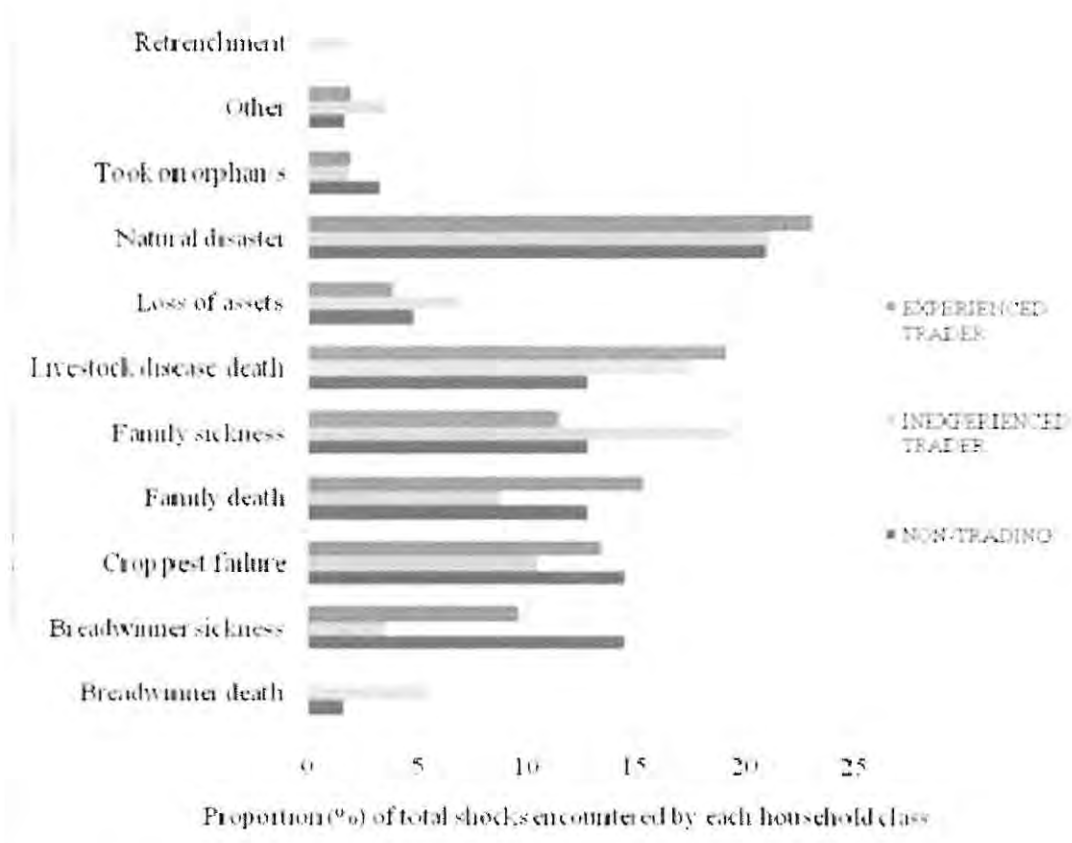


Figure 3.1 Shocks experienced in the previous two years by trader groups

Some households experienced multiple shocks, the highest number being recorded by a non-trading household who recorded seven shocks over the previous two years. A small number of trading households, on the other hand, had not recorded any shocks, with the experienced group being better off in this regard. The greatest proportion (61.7 %) of households faced between one and three shocks within the timeframe, while almost a third (31.7 %) recorded between four and six shocks.

### 3.4.1.2 The significance of HIV/AIDS as a household shock

The proportion of households registering one or more AIDS proxy shocks decreased with increasing involvement in the trade, with 85.0 % of non-trading households registering these shocks, 80.0 % of inexperienced trading households, and 75.0 % of experienced trading households. This was statistically significant between non-trading and experienced trading households ( $\chi^2 = 5.3$ ;  $p < 0.05$ ). Significantly more ( $\chi^2 = 32.0$ ;  $p < 0.0001$ ) Malawian households registered this type of shock than South African households (93.3 % vs. 66.7 %).

On the whole, AIDS proxy shocks were registered in 80.0 % of households and they constituted 40.9 % of all shocks. This was largely death or illness within the family as opposed to that of the household breadwinner. In addition to this, AIDS proxy shocks made up the largest proportion of shocks registered by non-trading households (Fig. 3.2). The distribution of AIDS proxy shocks was significantly different only between non-trading households and experienced trading households ( $\chi^2 = 4.7$ ;  $p < 0.05$ ). Furthermore, there was no significant difference ( $\chi^2 = < 0.3$  in all cases) in the distribution of non-AIDS proxy shocks between the three trader groups.

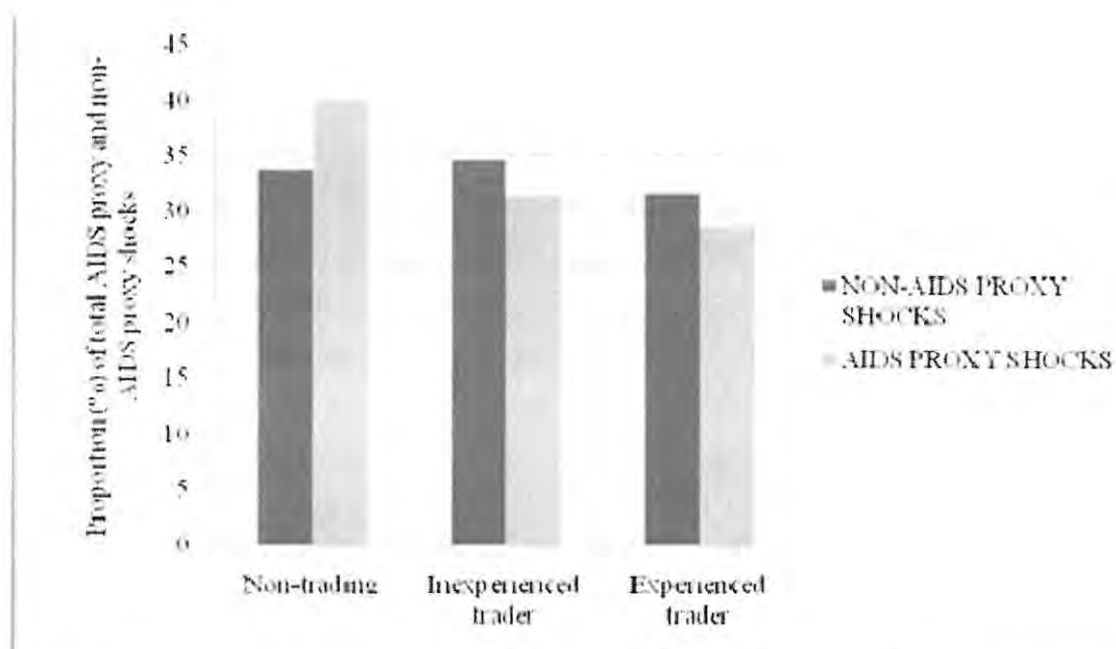


Figure 3.2 Proportion of total AIDS proxy and non-AIDS proxy shocks per trader group

There was a significant difference in the distribution of AIDS proxy and non-AIDS proxy shocks across the three ranks, most notably between shocks ranked first and third ( $\chi^2 = 35.7$ ;  $p < 0.0001$ ). In terms of the shocks ranked first, AIDS proxy shocks made up 56.1 %; for those ranked second, they made up 44.4 % and for those ranked third, they made up 29.0 % (Table 3.2). Concerning experienced trading households, natural disasters and family deaths were ranked as being equally significant, while both the second and third ranked shocks were non-AIDS proxy shocks.

Table 3.2 Top three ranked shocks for each trader group and their proportion of each rank

RANK	NON-TRADING	%	INEXPERIENCED TRADER	%	EXPERIENCED TRADER	%
1st	Breadwinner sickness	20.0	Family sickness	36.8	Natural disaster/ Family death*	38.9
2nd	Family sickness	31.3	Natural disaster	46.7	Crop pest/failure	28.6
3rd	Livestock disease/death	36.4	Natural disaster	40.0	Natural disaster	40.0

\* Natural disasters and family death were ranked equally burdensome by experienced trading households

When scrutinized further, a principal components analysis revealed a possible correlation between trader group and the most highly ranked shock by respondents. There was found to be a significant difference in the distribution of first ranked shocks between the three trader groups (Non-trading households vs. inexperienced:  $\chi^2 = 72.9$ ;  $p < 0.0001$ ; non-trading vs. experienced:  $\chi^2 = 52.9$ ;  $p < 0.0001$ ; inexperienced vs. experienced:  $\chi^2 = 38.9$ ;  $p < 0.0001$ ), with non-trading households ranking breadwinner morbidity and livestock disease and death significantly higher than the two trading groups. Inexperienced trading households ranked family morbidity significantly higher, while experienced trading households ranked natural disasters and family mortality significantly higher.

Of interest was the fact that there was a significant difference ( $t = 7.1$ ;  $p < 0.0001$ ) in the number of shocks described by households when unprompted and when prompted. Before respondents had been prompted, 80 % described having recorded a shock but the mean number of shocks described was  $1.1 \pm 0.7$  in comparison to  $2.9 \pm 1.7$  when prompted.

### 3.4.2 Coping strategies employed by households

Of the total of 155 strategies recorded the most prominently employed, both in terms of the number of different shocks for which they were used and the frequency with which they were used, were savings, agricultural adjustments, kinship, cutting down expenditure on luxuries, NR sale, and increased consumption of NRs. Kinship in this case refers specifically to family assistance as opposed to the inclusion of community assistance. Natural disasters were the

most frequently encountered shock and all the above strategies, bar the petty trade, were employed to deal with them.

All three groups used a wide range of coping strategies and there was very little difference between inexperienced and experienced trading households with regards to the most frequently employed strategies. For these two groups, savings, the NR trade and agricultural adjustments each represented more than ten percent of strategies utilised (Fig. 3.3). Inexperienced and experienced trading household utilised a total of 53 and 54 coping strategies respectively.

By comparison, non-trading households adopted 48 strategies and were most reliant on a different suite of responses. For them, kinship was strongly relied upon and to a less extent, piece work. These two strategies each constituted more than ten percent of strategies employed. It was found that reliance on kinship decreased with increasing involvement in the NR trade, as did piece work (Non-trading households vs. inexperienced:  $\chi^2 = 20.9$ ;  $p < 0.0001$ ; non-trading vs. experienced:  $\chi^2 = 99.7$ ;  $p < 0.0001$ ; inexperienced vs. experienced:  $\chi^2 = 10.7$ ;  $p < 0.01$ ).

There was a significant difference in the distribution of coping strategies across the three trader groups (Non-trading households vs. inexperienced:  $\chi^2 = 80.4$ ;  $p < 0.0001$ ; non-trading households vs. experienced:  $\chi^2 = 126.4$ ;  $p < 0.0001$ ; inexperienced vs. experienced trading households:  $\chi^2 = 34.4$ ;  $p < 0.01$ ). The most salient differences were found between non-trading and experienced trading households, the details of which were described above, save for the changing of the household diet which non-trading households employed as a strategy significantly more than experienced trading households, for whom this was not a strategy.

There were some clear differences between the two country samples in the three most frequently utilised coping strategies with Malawians drawing on agricultural adjustments and savings as their first and second most regularly used strategies and South Africans drawing on the consumption of NRs and kinship as their first and second most regularly used strategies. For households from both countries, the sale of NRs was the third most commonly employed strategy. The savings that Malawian households used to cope were unlike those used in South Africa in that they were typically food stores or money stowed away within the home as

opposed to bank accounts or burial societies that the majority of South African households had access to.

In Figure 3.3, ‘other’ strategies refer to different things depending on the location of the study site. In South Africa it commonly referred to access to funeral policies, burial societies and government grants which could be used to mitigate the impact of shocks. In Malawi respondents looked also to local non-governmental organisations or municipalities for assistance.

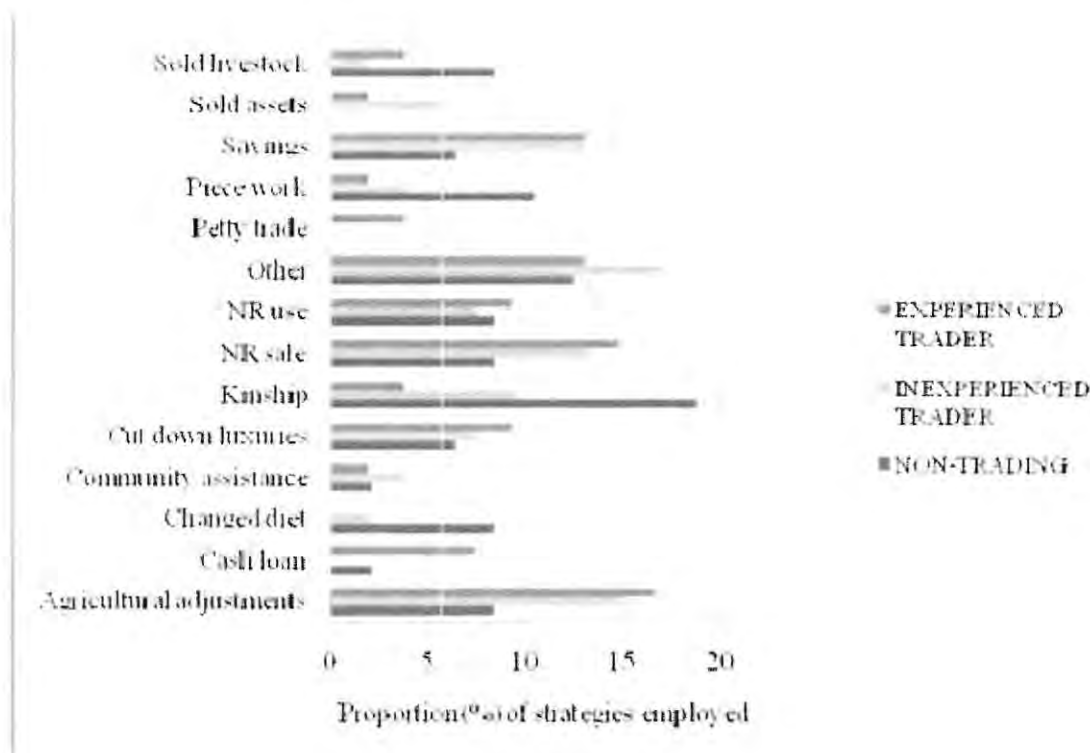


Figure 3.3 Coping strategies employed by different trader groups

### 3.4.2.1 The utilisation of NRs as a coping strategy

Interestingly, even some non-trading households engaged in the short-term trade of NRs as a coping strategy. Of these, 75.0 % had had some previous experience with the trade. The NR trade was an important strategy for trading households, particularly for the experienced for whom it was the second most commonly used strategy while the inexperienced drew on it to the same degree as savings, as their second most frequently employed strategy. If the two safety-net roles of NRs researched here (consumption and sale), are aggregated it was the strategy most commonly employed (20.6 % of all strategies). The sale of NRs was the

preferred coping strategy over the consumption thereof (12.2 % vs. 8.4 %). For the sample as a whole the NR sale was the second most commonly employed coping strategy (12.3 %) after agricultural adjustments (13.5 %). However, only Malawian respondents made these adjustments as opposed to South African respondents who made no mention of crop-related shocks thus not needing to go to such measures.

In terms of the proportion of strategies utilised, experienced trading households made the most use of the NR strategy (24.1 % of strategies employed by them), followed by inexperienced trading households (20.8 %) and non-trading households (16.7 %). From this perspective the reliance on NRs as a coping strategy appeared to increase with increasing involvement in the trade, although this was only significant between non-trading and experienced trading households ( $\chi^2 = 9.4$ ;  $p < 0.01$ ). From a country perspective, NRs made up a larger proportion of strategies employed by South African households in comparison to Malawian households (32.1 % vs. 13.8 %). The disparity can be attributed to the notably higher proportion of South African households relying on the consumption of NRs as a strategy (19.8 % of strategies employed by South Africans vs. 1.2 % of those employed by Malawians).

However, in terms of the proportion of households adopting either the sale or the consumption of NRs as a strategy, only 36.7 % of households from the total sample noted using either of these NR safety-nets. Furthermore, despite the marked difference in the frequency with which NRs were used as a strategy between the two countries, the actual proportion of households doing this from each was the same (36.7 %). A larger proportion (most significantly different between inexperienced and experienced trading households:  $\chi^2 = 10.0$ ;  $p < 0.01$ ) of inexperienced trading households utilised this strategy (45.0 %), followed by non-trading households (35.0 %), and lastly, experienced trading households (30.0 %).

The utilisation of NRs as a coping strategy was particularly important when households were faced with AIDS proxy shocks, with the consumption of NRs being the most frequently used strategy when households were faced with the death of a family member, the sale of NRs being the second most commonly utilised strategy when a family member was ill, and the second most frequently employed strategy in the event of the breadwinner of the household dying. Generally speaking, the NR trade was used significantly more frequently ( $\chi^2 = 13.7$ ;  $p < 0.001$ ) in the face of morbidity, while the consumption of NRs was used more frequently in dealing with mortality

### 3.4.3 Coping strategies used in response to AIDS proxy and non-AIDS proxy shocks

A significantly different ( $\chi^2 = 113.3$ ;  $p < 0.0001$ ) suite of responses was being employed for either AIDS proxy shocks or non-AIDS proxy shocks (Fig. 3.4a - 3.4c). The difference within the pooled data was however strongly associated with the variation in the degree to which agricultural adjustments were made, constituting 26.8 % of strategies employed for non-AIDS proxy shocks and only 2.5 % of strategies employed for AIDS proxy shocks. Nonetheless, when the data was disaggregated into the different trader groups various trends became detectable.

#### 3.4.3.1 Non-trading households' response to AIDS proxy and non-AIDS proxy shocks

Among non-trading households (Fig. 3.4a), there was a significant difference ( $\chi^2 = 50.1$ ;  $p < 0.0001$ ), in the distribution of strategies for each of the two groups of shocks with agricultural adjustments and community assistance being relied upon specifically for non-AIDS proxy shocks and cash loans and the cutting down of expenses used exclusively for AIDS proxy shocks. Kinship was relied upon most heavily for AIDS proxy shocks (26.7 % of strategies for these shocks) while piece work was also an important strategy (13.3 % of strategies). The consumption of NRs was used significantly more frequently ( $\chi^2 = 4.9$ ;  $p < 0.05$ ) in the event of non-AIDS proxy shocks in contrast with the NR trade which was used more often for AIDS-proxy shocks.

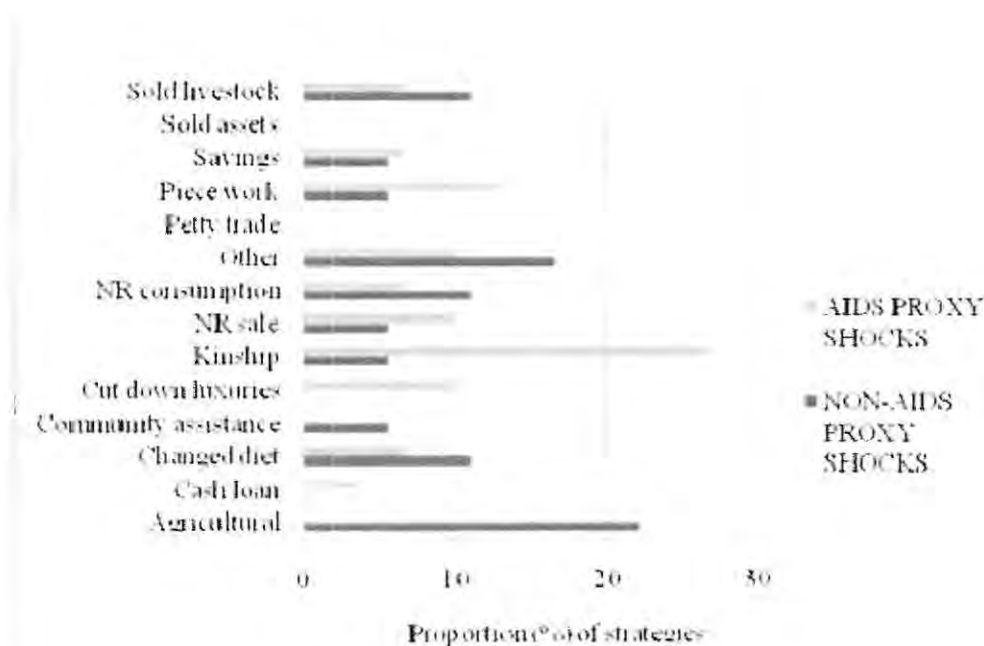


Figure 3.4a Coping strategies employed by non-trading households in dealing with AIDS proxy and non-AIDS proxy shocks



### 3.4.3.2 Inexperienced trading households' response to AIDS proxy and non-AIDS proxy shocks

A significant difference ( $\chi^2 = 68.5$ ;  $p < 0.0001$ ) in the distribution of strategies occurred among the inexperienced trading households (Fig. 3.4b). Agricultural adjustments were again used exclusively for non-AIDS proxy shocks (33.3 % of strategies), while the suite of responses utilised for AIDS proxy shocks were quite different. Savings was an important strategy in this regard (24.1 %) and used exclusively for these shocks. Of the other more frequently used strategies ( $> 10.0$  %), the sale of household assets was also used exclusively for these shocks. The difference in the use of NRs is only significant with a  $p$  value of 0.06 ( $\chi^2 = 3.8$ ) with the consumption thereof being used more for AIDS proxy shocks and there being little difference in the use of the NR trade as a coping strategy for each of the two shock categories.

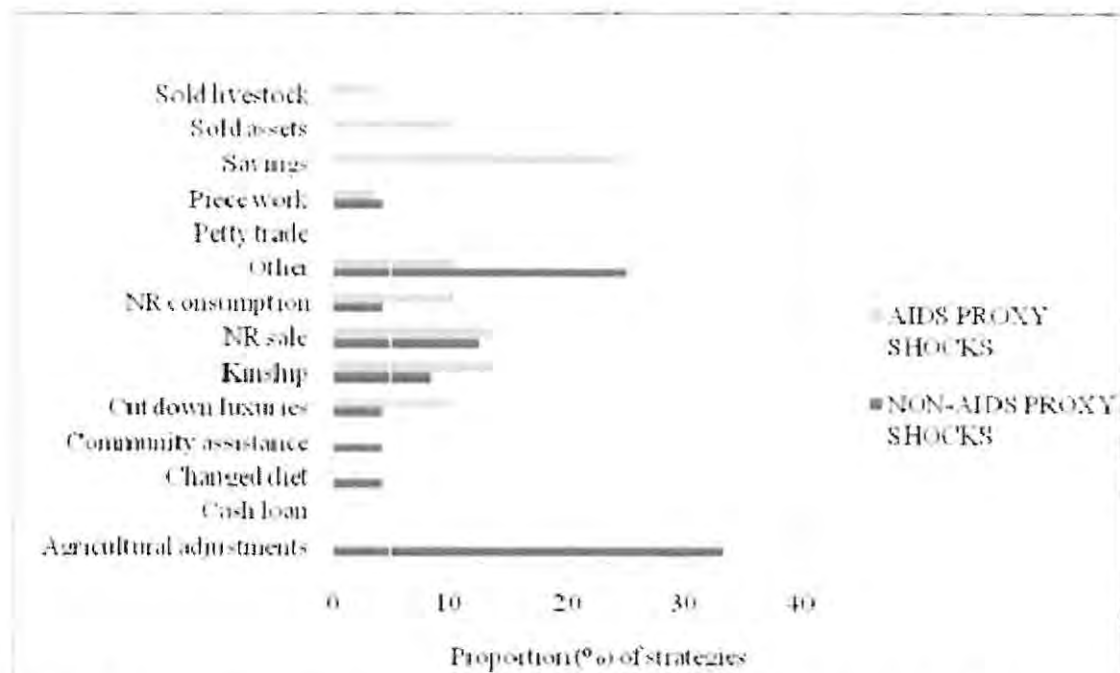


Figure 3.4b Coping strategies employed by inexperienced trading households in dealing with AIDS proxy and non-AIDS proxy shocks

### 3.4.3.3 Experienced trading households' response to AIDS proxy and non-AIDS proxy shocks

Among experienced trading households the distribution of strategies were significant ( $\chi^2 = 46.8$ ;  $p < 0.0001$ ), with agricultural adjustments being primarily used (21.2 %) to cope with non-AIDS proxy shocks while although not a strategy relied greatly upon by this group, kinship was used exclusively to cope with AIDS proxy shocks (Fig. 3.4c). Thus, across all

three groups, kinship was used significantly more when households were faced with AIDS proxy shocks. The trade and consumption of NRs were used significantly more ( $\chi^2 = 4.4$ ;  $p < 0.05$ ) when this trader group faced AIDS proxy shocks. This was the case with savings too. Of the more minor strategies ( $< 10.0\%$ ), community assistance was lent on exclusively for AIDS proxy shocks and the petty trade, piece work and the sale of household assets and livestock were adopted when facing non-AIDS proxy shocks.

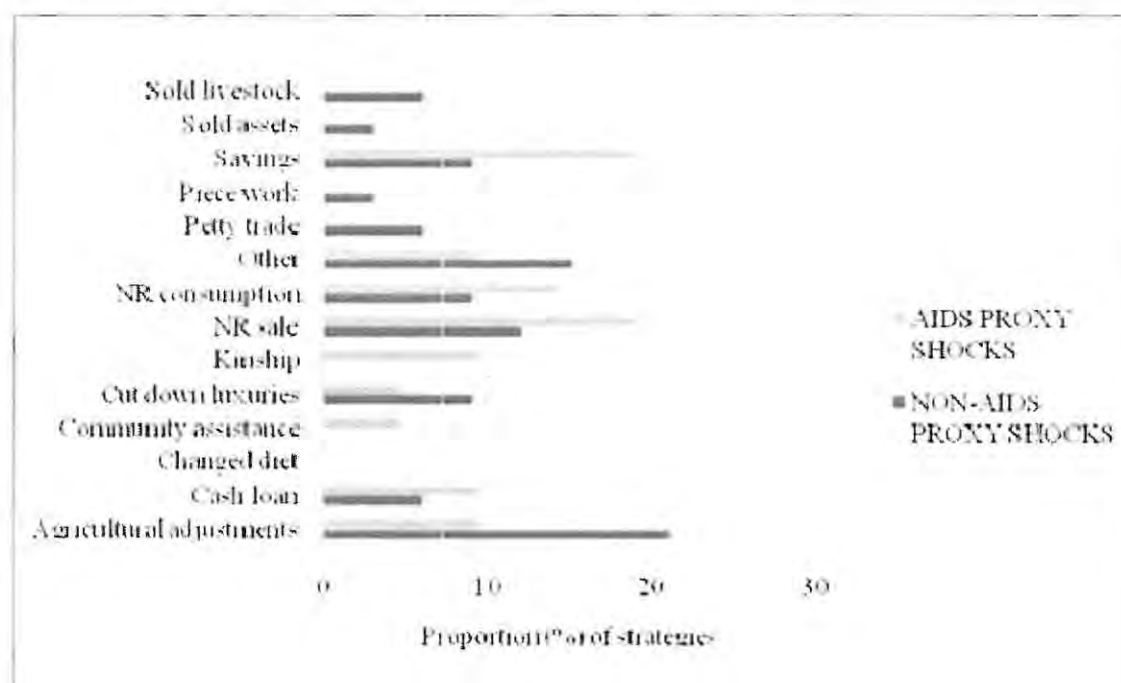


Figure 3.4c Coping strategies employed by experienced trading households in dealing with AIDS proxy and non-AIDS proxy shocks

### 3.4.3.4 Country differences in the strategies employed by households facing AIDS-proxy and non-AIDS proxy shocks

The differences in the distribution of strategies for each of the two shock categories among Malawian and South African households was remarkably significant ( $\chi^2 = 335.9$ ;  $p < 0.0001$  and  $\chi^2 = 101.6$ ;  $p < 0.0001$ , respectively). Malawians relied a great deal on agricultural adjustments (42.2 % of strategies) for non-AIDS proxy shocks, and used kinship, savings, and the NR trade [used twice as often for these shocks; ( $\chi^2 = 5.7$ ;  $p < 0.05$ )], and to a lesser extent, the consumption of NRs significantly more when dealing with AIDS proxy shocks. Conversely, there was not a significant difference in the degree to which NRs were utilised by South Africans for the two shock categories although the consumption thereof was the primary strategy employed (20.7 % of strategies) when faced with non-AIDS proxy shocks. The trade

of NRs made was the second most frequently (13.8 %) employed strategy in this case. When confronting AIDS proxy shocks, kinship was their primary strategy (24.3 %) and together with savings and cash loans, were used significantly more for this group of shocks. In summary, across all trader groups the main differences lay in the use of agricultural adjustments for non-AIDS proxy shocks and the use of savings, kinship and the cutting down of expenses when confronting AIDS proxy shocks.

### 3.4.3.5 Households unable to offer a coping strategy in response to shocks

Across the board, 21.3 % of respondents stated that they had not employed a strategy in response to shocks (both AIDS proxy and non-AIDS proxy shocks). The distribution of these respondents was significantly different between the trader groups (Fig. 3.5); most notably between non-trading and inexperienced trading households ( $\chi^2 = 22.4$ ;  $p < 0.0001$ ). Among non-trading households, 29.0 % of the shocks recorded were met with no response; for inexperienced, 19.3 % and for experienced, 25.0 %.

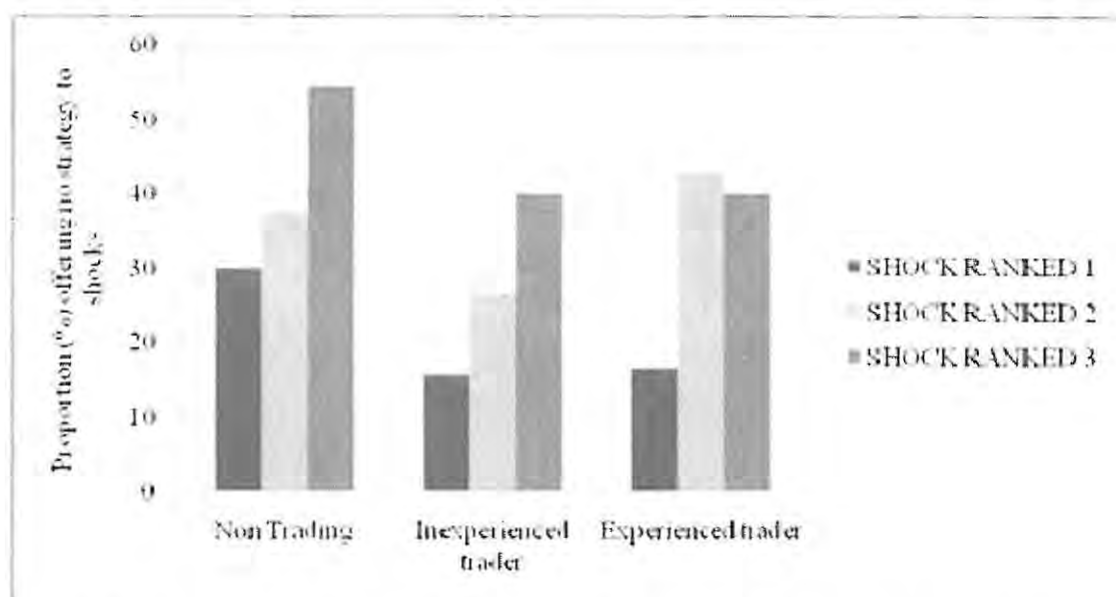


Figure 3.5 Trader groups who employed no coping strategies in response to the top ranked shocks

### 3.4.4 Factors affecting the resilience of households facing shocks

There were significant differences between the three trader groups with regards to the number of cash income earners per trader group, the distribution of households with monthly income from grants, and those with savings, assets, livestock (including cattle) and crops (Table 3.3).

Table 3.3 Summary of household attributes and selected assets

ATTRIBUTE	NON TRADING	INEXPERIENCED TRADER	EXPERIENCED TRADER	STATISTICS	MALAWI	SOUTH AFRICA	STATISTICS
Hh size	5.3 ± 3.0	5.5 ± 3.2	5.6 ± 2.3	F = 0.1; p > 0.05	7.2 ± 2.6	3.7 ± 2.2	t = 5.6; p < 0.0001
Children (≤ 17 yr)	2.6 ± 2.1	2.6 ± 2.0	2.9 ± 2.1	F = 0.1; p > 0.05	3.8 ± 1.9	1.5 ± 1.3	t = 5.3; p < 0.0001
Hh education (yr) <sup>1</sup>	5.8 ± 2.5	5.8 ± 2.7	5.1 ± 1.5	F = 0.6; p > 0.05	4.7 ± 1.4	6.5 ± 2.6	t = 3.3; p < 0.01
Scholars in hh	3.0 ± 2.7	2.0 ± 2.2	2.0 ± 2.3	F = 1.2; p > 0.05	3.8 ± 2.5	1.0 ± 1.2	t = 5.8; p < 0.0001
Hh monthly income (ZAR)	849 ± 713	943 ± 895	1 326 ± 1 245	F = 1.1; p > 0.05	349 ± 479	1 630 ± 954	t = 6.0; p < 0.0001
No. Income streams	4.7 ± 1.5	5.5 ± 1.7	5.6 ± 2.1	F = 1.7; p > 0.05	5.4 ± 1.6	5.1 ± 2.0	t = 0.8; p > 0.05
Cash income earners/hh <sup>2</sup>	0.8 ± 0.9	2.2 ± 0.8	2.0 ± 1.0	F = 14.1; p < 0.0001	1.7 ± 0.9	1.6 ± 0.2	t = 0.2; p > 0.05
No. old-age pensions/hh	0.4 ± 0.6	0.2 ± 0.4	0.4 ± 0.7	F = 0.7; p > 0.05	0 ± 0	0.8 ± 0.8	t = 5.2; p < 0.0001
Monthly income from grants (%)	40.9	24.0	29.9	Non-trading households vs. inexperienced: $\chi^2 = 19.5$ ; p < 0.01; non-trading households vs. experienced: $\chi^2 = 15.6$ ; p < 0.01; inexperienced vs. experienced: $\chi^2 = 11.7$ ; p < 0.05	0.0	63.2	$\chi^2 = 236.4$ ; p < 0.0001
Hh with savings (%)	50.0	70.0	65.0		40.0	83.3	
Hh with assets <sup>3</sup> (%)	65.0	70.0	70.0		40.0	96.7	
Hh with livestock (%)	70.0	70.0	60.0		70.0	63.3	
Hh with cattle (%)	10.0	15.0	0.0		3.3	13.3	
Hh with crops (%)	65.0	75.0	65.0		100.0	36.7	

<sup>1</sup> Mean for all members of the household

<sup>2</sup> Cash income earners refers to those formally, informally, casually and self-employed

<sup>3</sup> Assets in this case refers to items like televisions, radios, hi-fis, stoves, fridges, cars, DVD players, and bicycles

Non-trading households, despite not having the largest proportion of households with crops, encountered the highest prevalence of crop-related shocks (e.g. crop failure or crop pests) (Fig. 3.1). Perhaps due to limited income they did not have the option of using fertilizers or pesticides. Lower levels of income and a poorer asset base have repercussions on household's available coping strategies when faced with shocks (Fig. 3.3). There was a significant negative correlation between the number of shocks per household and their total monthly incomes ( $r^2 = 0.2$ ;  $p < 0.001$ ), with wealthier households experiencing a lower number of shocks. The same analysis was done on household monthly income and the frequency with which the consumption of NRs was used as a coping strategy and it was found that wealthier households made greater use of this coping strategy ( $r^2 = 0.4$ ;  $p < 0.0001$ ).

With regards to household assets, savings, livestock and crops, inexperienced trading households were found to be in the best position in this regard. However, at the country level noteworthy disparities occurred ultimately having a bearing on these results (Table 3.3). In every respect, save for the number of household income streams, there were significant differences between the two countries. This was particularly the case with household size, the number of scholars in the household (pre-schoolers, and tertiary scholars excluded), the mean monthly income and the distribution of households with savings, assets, livestock and crops between the two countries.

Malawian households were almost double the size, had almost four times more scholars and earned almost five times less monthly income than South African households. South African respondents were entitled to a number of government grants. What is interesting to note then is that there was not a significant difference between the number of income streams between the two countries, in fact Malawian households had significantly more income streams if grants are excluded from South African households' list of income streams ( $t = 3.5$ ;  $p < 0.001$ ;  $5.4 \pm 1.6$  vs.  $3.8 \pm 1.9$ ).

Government handouts made up 63.2 % of total monthly income for South Africans. For non-trading households from this site, the grants made up 81.8 % of total monthly income; for 60.0 % of these households it was their only source of cash income. When the amount awarded by government is deducted from non-trading households' monthly income, Malawian non-trading households on average actually earned more per month although this was not statistically significant.

Although wealth differentiation was not an initial objective in this study, the data goes some way in providing explanations as to which trader group was more wealthy than the other. Trading households (both experienced and inexperienced) earned higher monthly incomes than non-traders; even once the value of grants was removed this trend persisted ( $t = 3.0$ ;  $p < 0.01$ ). There were a larger proportion of trading households with assets, savings, and with crops ( $\chi^2 = 6.0$ ;  $p < 0.05$ ); and they had a greater number of cash income earners per household ( $t = 5.3$ ;  $p < 0.0001$ ).

By contrast, a larger proportion of non-trading household monthly income came from grants. This group did however have a larger proportion of households with livestock, particularly cattle and goats. This was influenced strongly by regional disparities. In Malawi trading households had a greater share of households with livestock than non-trading. The trend with both assets and crops was converse in the two countries with 100.0 % of households in Malawi having crops in comparison to 36.7 % in South Africa, but 100.0 % of households in South Africa having assets in comparison to 40.0 % in Malawi. In both instances it was the trading households who were better off in this regard.

#### **3.4.4.1 The NR traders**

After the initial analysis had been done it became apparent that a proportion of the sample of non-trading households had had some previous experience in the trade or still traded on a very *ad hoc* basis, and it was felt that this warranted subsequent disaggregation of the group into those that correctly had no involvement in the trade and those that were involved *ad hoc*. This exposed an even clearer illustration of vulnerability with the *ad hoc* group, despite having slightly more income streams and a larger proportion of monthly income derived from livelihood activities as opposed to government handouts, emerging worse off in terms of their AIDS affliction and the proportion of households registering AIDS proxy shocks (Table 3.4). The amended non-trading trader group had a larger proportion with savings, assets, livestock, grants and overall monthly income. In addition to this, the *ad hoc* trading group relied to a greater extent on kinship as a means of coping with shock and it utilised the sale of NRs as a safety-net to a significantly greater degree than the non-traders. There was also not a significant difference in the proportion of *ad hoc*, inexperienced and experienced trading households who utilised the NR trade as a coping strategy ( $\chi^2 \leq 1.7$ ;  $p < 0.05$  in all cases) (Table 3.4).

Table 3.4 Summary of household attributes and selected assets among non-trading and *ad hoc* trader households

ATTRIBUTE	NON TRADER	AD HOC TRADER	STATISTICS
No. Income streams (excl grants)	3.2	4.8	t = 2.2; p < 0.05
Total hh monthly income (ZAR)	941	726	t = 0.5; p > 0.05
Monthly income from grants (%)	65.4	20.9	$\chi^2 = 248.9; p < 0.0001$
Proportion with savings (%)	55.6	45.5	
Proportion with assets (%)	88.9	45.5	
Proportion with livestock (%)	77.8	63.6	
Proportion with grants (%)	66.7	27.3	
Presence of one or more AIDS proxy (%)	66.7	100.0	
Presence of one or more AIDS proxy shocks (%)	33.3	72.7	
Proportion of hh's relying on kinship as a coping strategy (%)	33.3	54.5	
Proportion of hh's relying on NR trade as a coping strategy (%)	11.1	27.3	

### 3.4.5 HIV/AIDS as a driver for NR trade

#### 3.4.5.1 Household AIDS affliction

Non-trading households were worse off in terms of their AIDS proxy count than trading households (Fig. 3.6). With regards to the presence of one or more proxies in a household, a clear trend can be seen with non-trading households being the most afflicted, inexperienced trading households intermediate, and experienced trading households the least afflicted. There was a significant difference in the distribution of proxies between trader groups, most strikingly between non-trading and experienced trading households ( $\chi^2 = 221.9; p < 0.0001$ ) and specifically the presence of orphans in the home (35.0 % of non-trading households registered this proxy vs. 5.0 % of experienced trading households). The significant difference between ( $\chi^2 = 80.7; p < 0.0001$ ) non-trading and inexperienced trading households was also in the presence of orphans with only 10.0 % of inexperienced households registering this proxy. The most significant difference ( $\chi^2 = 18.5; p < 0.01$ ) between inexperienced and experienced trading households lay in the presence of chronically ill in the household (25.0 % of inexperienced households vs. 15.0 % of experienced).

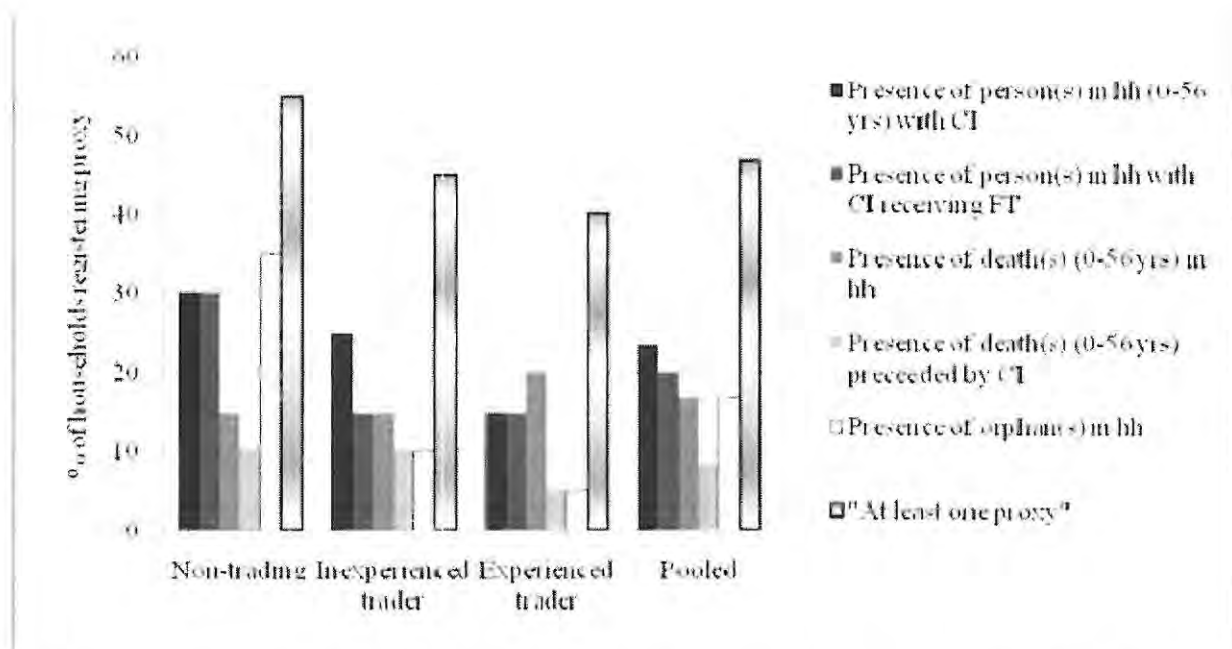


Figure 3.6 Prevalence of household AIDS proxies across trader groups. CI = Chronic illness; FT = Free treatment; hh = household (n=60)

Across the survey, household death (0 – 56 yrs) preceded by chronic illness was the least commonly recorded proxy, while the most commonly recorded was chronically ill persons (0 – 56 yrs). When the data was disaggregated into the country samples some noticeable differences appeared, with a significant difference ( $\chi^2 = 290.8$ ;  $p < 0.0001$ ) in the distribution of proxies between the two countries occurring (Fig. 3.7). Morbidity was significantly more commonly registered in Malawian households and mortality in South African households. The most conspicuous differences however were the considerably larger proportion of Malawian households registering the presence of orphans (30.0 % vs. 3.3 %) and the proportion of households registering a minimum of one proxy being almost double the proportion in South African households (60.0 % vs. 33.3 %).



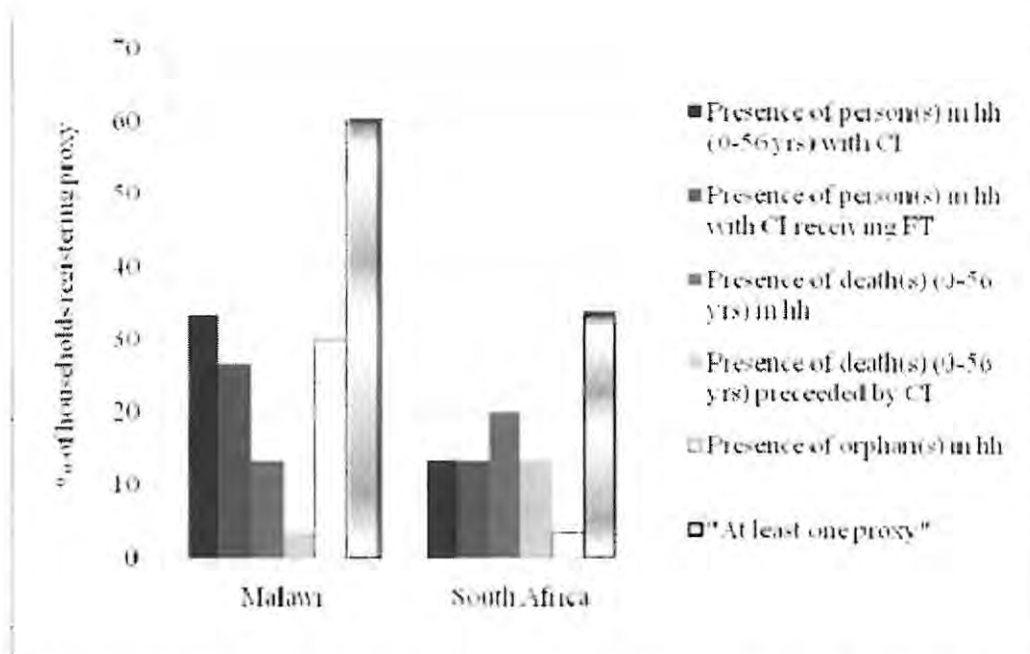


Figure 3.7 Prevalence of household AIDS proxies across country trader groups. CI = Chronic illness; FT = Free treatment; hh = household (n=60)

This disparity between the country trader groups is consistent with the data accumulated during the rapid survey conducted in each of these countries (Fig. 3.8). The trend of a significantly higher ( $\chi^2 = 78.3$ ;  $p < 0.0001$ ) proportion of morbidity in Malawi and a higher proportion of mortality in South Africa continued here while the differences with regards to the presence of orphans and the presence of at least one proxy, were significant but not to the same degree as they were in the in-depth survey. Malawi however had 68.6 % of households registering at least one proxy; the highest recorded in the five countries visited.

Almost 60 % of the entire sample had recorded one or more AIDS proxies in their household over the previous two years, this in comparison to under half (46.7 %) of households documented during the in-depth survey. The most frequently recorded proxy during the rapid survey was the presence of orphans in the household under the age of 19 years (almost 40 % of households).

A significant difference was found in the ranking of income by traders in relation to the presence of orphans within households (0 orphans vs. >3;  $\chi^2 = 41.9$ ;  $p < 0.0001$ ). Of the households who were not caring for orphans, 41 % ranked the NR trade as their primary cash income source.

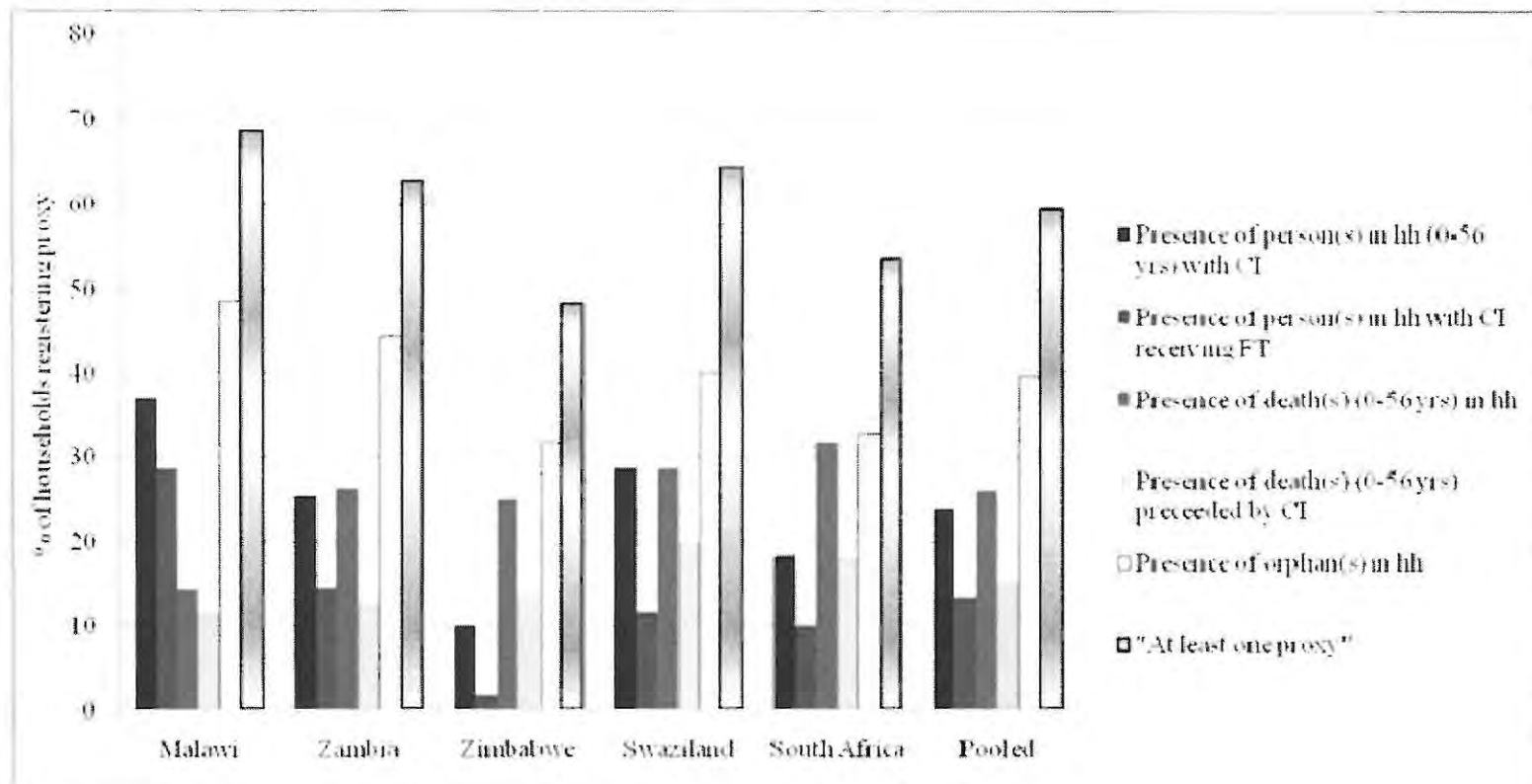


Figure 3.8 Prevalence of household AIDS proxies across southern Africa.

CI = Chronic illness; FT = Free treatment; hh = household (n=420)

By comparison, this proportion increased with increasing number of orphans in the household with 57 % of those caring for at least one orphan ranking the NR trade first and 71 % of those with three or more orphans ranking it first. This finding corroborates the work of Shackleton S.E. (2005), who showed that elderly women were driven into the NR trade in response to their adoption of grandchildren or orphans.

**3.4.5.2 AIDS and the NR trade**

The household AIDS proxies at times did not suffice to provide an adequate explanation of why respondents had started trading, especially when respondents had already been trading for some time (e.g. 10 yrs). Thus, by asking respondents what had prompted them to start trading and coupling this information with the household proxy status at that time (as opposed to in 2010 when the project field work was carried out), one could get a clearer picture of whether or not the trade was started in response to AIDS.

There was a significant difference ( $\chi^2 = 15.9$ ;  $p < 0.01$ ) in the distribution of proxies and respondents’ reasons for entering the trade from the data accumulated during the rapid survey (Table 3.5). This result is particularly important in reference to death, illness/injury and the espousal of orphans being the reason for entering the trade with a larger proportion of households with a high proxy score (3 – 5 proxies) stating that this was what drove them to start trading. For those households with a low proxy score (0 -1 proxies), the most frequently cited reason for entering the trade was the need for income or poverty.

Table 3.5 Respondents reason for entering the trade relative to number of AIDS proxies in the household at that time

REASON FOR ENTERING TRADE	TOTAL NO.	NO. OF PROXIES	
		0 - 1 (%)	3 - 5 (%)
Death, illness/injury, took on orphans	126	28.6	38.2
Income needed/poverty	133	31.9	27.9
Job related appeal/change	53	12.7	11.8
Unemployment	33	9.1	2.9
Other	75	17.8	19.1
TOTAL	420	100.0	100.0

By comparison, households interviewed during the in-depth survey recorded comparatively lower proxy scores, with three proxies being the highest number registered for a non-trading household but was two for trading households.

### **3.5 DISCUSSION**

#### **3.5.1 HIV/AIDS as a livelihood shock**

##### **3.5.1.1 Shocks registered in households over a two year period**

As found by many other commentators in southern Africa (Dercon 2002; Dekker 2004; Paumgarten 2005), a fairly broad set of shocks were experienced by households over the two years prior to being interviewed. Some of these shocks were human-related like sickness, death, rape and theft while, more commonly, they pertained to natural disasters and shocks associated with livestock husbandry and crop farming. Over the two year period 95 % of households registered at least one shock. Natural disasters were the most commonly (62 %) cited shock in households, particularly in Malawi (90 % of households). Flooding destroyed crops in Malawi and in South Africa strong winds had destroyed people's homes. Poorer households may be more vulnerable to human-related shocks but even natural disasters could discriminate between the wealthy and the poor. Strong winds might not affect a solid brick house of the wealthy but could devastate a mud and stick home of the poor.

Although each trader group encountered more non-AIDS proxy shocks than AIDS proxy shocks they ranked AIDS proxy shocks as being more significant. Kgathi *et al.* (2007) working in northwest Botswana found exactly the same, with HIV/AIDS posing a shock to households and livelihoods like none other and for which they had no prior experience and coping mechanisms built up over generations of testing. Respondents found it a challenge at times to understand the concept of comparing for example a shock like family death with the impact of a crop pest, echoing the work of Kgathi *et al.* (2007). In the event of an elderly member of the family passing away the financial strain on the family may not be as significant as the loss of a plantation to pests because the elderly family member was actually more of a financial burden when they were alive because they required care and ordinarily would not be able to contribute much towards household income. Despite this, one cannot deny or trivialise the impact death or illness has on a family, even in this case.

### 3.5.1.2 *The shock of HIV/AIDS*

The sheer brunt of the HIV/AIDS pandemic could quite easily result in household shocks like death and morbidity, especially when in quick succession and impacting the key household members like the breadwinner, being far more significant than the majority of other shocks rural households are subject to (De Waal & Whiteside 2003). An excerpt from a field worker with whom Freedman & Poku (2005) worked in Zambia accentuates this notion: “In the field you are often led into somebody’s home. The first thing that hits you is that the patient will be on the floor. If that household was not poor before HIV/AIDS infected somebody, then by the end of the first few years, poverty will come to the household as all of their assets are sold off to pay for healthcare. Children have been taken out of school – daughters, particularly – to become caregivers. Invariably, the person you have come to see will be on the floor without a blanket or a pillow. If you look around that mud hut for food, you won’t see it, and you won’t smell people cooking. There is no food.”

According to Namposya-Serpell (2000 in Whiteside 2002), “one of the striking features of the economic impact of AIDS in affected families in Zambia is the rapid transition from relative wealth to relative poverty.” This is particularly devastating when the death is that of the father in the family. In the aforementioned study in Zambia, monthly disposable income of the majority of households fell by more than 80 %. The in-depth survey revealed that of the respondents that began trading in response to death in the family, 80 % were the deaths of breadwinners.

A high proportion (80 %) of households encountered AIDS proxy shocks across the two study sites and 100 % believed these to be either their first or second most significant shock experienced. Non-trading households experienced a higher proportion of AIDS-proxy shocks than trading households, although this was only significant for experienced trading households. Furthermore, when the non-trading households were disaggregated into *ad hoc* trading households and strictly non-trading households, the *ad hoc* trading households emerged with the highest proportion of households encountering one or more AIDS proxy shock. This finding was reinforced by the fact that there was no significant difference in the distribution of non-AIDS proxy shocks between the trader groups. Cognisance must be taken of the fact that if more than one case of the same shock (e.g. family sickness) was recorded within the household this only represented one shock and so it was the number of different

shocks that a household registered that was documented as opposed to the total number of shocks.

Paumgarten (2006) found from a sample of one hundred rural households in South Africa, that all had experienced at least one shock over a two year period. The results from this study corresponded in certain areas with hers, most notably the proportion of households recording illness and death as a shock (69 % vs. 66 % and 42 % vs. 39 %, respectively). There were some fairly clear patterns in the types of AIDS proxy shocks being encountered when contrasting the two study areas. Malawian households noted family illness to a greater degree and South African households experienced death more frequently. This was reflected in both the ranking of household shocks and the household AIDS-proxy status (SADC FANR VAC 2003), from both the rapid and the in-depth surveys. One could postulate that South African's general higher standard of living evident in household's overall wealth status might beget fewer cases of morbidity, while death may be the result of chronic illness that could not be allayed regardless of the household's socio-economic status. It could also be because South Africa has had a slow and narrow response resulting in few on anti-retroviral treatment, whereas Malawi has displayed a more rapid and extensive national response.

Though the cases of morbidity and mortality do not necessarily always relate to HIV/AIDS, where they do it could also reflect different phases in the HIV/AIDS cycle with a higher a proportion of morbidity indicative of a newly impacted region and higher mortality rates indicative of a region that has been impacted for some time. There is also the affect of anti-retroviral medication which could be reducing mortality but not morbidity. It would be necessary to get regional specific HIV/AIDS statistics to tease out the reason for this pattern. Among a sample of pregnant women at the Nkhata Bay District Hospital in 2005, there was a HIV prevalence rate of 12.3 %; this in comparison to a rate of 28.7 % in the Amathole District for the following year (UNAIDS 2008a; UNAIDS 2008b). The national HIV prevalence rate for adults (15 – 49 yr) in Malawi in 2007 was 11.9 % and in South Africa it was 18.1 %. This in contrast to the value for the presence of at least one proxy in a household for each country obtained from the rapid and in-depth surveys (60 % vs. 33 % and 69 % vs. 54 %, respectively).

### 3.5.1.3 Household AIDS-affliction based on the SADC FANR VAC (2003) proxies

Non-trading households emerged with the significantly higher level of AIDS-affliction based on the presence or absence of one or more AIDS proxies in the household. Again however, when this group was disaggregated, the *ad hoc* trading households materialised with the greatest degree of AIDS affliction. This was largely attributed to the presence of orphans in the household and those with chronic illness who were receiving free treatment. Kaschula (2008) found that in a sample of 217 households, 28 % had orphans (both maternal and paternal) and that mean household income was 49 % less in these homes, which she believes counters recent studies (Desmond & Gow 2001 in Kaschula 2008; Parikh *et al.* 2007 in Kaschula 2008) that have questioned whether the impact of orphans on household socioeconomics is onerous. The significantly higher proportion of orphans in non-trading households could explain why this trader group were socio-economically worse off than trading households (Table 3.3). Although mean monthly incomes were not significantly different between the trader groups, there were significantly fewer non-trading households with savings, assets, and crops. The contrast is more striking when one looks at the country datasets (Fig. 3.7). Thirty percent of Malawian households recorded the presence of orphans in comparison to 3.3 % of South African households and the socio-economic differences were highly significant with Malawians earning five times less than South Africans, half as many households had savings and less than half had assets. Studies elsewhere showed that in Uganda, households caring for orphans earned 15 % less per capita income than those not caring for orphans, while in Zimbabwe, 89 % of households were female-headed and of those caring for orphans, only 3 % of breadwinners were employed (Foster & Williamson 2000).

McGarry and Shackleton (2009) found across several sites in the eastern half of the Eastern Cape, that about one-third of households registered no proxies, about one-third registered between one and two proxies, 28 % registered between three and four proxies and 2 % registered five proxies. These findings were more consistent with the findings obtained from the rapid survey and more specifically the traders interviewed in KwaZulu-Natal.

The question worth considering is how many households slipped under the 'proxy radar' so to speak, because they either fell outside of the age bracket (0-56yrs) or in the case of chronic illness and chronic illness preceding death, the duration was not quite three months? Another study (SADC FANR VAC 2003) conducted in Malawi, Zambia and Zimbabwe in which these proxies were employed but who described both the proportion of households with chronically

ill members and chronically ill adults under the age of 60 years portrays this disparity. In the case of Malawi, about 24 % of households reported the presence of chronically ill members while about 11 % reported chronically ill members under the age of 60.

#### **3.5.1.4 Constraints associated with the NR trade for households impacted by HIV/AIDS**

A significantly higher proportion of non-trading households had orphans. One of the benefits of the NR trade, particularly in the context of HIV/AIDS, is that those supporting children or the elderly or, if the trader themselves is either old or ill, can work from home (Marcus 2000; Shackleton C.M. *et al.* 2007a). However, if resource availability is diminishing through increased demand and not enough supply, this may mean being confined to one's home is a limitation. Barany *et al.* (2005) discovered a negative association between access to woodland resources and HIV prevalence in Malawi with communities with high prevalence rates having to travel further to obtain fuelwood. Although resource availability can be influenced by a number of factors this is nonetheless concerning in light of existing pressures on labour requirements in HIV/AIDS impacted households (Barany *et al.* 2005). A number of those involved in the medicinal product trade described an increase in the prevalence of disease and a subsequent increase in the demand for their services saying that the number of producers had increased over time because of this. Barany *et al.* (2005) found in Malawi that 77 % of respondents noted an increase in the number of medicinal product collectors over the previous five years, 40 % attributing this to increased illness in the community.

There is the option for a home-based trader to work through a middleman, but this comes at an expense. Shackleton S.E. and Campbell (2007) found among broom traders in South Africa, that those not able to sell from markets and whose businesses were confined to home earned the lowest incomes from the trade. Notwithstanding, if one is confined to their homes, the consumption and trade in NRs may be their last remaining option (McSweeney 2004; Shackleton C.M. & Shackleton S.E. 2004b). This was shown by the significant difference in the ranking of income by traders in relation to the presence of orphans within households; the importance of the NR trade (as described through the pairwise ranking exercise), increased with increasing number of orphans in the household.

#### **3.5.2 Wealth differentiation and vulnerability to shock**

Household wealth, in addition to other factors like social networks and livelihood structure, is an important determinant regarding the number and variety of shocks encountered and the



variety of coping strategies households can employ (Pattanayak & Sills 2001; De Waal & Whiteside 2003; Dekker 2004). For example, not all households owned livestock or gardens and fields. For this reason they were not exposed to the risks associated with having these resources and secondly, the range of coping strategies they were able to make use of was abridged e.g. the sale of livestock as a means of obtaining cash to cover the expense of an unexpected shock. Furthermore, household size is a contributing factor when it comes to the number of shocks a household may encounter, with increasing household size resulting in a greater risk of shocks, but also making available more means of coping, for example, one or more household members engaging temporarily in the trade of NRs.

Malawian households, who experienced significantly more shocks than South African households, employed the full range of strategies recorded while South African households did not make agricultural adjustments, engage in petty trade and, despite a significantly larger asset base, did not include the sale of assets in their choice of coping strategies. A key difference between the households from the two countries was that every Malawian household had either a vegetable garden or a field and were therefore exposed to the associated shocks, while a far smaller proportion of South African households adopted this form of livelihood strategy. Paumgarten (2006) found wealth differentiation not to be a factor with respect to the proportion of households cultivating, although a larger proportion of wealthier households encountered seasonal crop shortfalls and agricultural expenses. In Malawi, although not statistically significant, it was the poorer households who were more likely to own cultivated gardens than wealthier households. By contrast, Hunter *et al.* (2007) learned that higher socioeconomic status was positively associated with growing fruit and vegetables on homestead plots. In the case of cultivated fields in Malawi however, the number owned by a household increased with increasing monthly income. As stated before, flooding was the shock most commonly cited in Malawi and this destroyed household crops which further serves to explain the reliance on agricultural adjustments as a coping strategy (almost half of all strategies employed). Pattanayak and Sills (2001) maintain that agriculture is subject to an array of different risks, consequently making the consumption and trade of NRs a more viable option. Although, given the stringent restrictions on NR harvesting in Malawi, this may not necessarily be the case.

### **3.5.2.1 Household coping strategies – an indicator for wealth differentiation?**

Despite the fact that non-trading households experienced as many natural disasters as trading households they did not make agricultural adjustments to the same degree. The suite of responses could lend some insight into the socio-economic status of the household at the time. Volker and Waibel (2010) observed that rural households in Vietnam would harvest NRs to meet subsistence needs and to generate income to buy seeds and other agricultural production inputs for the next cropping season. Agricultural adjustments were the second most frequently adopted coping strategy when these households were faced with shocks (Volker & Waibel 2010). In my study, aside from trading households making greater use of agricultural adjustments and the NR sale, they also made greater use of savings which would suggest that they were in a better financial position to do so. On the other hand, non-trading households were most reliant on kinship to get them through hard times. Kinship can, for those lacking alternative insurance options, be the last resort and typifies the poor and the vulnerable (DFID 1999 in Paumgarten 2006). Paumgarten (*in press*) found that a significantly greater proportion of poor households turned to kinship as a means of coping with shocks like crop loss and livestock disease – two frequently encountered crises among non-trading households in this study (15 % and 13 % respectively), who had a comparatively large proportion of households with livestock.

Furthermore, non-trading households did not sell assets as a means of coping which may suggest that they could not afford to, being without disposable items and needing to cling to that which they had. Non-trading households adopted a lower number of strategies in comparison to trading households, although not statistically significant, it substantiates the point that they perhaps did not have the means at times to adopt a strategy. This was reflected in the high number of cases where respondents from this trader group could not implement a coping strategy in response to shock (29 % of shocks experienced).

It may be deduced that the cutting down of expenses or luxuries, the use of savings, the sale of assets and the use of certain agricultural adjustments are indicative of wealthier households. Paumgarten (2006) established that, among other strategies, the use of savings and the cutting down of expenses were associated more with wealthier households. Volker and Waibel (2010) observed that only households with tangible assets of a substantial value were significantly less likely to harvest NRs in order to cope. In this respect, non-trading households again seemed to emerge as the poorer group. They made significantly less use of savings in

comparison to trading households. They also relied more on altering the household diet, a strategy that Paumgarten (2006) found more among wealthier households, although the distinguishing feature would be the types of foods being substituted or removed from the diet, e.g. luxury items as opposed to staples. Of interest is the fact that South African households who had a comparative plethora of assets, actually made greater use of the consumption of NRs as a coping strategy.

Non-trading households had a significantly smaller asset base than trading households and perhaps as a consequence, did not utilise the sale of assets as a strategy. Households that are able to build up an asset base during productive years have the option of depleting these as a coping strategy during tougher years (Dercon 2002). Another study in Malawi found that 40 % of households affected by chronic illness adopted this strategy to buy food or cover medical or funeral expenses (Arrehag 2006). Paumgarten (2006) found from her sites in South Africa that the sale of assets was not a popular strategy, but those that did employ this strategy were all wealthy households.

Alternatively, households that opted to change their diet have been classified as being more vulnerable than others, especially if the household struggles with food security already (Skoufias 2003). The data supports this, with non-trading households relying on this coping strategy to a significantly greater degree than trading households, with experienced trading households not having to employ this strategy at all. Mutenje *et al.* (2010) established that the level of education of the household head, the size of one's land, and the amount of livestock a household owns, are strong determinants for the choice of livelihood strategy and, in turn, the household's ability to cope with shock. From their study it was found that those who were worse off in terms of their asset base, were forced to adopt lower return activities like the extraction of NRs and that households that had been impacted by HIV/AIDS were more likely to engage in this activity (Mutenje *et al.* 2010).

Though the difference in the distribution of strategies used between inexperienced and experienced trading households was subtle (yet significant), inexperienced trading households did lean on kinship to a greater degree (9 % of households vs. 4 %), whereas the experienced group took out cash loans and the inexperienced group did not. The utilisation of cash loans by the better-off group may imply that they were financially stable enough to repay the loan (Paumgarten 2006) These examples portray a gradient of vulnerability with those with greater

experience in the trade being less vulnerable than the less experienced and, overall, trading households being less vulnerable than non-trading households.

Wealthier households experienced a significantly lower number of shocks over the two year period than poorer households. Wealth in this case pertains specifically to household monthly income and does not take cognisance of other forms of capital (e.g. assets, livestock, savings etc). It was found in this study that those who ranked farm produce and the consumption of NRs as their most important income streams had experienced a significantly higher number of shocks than those who had ranked government grants as their primary source of income. This is logical because farmers would be more exposed to a greater variety of shocks, although, in times of stress should have a larger collection of coping strategies to draw from.

A similar number of different coping strategies were identified by Paumgarten (2006), who also found that wealthy households made significantly greater use of savings as a coping strategy than poorer households. There was no significant difference in the proportion of households who had livestock in this study but it was found that non-trading households made greater use of the sale thereof in comparison to trading households. This contrasts with Paumgarten's (2006) work which revealed that wealthier households used the sale of livestock to a greater degree. Cattle ownership was used as a proxy for wealth in her appraisal with wealthier households having more cattle. In this study, a small proportion of respondents (8 %) owned cattle and these were almost all located in South Africa and were either non-trading or inexperienced trading households. Due to a shortage of land in Malawi, households keep goats instead of cattle as a form of savings (Fisher 2004). Only 10 % of respondents sold livestock as a means of coping with shock; for Malawians this was typically the sale of chickens and for South Africans it was goats.

From the sample of 30 Malawian households in this study, 13 % owned goats, 75 % of which were non-trading households. Forty percent of South African households owned goats, one particular respondent from a non-trading household was unemployed but owned 12 head of cattle and 30 goats. Despite the death of his brother within the previous two years he considered disease within his goat herd to be the most significant household shock and to cope he sold a goat to get medicine to treat the rest of the herd. Although cattle fetch a higher price and are a higher value asset, goats are easier to liquidate (Dercon 1998). The fact that experienced trading households did not own cattle may suggest that this livelihood strategy

was abandoned due to sufficient success being achieved from the NR trade. Pattanayak and Sills (2001) found in the Brazilian Amazon that younger households with more livestock and with family outside the forest relied less on the forest for natural insurance.

### **3.5.3 Different coping strategies employed in response to different shocks**

The broad variety of shocks experienced invoked the adoption of an equally broad variety of coping strategies. Both trading and non-trading households utilised about a dozen strategies each and there was a significant difference in the range adopted by each.

Volke and Waibel (2010) observed the importance of distinguishing between different shock types after an analysis of aggregated shocks and household labour allocation to the harvesting of NRs did not produce a significant result. Thus, when in this study, the list of shocks was disaggregated into AIDS proxy shocks and non-AIDS proxy shocks it was found that a different suite of responses was adopted for each group of shocks. When dealing with non-AIDS proxy shocks, agricultural adjustments were the primary coping strategy, but both non-trading and inexperienced trading households also changed their diets in these situations. The fact that agricultural adjustments were made to a far less extent in response to AIDS proxy shocks may be a reflection of AIDS affecting labour and these adjustments being labour intensive (Barany *et al.* 2005). In response to AIDS proxy shocks households called on kinship, savings and the NR trade to cope. When the data was disaggregated to the country samples the response to AIDS proxy shocks was consistent with both (Malawian and South African households) relying on kinship and savings to reduce the impact.

In the case of AIDS-proxy shocks, kinship was found to be relied upon across all trader groups, but particularly among non-trading households and those from the South African site. The degree to which the family was relied upon decreased with increasing involvement in the trade. Paumgarten (2006) found that 80 % of households in her study were reliant on social ties to deal with misfortune and it was the most commonly cited coping strategy. In Eastern Honduras, following Hurricane Mitch, kinship was the chief coping strategy relied upon (McSweeney 2003), whereas in Vietnam, for households impacted by crises (the most significant of which were natural disasters), it was the least commonly employed (Volke & Waibel 2010). Though natural disasters featured strongly on the list of shocks experienced by households in my study, the primary coping strategy employed was the implementation of agricultural adjustments. Kinship was drawn on significantly more in response to AIDS proxy

shocks. Though not significant, non-trading households experienced more shocks and were able to employ less coping strategies than trading households and of the strategies that they did employ, kinship made up the biggest share (19 %). Dekker (2004) found that for households with a weak capacity to employ coping strategies, kinship was the last resort. De Waal and Whiteside (2003) describe kinship networks as the “most resilient livelihood coping strategy”, but that is rendered inoperable when the burden of HIV/AIDS besets a family by way of, for example, the espousal of orphans and caring for sick adults – a product of covariate shocks.

### **3.5.3.1 NR trade as a coping strategy**

The composite picture reveals that the utilisation of NRs as a coping strategy was important for all, making up more than a fifth of all strategies recorded in the survey. In the Barany *et al.* (2005) study the utilisation of NRs was the most important coping strategy employed in a number of the villages incorporated. In one particular village the sale of fuelwood was adopted in response to all crises encountered (Barany *et al.* 2005). Volker and Waibel (2010) found too, that the NR coping strategy was of primary importance to rural villages in Vietnam. In my study, the frequency with which the sale of NRs was used as a coping strategy increased with increasing involvement in the trade, whereas there was not a significant difference in the degree to which each trader group adopted the consumption of NRs as a strategy.

As stated before, although the trade might be taken up on a temporary basis initially, to weather calamity perhaps, if some degree of success is achieved from it, it can become a more permanent livelihood strategy (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton S.E. *et al.* 2008). It is logical then that this livelihood strategy would feature strongly in the household’s suite of coping strategies as well. With regards to the consumption of NRs however, a number of authors have noted that this activity is a positive strategy for both the wealthy and the poor (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009), and its fulfilment as a daily net and a safety-net (Shackleton C.M. & Shackleton S.E. 2004b), regardless of a households’ degree of involvement in the activity. On the whole, the trade of NRs was used significantly more frequently as a coping strategy than the consumption thereof. This finding corresponds with that of De Merode *et al.* (2004) but contrasts with those of Paumgarten (2006) who found the consumption of NRs to be a more prevalent strategy.

A significant correlation was found between household monthly income and the consumption of NRs as a coping strategy, with wealthier households being more reliant on this strategy than

poorer. Shackleton C.M. and Shackleton S.E. (2006) found that greater wealth did not have a bearing on the proportion of households extracting NRs, nor the number of NRs used but that poorer households consumed greater amounts of NRs, were more involved in the commercialisation thereof and that the gross direct-use value of home consumption tended to be greater for them. Paumgarten and Shackleton (2009) observed the poor's greater dependence on NRs through their sale of a greater variety of products and their purchase of significantly fewer products than their wealthier counterparts. Paumgarten (2006) did not observe any wealthy households selling NRs as a means of coping with shocks. The option for wealthy households to engage in the trade as a safety-net but also as an income-generating venture provides scope for reinvestment into other alternative livelihoods, consequently bolstering their levels of security (Pattanayak & Sills 2001).

What is noteworthy is the degree to which NRs were relied upon by South African households despite the fact that these products did not appear to be widely used for consumption within the household but only for cultural ceremonies or special occasions. These households seemed to enjoy far more of what may be described as luxuries like electricity and the associated use of televisions and other electronic devices, in contrast to Malawian households. This could be attributed to the access South Africans had to government grants, constituting 63 % of total monthly income (82 % of non-trading household monthly income from this site). Though a resource inventory was not compiled and so the degree to which South African households were utilizing wild foods for household use is unknown, the consumption of NRs as a coping strategy involved entirely the collection and use of fuelwood as a cost saving mechanism. Twine and Hunter (2008), found elsewhere in South Africa that mortality-impacted households were more likely to utilise NRs as a cost saving device than households not having experienced a mortality, with grass brooms, fuelwood and wild vegetables being the most commonly used resources. They found there to be no significant difference in the degree to which 'HIV death' households were using this strategy in comparison to 'non-HIV death' households, potentially because for the latter, death and the resultant loss of income was a more unexpected shock to these households (Twine & Hunter 2008).

Research conducted by others (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009) in the Nkonkobe Local Municipality showed that households were making use of a broad variety of wild foods for household consumption, although almost all of the villages incorporated into the respective studies were without electricity at the time, the

exception being one village with a few households with private connections, located closest to the town of Fort Beaufort and nearer to the villages included in this study. A comparison of three villages along a development gradient in South Africa established that the more developed village, (with some households having access to electricity and most having piped water), used the lowest diversity of products per household based on the number of resources used by 90 % or more of households (Shackleton S.E. *et al.* 2002).

There was also not a significant difference (non-trading vs. experienced trading) in the proportion of households adopting either the use or the sale of NRs as a coping strategy with non-trading households employing both strategies. As has been mentioned before, there was a proportion of non-trading households who had had some previous experience with the NR trade with some still engaging on an *ad hoc* basis. When this group was scrutinized on their own, it was found that they were the most vulnerable of all the trader groups incorporated into the survey. This was based on a number of criteria, including the proportion of households registering AIDS proxy shocks and AIDS affliction and those relying on kinship, in addition to wealth criterion such as the proportion of households with savings, assets, livestock, and mean household monthly income and income streams. For this group, the trade provided a vital safety-net during times of stress. There was not a significant difference in the proportion of *ad hoc*, inexperienced and experienced trading households who utilised this strategy. This elucidates a probable circumstance whereby a household faced with some sort of stress adopts the sale of NRs as a temporary measure in order to cope (Shackleton C.M. & Shackleton S.E. 2004b).

On the whole there was not a significant difference in the degree to which NRs were utilised when households were faced with AIDS and non-AIDS proxy shocks. However, when this aspect was scrutinised at the level of trader group we find that the NR trade and consumption were used more in response to AIDS proxy shocks across all trader groups (including the two country samples), aside from non-trading households who employed the consumption of NRs more in response to non-AIDS proxy shocks.

Volker and Waibel (2010) found in Vietnam that a households' decision to engage in the extraction of forest resources happened more frequently in response to weather shocks than it did for health shocks although it was found that the likelihood of household extraction of forest resources rose with every week the economically active household member was ill and



so this became a more important coping strategy in the face of longer-term illnesses. This suggests a households dependence on the NRs as a coping strategy could be influenced by who in the household is ill (Volker & Waibel 2010). Hunter and Twine (2008) found that the probability of households utilising NRs as a cost-saving mechanism increased with increasing time since the death of an adult, implying longer term adaptive strategies.

The households in this study that used NRs as a coping strategy most frequently, had all registered either death, illness or injury as their most significant shock. Only a handful of respondents volunteered that either themselves or another household member had HIV/AIDS and this was the case for two of the households who relied heavily on the NR safety-net. This is consistent with the findings of Mutenje *et al.* (2010) who found that households who been impacted by HIV/AIDS were more likely to harvest NRs.

#### Box 3.1 Respondent profile #1: use of NRs by wealthier households

**One experienced male trader from South Africa came from a household of seven members (two of which were dependents) receiving eight different income streams. The household had the second highest recorded monthly income (R3 350) of the sample of which 78 % was made up of grants. Despite this, government handouts did not feature in the households' top three ranked income streams – they considered farm produce to be their primary income stream; something unusual in the South African site milieu of farmer paucity. The consumption of NRs was ranked as their second most important income stream, ahead of wage income. Shackleton's (2005a in Shackleton S.E. *et al.* 2007) study of the trade of four NRs in South Africa revealed that the average annual income derived from these products was R4 321 (1 US\$ = R6.50) with incomes ranging from R689/annum for the marula beer trade to R14 755 for the woodcarving trade; this in comparison to the local wage rate at the time of R1 800 - R3 750 per annum.**

**The household noted three shocks over the previous two years, the most significant being the theft of their livestock. The substitution of electricity and paraffin with the use of fuelwood was their primary coping strategy, coupled with the increased sale of *Aloe ferox* sap. When the respondent was injured in a car accident and could not work for five months, the household dealt with this by using savings they had accumulated. They were members of a burial society. This particular respondent had a comparatively high level of LEK; he had been involved in the trade of *Aloe* sap for 15 years and acquired the necessary knowledge from his mother.**

Box 3.2 Respondent profile #2: using NRs to cope with the impact of HIV/AIDS

Another respondent, whose household's primary and secondary income streams were, in turn, the NR trade and the consumption thereof, lost one of his daughters in a car accident and the other had contracted HIV/AIDS. The sick daughter had previously provided income through remittances she sent from Cape Town; in his own words, even the shoes he was wearing his daughter had provided. Migration and the spread of HIV/AIDS have been said to be closely linked; there is a higher rate of infection in 'migrant communities' which tend to be socially, economically and politically marginalised (Crush *et al.* 2006). In addition to this, migration *per se* can encourage or force people into situations where they are vulnerable to high-risk sexual behaviour (Crush *et al.* 2006). This is particularly relevant for female migrants who may be more exposed to exploitation and harassment. Piece work (*Ganyu*) in Malawi is increasingly incorporating transactional sex as part of the contract (Bryceson & Fonseca 2006).

The NR trade was the household's chief coping strategy in dealing with these shocks, augmented by the consumption of NRs and the associated cutting down of luxuries. This particular trader was comparatively successful if monthly cash income is used as an indicator. He and his wife brought in R1 800 per month, the second highest income earned from the NR trade out of the South African traders. Of the respondents, he earned the highest individual income out of the entire sample (inclusive of all available cash income streams); R1 850 per month, R450 of which came from piece work. His health had however deteriorated since the loss of his daughter.

The other household who lent considerably on NRs during times of hardship was receiving the most monthly cash income (albeit largely from grants). This illustrates again, the use of NRs by wealthier households as a coping strategy. The respondent from the aforementioned household stated "we can cook and heat our house using fuelwood and by doing so can save a lot of money." Although it has been found that poorer households do not use more or a greater diversity of NRs, they are more reliant on these resources because they act as cost-saving devices (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009). The comparatively large proportion of non-trading households adopting the NR coping strategy supports this. Furthermore, poorer households have been found to engage in the sale of NRs to

a greater degree than wealthier households (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009) while wealthier households tend to purchase more NRs than poorer households suggesting they are in a better financial position to do so (Shackleton C.M. & Shackleton S.E. 2006; Paumgarten & Shackleton 2009). By contrast, the results from this research showed that households with greater involvement in the trade of NRs earned more cash income per month than those not permanently involved in the trade. But, emphasising the importance of this source of livelihood, the consumption and sale of NRs made up 17 % of all strategies employed by non-trading household in response to shock.

Paumgarten (2006) found in her study that 70 % of households were using NRs as a safety-net, and 100 % and 22 % were using and selling these products, respectively, for consumption and income generation. The importance of NRs is clear from this. A study in Tanzania revealed that households experiencing an adult death spent 33 % less on non-food items like clothing and soap during that person's illness and that their food purchases decreased (World Bank 1997 in Whiteside 2002). Although the author made no mention of the role NRs may have played here one might imagine wild foods could have been used as a substitute. A large proportion of respondents' reasons for entering the trade (particularly during the in-depth phase), was to generate income for the acquisition of items like those just mentioned; one then wonders how many of these respondents were actually reacting to death or illness in the family.

#### **3.5.4 AIDS affliction – a catalyst for engagement in the NR trade**

From the rapid survey, for those households registering between three and five proxies, the biggest share of responses (38 %) as to why the household became involved in the NR trade were as a result of death, illness, injury or the adoption of orphans. By comparison, 29 % of households registering naught to one proxies entered the trade in response to this catalyst. This shows strong signs for the role HIV/AIDS may be playing in contributing to the expansion of the commercialisation of NRs. Shackleton S.E. *et al.* (2008) found that the bulk of women producers involved in the trade of various NRs, became involved as a result of the death of the breadwinner, illness or retrenchment within the household. Retrenchment may also be indirectly associated with HIV/AIDS. A further 10 % of broom and mat producers had started selling their products because they had left with the responsibility of caring for orphans whose parents had died, presumably from AIDS. Marcus (2000) found that 40 % of households involved in handicraft production in KwaZulu-Natal, South Africa had conveyed their

responsibility for the care of AIDS orphans. Furthermore, Campbell *et al.* (2002) found HIV/AIDS to be a contributing factor for people to engage in the woodland product trade in Zimbabwe.

The NR strategy was important both in response to morbidity and mortality [(25 % and 24 % of strategies employed for each of these shocks respectively (family and breadwinner morbidity and mortality aggregated, respectively)], with the sale being employed significantly more frequently in response to morbidity and the consumption being employed significantly more frequently in response to mortality. It is apparent that South African households made greater use of NRs as a coping strategy than Malawian ones. South African households recorded the shock of death to a greater extent than Malawians (this was reflected in the proxy data as well). In response to this they utilised the consumption of NRs significantly more than the trade thereof. Other research around rural responses to HIV/AIDS in Malawi revealed that 54 % of households experiencing adult illness reduced frequency of forest product collection (Barany *et al.* 2005). This was largely due to diminished labour as a result of illness and time spent caring for the sick (Barany *et al.* 2005). On the other hand, in the event of mortality, 23 % of households described the increased importance of forest product collection following the death; those who curtailed harvesting of forest products ascribed this to ill health of the remaining household members (Barany *et al.* 2005). The households became more dependent on the sale of forest products, some stating that it was their debut into the trade (Barany *et al.* 2005). By contrast, in this study, Malawian households, who registered sickness significantly more than death (shock ranking and proxy data), utilised the sale of NRs significantly more than the consumption thereof.

When it was the breadwinner in the family who was ill or who had died, it was only the trade that was employed as opposed to the consumption of NRs and it made up 19 % of strategies employed. According to Hunter and Twine's (2008) study, the loss of the breadwinner was more likely to be non-HIV-related given the decline in wealth subsequent to the death and it was these households that would omit certain food items from their diets in response to this and were more likely to eat foods they did not enjoy or to skip meals for a day than HIV-impacted households. This study also revealed that households who had registered an HIV death were less likely to harvest wild vegetables which the authors attributed to the higher likelihood that the deceased had been a resource collector in such households (Hunter & Twine 2008). There was little difference between the employment of the consumption and

trade of NRs when death or illness occurred in the family but the aggregated NR strategy made up 27 % of strategies employed for these shocks.

### **3.6 CONCLUSION**

It has been argued that HIV/AIDS afflicted households tend to be more reliant on forest product collection and sale than non-affected households (Barany *et al.* 2005). Although my research found that it was the non-trading households who were worse off in terms of their proxy status this could be the catalyst that initiates households' engagement in the trade. The types of coping strategies employed by people when being faced with different shocks could be an indicator of this with non-trading households adopting the consumption of NRs over the trade but perhaps over time beginning to integrate the trade into their suite of coping strategies if the opportunity presents itself. The reclassification of non-trading households into *ad hoc* trading households and non-trading households shed some light on this matter. The *ad hoc* trading households were in the worst position regarding their levels of AIDS affliction and it was, among other strategies, the trade that they turned to as a means of coping. This presents important understanding of the role HIV/AIDS may be playing in contributing to the growth of the NR trade. That a significantly greater proportion of traders from households registering high AIDS affliction attributed their initiation into the trade to death or illness in their households supports this. Why the non-trading households did not turn to the NR trade as a coping strategy to the same degree could be due to a number of factors, one of which might be a lack of knowledge regarding NRs or the trade thereof (Pattanayak & Sills 2001; Uma Shaanker *et al.* 2004; Pierce & Emery 2005) – a question that will form the foundation of the following chapter.

## CHAPTER FOUR: THE ROLE OF LOCAL ECOLOGICAL KNOWLEDGE IN ADOPTING THE NATURAL RESOURCE TRADE WHEN COPING WITH HIV/AIDS AS A LIVELIHOOD SHOCK

### 4.1 INTRODUCTION

Pierce and Emery's (2005) discourse on the human dimensions of resource use in times of crisis (specifically war and famine), suggests that two factors have been overlooked in this nexus, namely, (1) the important role forests play in providing food, medicine, and shelter during these times, and (2) that "retention of ecological literacy, that is, the knowledge of how to identify, find and prepare useful forest resources, is vastly undervalued in the modern world." A number of other authors have recognised this gap and have examined the safety-net role of NRs for those enduring misfortune and noted the critical part they play (McSweeney 2004, 2005; Shackleton C.M. & Shackleton S.E. 2004b; Paumgarten 2005; Shackleton S.E. *et al.* 2008; Nkem *et al.* 2010). However, the second dimension, LEK, still seems to have been largely overlooked.

This study has shown thus far that both rural and urban households have a strong reliance on the NR base for its role in providing what Shackleton C.M. and Shackleton S.E. (2004b) differentiate as 'daily-net' (CHAP. 2) and 'emergency-net' (CHAP. 3) functions. Furthermore, times of crises, and in particular, HIV/AIDS, could be acting as catalysts for the expansion of the commercialisation of NRs as households seek means of coping with stress by selling one or more NRs. But, as some authors have asserted, a certain level of knowledge is required in order to utilise these resources (Pattanayak & Sills 2001; Uma Shaanker *et al.* 2004; Pierce & Emery 2005).

As described already, this knowledge is termed local ecological knowledge and is defined by Berkes *et al.* (2000) as "a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment." Its levels within a community are therefore dependent upon demographic factors like gender, age, kinship relations, ethnicity, position in a social network and distance

from NRs or cities (Quinlan & Quinlan 2007). LEK is consequently shared over time among users of a particular resource (Agrawal 1995; Berkes *et al.* 2000).

Pattanayak and Sills (2001) found, in the Brazilian Amazon, that households who had been living in their communities within the forest for longer, took more forest collection trips because they had had more of an opportunity to learn about the local forest and what it could provide. In concert with this, McSweeney (2005) found that more established households with deeper reservoirs of knowledge relied more on NRs as a safety-net. So through time and interaction among resource users within communities and their environments, LEK is consequently developed and shared (Agrawal 1995; Berkes *et al.* 2000).

The concern however is that a disease like HIV/AIDS could cause a breakdown in LEK transfer (De Waal & Whiteside 2003; Torell *et al.* 2006; Kaschula 2008). This loss of knowledge would affect all livelihood activities, e.g. farming and NR consumption and sale (Mutangadura *et al.* 1999; Barnett & Whiteside 2002; De Waal & Whiteside 2003). This could be problematic as households who have been impacted by HIV/AIDS have been shown to rely more heavily on NRs, particularly wild foods (Hunter & Twine 2007; Kaschula 2008). The other predicament is that household labour has decayed due to morbidity and mortality (Kaschula 2008). Still, Challe and Price (2009) found that for 97 % of HIV/AIDS affected households in southern Tanzania, the gathering of orchids was their primary activity, in comparison to 9.7 % of non-HIV/AIDS affected households.

The increased use of NRs should boost levels of LEK (Uma Shankaar *et al.* 2004). Godoy *et al.* (1998) found that the sale of forest goods is associated with superior knowledge of wildlife than those selling crops or who are engaged in wage labour. Uma Shankaar *et al.* (2004) observed from three communities in south India that the community with the highest proportion of their income coming from NRs had the highest levels of LEK, although teasing out cause and effect in such a correlation is difficult.

HIV/AIDS could both contribute to the diminishment or the increase of LEK. A number of authors have described the risk of this knowledge being lost through the severing of the chain of transfer between generations (Mutangadura *et al.* 1999; De Waal & Whiteside 2003; Harvey 2004; Drimie & Grandure 2005; Torell *et al.* 2006; Kaschula 2008). The death of prime-age adults is a significant issue on a number of levels, one of which is the loss of what

Torell *et al.* (2006) describe as “institutional experience and memory”, as the time and money that organisations have invested into the development of employees is in vain (Erskine 2005; Gelman *et al.* 2005). This is of particular concern to the arena of NR management which, in the face of HIV/AIDS are facing an even greater challenge as infected households potentially adopt a short-term, more indiscriminate approach to NR harvesting in light of their despair (Loevinsohn & Gillespie 2003; Hlanze *et al.* 2005). Ayieko (1998) ascertained that only 18 % of orphans (n=2 878) knew where they would go to be taught agricultural production techniques. The removal of children from school so that they may assist with care giving at home, exacerbates this issue further by impeding their ability to obtain literacy-based skills (Loevinsohn & Gillespie 2003). Others have however come to different outcomes. McGarry and Shackleton (2009) discovered that fora still exist between children and older people in the community and neighbourhood and, more regularly, among the children themselves. Consequently, LEK is not transmitted solely within the family setting, and these other transmission pathways provide an imperative coping strategy for AIDS orphans, as they learn ways in which to obtain wild foods from the environment from people outside of the family. Setalaphruk and Price (2007) bore witness to these knowledge sharing interactions among children in northern Thailand. Therefore gain or loss of LEK is intimately linked to the scale of the analysis; be it at the community, household, or individual level.

Challe and Price (2009) revealed that among the HIV/AIDS affected households in their study, 72 % of wild orchid gatherers were orphans. Dependency on NRs in the context of this disease and levels of LEK are consequently inextricably intertwined. Respondents from Paumgarten’s (2005) study acknowledged loss of knowledge and skill linked to the harvesting of NRs to be a restrictive factor to the use of these products as safety-nets. Pattanayak and Sills (2001) and De Waal and Whiteside (2003) corroborate these findings. Levels of LEK therefore potentially play a role in household’s choice of coping strategy in response to stress (McSweeney 2003). The premise of the ensuing discussion is that households with greater levels of LEK had at their disposal, the opportunity to engage in the NR trade and were able to use this livelihood activity to weather misfortune, whereas those with lower levels of LEK were limited in this regard.



## **4.2 RESEARCH OBJECTIVE AND KEY QUESTION**

### **4.2.1 Objective**

To assess the role LEK plays in responses to shock

### **4.2.2 Key question**

Does LEK underlie the choice of the NR trade as a coping strategy in the face of HIV/AIDS?

## **4.3 APPROACH**

### **4.3.1 Data collection**

An in-depth survey was carried out in two sites; one in Malawi and one in South Africa. The sample was composed of three trader groups (10 households/group/site;  $n = 60$ ); non-trading households, inexperienced trading households, and experienced trading households. The differentiation between inexperienced and experienced trading households was the respondents' number of year's involvement in the trade. The premise was that non-traders would have low levels of local ecological knowledge (LEK) with regards to the specific NRs in question, inexperienced traders slightly higher and experienced traders higher still, thus providing the basis for traders' initial engagement in the trade, because they had the required LEK to do so. However teasing out cause and effect was necessary, i.e. would experienced traders have higher LEK because of involvement in the trade or were they involved in the trade because they had the requisite LEK to take it up as a coping strategy.

The level of LEK held by respondents from each of the three trader groups was appraised with the help of a local interpreter. To do this, three products were selected from each site through prior investigation and *ad hoc* interviews and respondents' knowledge of these was assessed. These were: (1) the product most commonly used for household consumption; trees used for charcoal and fuelwood in Malawi and South Africa respectively; (2) the product most commonly traded; fish in Malawi and *Aloe ferox* sap in South Africa; and (3), an ephemerally used product, chosen for the purpose of drawing out deeper levels of LEK due to the fact that not all people would have knowledge of these products. In both Malawi and South Africa the product chosen was honey. It was the inclusion of a non-traded product that allowed differentiation of cause and effect in the event that more experienced traders were found to have higher LEK. Therefore, aside from the questions pertaining to the traded product, the same set of questions was used in each country.

A suite of six questions were compiled to suit each product and to assess different levels of knowledge regarding these, namely:

- Descriptive questions, e.g. where does a particular tree grow the best?
- Ecological questions, e.g. if there has been a dry year does a particular tree still produce flowers or fruit?
- Relationship and functional response questions, e.g. does this species survive fire? How do bees know where the flowers are?

When a household was approached the most experienced trader was interviewed and in non-trading households the household head or *de jure* head. The analysis was of individuals as opposed to whole households and so caution was taken to avoid the influence of other household members during the course of the interview. In the context of shocks households may experience, LEK held by an individual could be used to the advantage of the entire household, for example knowledge of how to harvest a particular NR, process it and sell it in order to acquire cash to cope with a crisis. Research only commenced following clearance from the Rhodes University Ethical Committee and the relevant authorities at each site.

Efforts were made to balance the overall age and gender profile of the non-trading households with the trading households. A particularly challenging obstacle to overcome was the high proportion of non-trading households encountered who had had previous experience in the trade or still traded on an especially *ad hoc* basis; something which however, ultimately contributed to the overall illustration of the nexus between HIV/AIDS, the NR trade and LEK. Respondents from two non-trading households stated that they had resigned from the trade; one mentioned that while he was harvesting *Aloe ferox* sap his possessions were being stolen and the other stated that she could no longer go out into the field because she had a chest complaint.

#### **4.3.2 Data analysis**

Several methods were applied in the analysis of the results. The length and detail of the answer provided by the respondent was used as an indicator for depth of knowledge. Ballard and Huntsinger (2006) found that NR traders who had been involved in their occupation

longer, had more knowledge and provided more detailed answers and explanations to questions. Western scientific knowledge was not used as a benchmark in this study in an attempt to move away from the notion of having to validate LEK with scientific method (Agrawal 1995; Steele & Shackleton C.M. 2010). Instead, responses were scored relative to one another using the aforementioned indicator as a measure of knowledge. Five categories of knowledge level were constructed namely very high, high, medium, low, and no knowledge. Method 1 (Product analysis), involved an analysis of the full suite of responses given to the questions associated with each type of product, with more detailed responses reflecting greater understanding given the highest score and the remainder of the responses scored in relation to these. This provided an overall perspective of different trader groups' levels of LEK regarding each of the three different NR products.

The focus shifted in Method 2 (Respondent analysis), from the products to the respondents themselves and entailed an evaluation of all the responses given by each individual informant without any prior knowledge of the trader group they belonged to, their age, gender, or level of education, in order to avoid an unconscious bias. Having already ranked the answers to each product set of questions these scores were then disaggregated for each respondent allowing evaluation of the individual's suite of responses in light of the scores assigned in Method 1. This procedure was carried out on two occasions several days apart to limit any inconsistencies in the author's personal perceptions.

To gain a quantitative perspective of the analysis, in Method 3 (quantitative analysis), a numerical score was assigned to each of the five categories with no LEK being given 0 %, low LEK 25 %, medium 50 %, high 75 % and very high, 100 %. Each of the responses provided by the respondent already ranked in Method 1 (no LEK – very high LEK), were then assigned a value according to the aforementioned system. This enabled calculation of an average score achieved by each respondent. A sensitivity analysis was carried out on this method. The numerical scores assigned were classified as an intermediate knowledge weighting, hence a high knowledge weighting was incorporated such that high knowledge was valued at 100 % and very high at 200 %. Thereafter, a low knowledge weighting was used whereby low knowledge was valued at 35 % as opposed to 25 %; high knowledge was lowered to 62.5 % from 75 % and very high knowledge was lowered to 70 % from 100 %.

The data was initially summarised in Microsoft Excel using descriptive statistics to describe the mean, mode, median and standard deviation. Following this, the statistical software, STATISTICA was used. Exploratory principle component analyses were run to investigate possible relationships between variables, following which the relevant significance tests were conducted. Pearson's Chi-Squared Test was used when dealing with frequency data. A p-value of less than 0.05 was accepted as being significant. Numerical data was analysed using a t-test for independent samples to compare means. For this purpose, one-way ANOVA was also utilised and the Fisher LSD post-hoc test where appropriate. Additionally, regressions were conducted.

With each of the three methods described above, the limitations of subjective measure are acknowledged. When considering gender, it is also acknowledged that cultural norms such as women being more reserved when talking to men, may have impacted the results.

## **4.4 RESULTS**

### **4.4.1 Involvement in the trade, levels of LEK and the role of gender**

An analysis of the number of years spent in the trade and LEK level showed that a significant difference occurred, both in Malawi and South Africa. In Malawi the significance lay with those exhibiting very high levels of LEK who were found to have been involved in the trade the longest ( $25.7 \pm 19.3$  yr;  $F = 5.3$ ;  $p < 0.01$ ). In South Africa, a different trend was found with more inexperienced traders showing greater levels of knowledge than experienced (Low LEK:  $10.3 \pm 9.8$  yr vs. medium LEK:  $25.4 \pm 14.0$  yr vs. high LEK  $5.3 \pm 6.6$  yr;  $F = 5.6$ ;  $p < 0.05$ ).

An investigation into the reason behind this trend in South Africa exposed a significant relationship between gender and LEK in the country with male respondents displaying more knowledge of the three products than females ( $43.8 \pm 7.1$  vs.  $29.4 \pm 8.8$ ;  $t = 4.8$ ;  $p < 0.0001$ ) (Table 4.1). To contribute to this there was a significant difference in the distribution ( $\chi^2 = 34.8$ ;  $p < 0.0001$ ) of male and female respondents across the three trader groups with the majority (69.2 %) of experienced traders being female in comparison to a smaller proportion (57.1 %) in the inexperienced category. The number of years of education a respondent had received in Malawi was found to be significantly related to LEK ( $r^2 = 0.21$ ;  $p < 0.01$ ) with more literate individuals demonstrating more LEK.

Table 4.1 Gender differentiation of LEK among trader groups in South Africa and Malawi (mean % scores for each product)

COUNTRY	PRODUCT	NON-TRADING		INEXPERIENCED TRADER		EXPERIENCED TRADER	
		Male	Female	Male	Female	Male	Female
South Africa	Honey	36.0	15.5	52.8	17.7	37.3	16.7
	Trees <sup>1</sup>	40.8	28.8	53.3	35.0	42.5	38.3
	Aloe	44.4	27.9	54.2	34.7	45.1	40.5
Malawi	Honey	47.2	30.9	44.9	35.4	52.1	36.1
	Trees <sup>1</sup>	40.0	39.3	41.1	42.5	49.2	41.7
	Fish	51.7	36.3	56.4	40.0	67.7	58.3

<sup>1</sup>In South Africa, trees pertain to fuelwood, while in Malawi they pertain to charcoal

A significant difference in LEK levels between males and females was also found in Malawi although not to the same extent ( $\chi^2 = 10.0$ ;  $p < 0.01$  vs.  $\chi^2 = 48.0$ ;  $p < 0.0001$  in South Africa) (Table 4.1). Generally in Malawi, males displayed significantly more knowledge than females across all trader groups and for each product except trees where this was only the case in experienced trading households.

#### 4.4.2 LEK of trader groups of selected NR products (Product analysis)

The initial analysis of the results from the product analysis did not yield a significant difference in the distribution of knowledge across the trader groups but when the upper and lower quintiles of LEK levels were grouped (None and low; high and very high), both experienced and inexperienced trading households were found to have more knowledge than non-trading households ( $\chi^2 = 8.1$ ;  $p < 0.05$ ;  $\chi^2 = 7.5$ ;  $p < 0.05$ , respectively) (Table 4.2), although there was no significant difference between inexperienced and experienced trading households. On the whole, the largest proportion of respondents having no or low levels of LEK were found in non-trading households. In response to a question regarding what pollinates a particular tree, those with low LEK would provide a one word answer, such as bees or rain or seeds. One particular respondent demonstrating what was classified as very high levels of LEK had the following response to the same question: "Through wind and by bees: when fruit is dry it bursts and falls to the ground, when the rain comes, seeds shoot up from ground. Bees land in flower to collect nectar but when leaves the flower, it has collected pollen then goes to another flower where it leaves the nectar. Bees do this unknowingly." Other examples of this level of knowledge held some of what may be described as culturally specific knowledge or superstition. In reply to the question of what eats bees one respondent

answered the following: “*Chiuli*; it is the most troublesome animal I have ever heard of or seen; used by *singanga* (African doctor) for fighting medicine; bees most vulnerable are those living under the earth; it does not feel the sting because it has tough skin; if it comes to chicken house will kill all the birds; if you want to kill it you must not mention its name; if you do you won't be able to kill it.” A respondent, whose response was classified as ‘low LEK’, answered the following to the same question: “some animal the name of which I don't know.” Those with high to very high levels of LEK were largely located in the trading households.

Table 4.2 Percentage of respondents in each qualitative LEK class (product analysis)

LEK LEVEL	TRADER GROUP			
	Non-trading	Inexperienced	Experienced	Pooled
None - low	43.5	35.7	32.4	37.5
Medium	43.7	40.0	44.9	43.0
High - very high	12.8	24.3	22.7	19.5

A comparison between Malawian and South African respondents revealed a strongly significant difference in the distribution of knowledge between inexperienced trading households in the two countries ( $\chi^2 = 27.5$ ;  $p < 0.0001$ ) and, even more so, between experienced trading households ( $\chi^2 = 106.0$ ;  $p < 0.0001$ ), with Malawian traders displaying more knowledge in both respects (Table 4.3). There was also a significant difference between the country samples independently ( $\chi^2 = 51.5$ ;  $p < 0.0001$ ).

Table 4.3 A country comparison of the results from the product analysis (% of trader group in each LEK class)

LEK LEVEL	MALAWIAN HOUSEHOLDS			SOUTH AFRICAN HOUSEHOLDS		
	Non-trading	Inexperienced trading	Experienced trading	Non-trading	Inexperienced trading	Experienced trading
None	18.0	10.9	6.7	23.8	20.3	25.5
Low	24.9	24.8	17.3	26.0	20.6	22.2
Medium	44.0	39.4	45.4	38.8	38.5	40.4
High	10.6	19.3	19.6	11.4	19.7	11.0
Very high	2.5	5.7	11.1	0.0	0.8	1.0

In Malawi those involved in the trade were more knowledgeable than non-traders and among the traders, the experienced group were more knowledgeable than the inexperienced group.

The differences were significant between non- and inexperienced trading households ( $\chi^2 = 9.6$ ;  $p < 0.05$ ) and between non- and experienced trading households ( $\chi^2 = 29.2$ ;  $p < 0.0001$ ). By contrast, there was not a significant difference in the distribution of knowledge among trader groups within South Africa based on the results from the product analysis.

An examination of LEK held for each product lends some insight into the reason behind the overall difference in LEK between the two countries (Table 4.4). Malawian respondents were far more knowledgeable than South Africans when it came to honey ( $\chi^2 = 53.0$ ;  $p < 0.0001$ ), and this was apparent across all trader groups but particularly between experienced trading households ( $\chi^2 = 55.5$ ;  $p < 0.0001$ ). Vis-à-vis honey, in Malawi, the knowledge disparity between trading and non-trading households and among experienced and inexperienced trading households persisted, whereas in South Africa inexperienced trading households had more knowledge in this domain than experienced ( $\chi^2 = 12.9$ ;  $p < 0.05$ ).

Looking at the distribution of knowledge surrounding trees there was a less significant difference between the two country samples ( $\chi^2 = 17.2$ ;  $p < 0.01$ ) but Malawian experienced trading households were again more knowledgeable ( $\chi^2 = 38.2$ ;  $p < 0.0001$ ) than their equivalent in South Africa (Table 4.4). The distribution of knowledge among the Malawian trader groups was less distinct in this regard, but a significant difference still occurred and to the greatest degree between inexperienced and experienced trading households ( $\chi^2 = 15.3$ ;  $p < 0.01$ ), with the latter being more well-informed. South African respondents produced a similar trend in this domain with those from inexperienced trading households again being most knowledgeable (non- vs. inexperienced trading households,  $\chi^2 = 12.1$ ;  $p < 0.05$ ; inexperienced vs. experienced trading households,  $\chi^2 = 13.0$ ;  $p < 0.05$ ). When the samples from each country are combined, respondents were found to show more understanding of trees than honey ( $\chi^2 = 63.2$ ;  $p < 0.0001$ ). South African respondents were particularly uninformed in the honey domain with 45.6 % having no knowledge; a figure almost identical to the proportion of South African respondents who either occasionally ate honey or did not do so at all (46.6 %). By comparison, Malawians who displayed far greater knowledge of this product, consumed it significantly more than South African respondents ( $\chi^2 = 30.4$ ;  $p < 0.0001$ ).

Table 4.4 Distribution of knowledge between Malawian and South African households around the most commonly used NR (Trees), an ephemeral product (Honey) and the most commonly

traded products in each country (Fish in Malawi; *Aloe ferox* in South Africa) (% of trader group in each LEK class for each product)

PRODUCT	LEK LEVEL	MALAWIAN HOUSEHOLDS			PRODUCT	SOUTH AFRICAN HOUSEHOLDS		
		Non-trading	Inexperienced trading	Experienced trading		Non-trading	Inexperienced trading	Experienced trading
HONEY	None	20.0	15.2	13.2	HONEY	42.4	40.5	51.3
	Low	30.0	18.2	17.0		15.3	9.5	15.4
	Med	40.0	48.5	45.3		32.2	31.0	24.4
	High	6.7	15.2	18.9		10.2	16.7	9.0
	Very high	3.3	3.0	5.7		0.0	2.4	0.0
TREES	None	10.0	7.3	6.8	TREES	12.2	5.9	10.9
	Low	36.0	41.8	29.5		42.9	35.3	34.4
	Med	42.0	30.9	40.9		32.7	38.2	42.2
	High	10.0	18.2	13.6		12.2	20.6	10.9
	Very high	2.0	1.8	9.1		0.0	0.0	1.6
FISH	None	23.9	10.2	0.0	FISH	16.7	14.6	14.3
	Low	8.7	14.3	5.3		20.0	17.1	16.9
	Med	50.0	38.8	50.0		51.7	46.3	54.5
	High	15.2	24.5	26.3		11.7	22.0	13.0
	Very high	2.2	12.2	18.4		0.0	0.0	1.3

In terms of the traded products, the same patterns continued, with the most significant difference in Malawi occurring between non- and inexperienced trading households ( $\chi^2 = 34.0$ ;  $p < 0.0001$ ), while although not significant, South African respondents from inexperienced trading households demonstrated slightly more knowledge than those from experienced trading households (Table 4.3).

There was a significant distribution of knowledge across all three domains in South Africa with respondents being most knowledgeable about *Aloe ferox* (vs. trees,  $\chi^2 = 28.1$ ;  $p < 0.0001$ ; and vs. honey,  $\chi^2 = 74.1$ ;  $p < 0.0001$ ). If the lower and upper quintiles of LEK levels pertaining to this product are grouped, inexperienced trading households had significantly more knowledge than non-trading ( $\chi^2 = 6.4$ ;  $p < 0.05$ ). The distribution of knowledge around fish in Malawi followed the same trend of traders displaying greater knowledge than those not involved in the trade (non- vs. inexperienced,  $\chi^2 = 34.0$ ;  $p < 0.0001$ ; non- vs. experienced,  $\chi^2 = 18.0$ ;  $p < 0.01$ ; and inexperienced vs. experienced traders,  $\chi^2 = 18.2$ ;  $p < 0.01$ ). Malawians were most knowledgeable about fish in comparison to the other two domains (vs. honey,  $\chi^2 = 20.3$ ;  $p < 0.001$ ; and vs. trees,  $\chi^2 = 91.7$ ;  $p < 0.0001$ ).



#### 4.4.3 Ranking of individuals total responses (Respondent analysis)

When the complete suite of informant's responses was evaluated there was a significant difference in the distribution of knowledge between the trader groups (non- vs. inexperienced,  $\chi^2 = 35.6$ ;  $p < 0.0001$ ; non- vs. experienced,  $\chi^2 = 21.4$ ;  $p < 0.0001$ ; and inexperienced vs. experienced traders,  $\chi^2 = 119.1$ ;  $p < 0.0001$ ), with trading households being more knowledgeable than non-trading (Table 4.5). Experienced traders were the only respondents to be ranked as having very high levels of LEK (13.6 %;  $n=20$ ) although only 5.0 % of the pooled sample ( $n=60$ ) scored this. The data distribution across the two countries illustrates that those with very high LEK were all located in Malawi (Table 4.6).

Table 4.5 LEK level per trader group from the respondent analysis

LEK LEVEL	NON-TRADING (%)	INEXPERIENCED TRADERS (%)	EXPERIENCED TRADERS (%)
No LEK	0.0	0.0	0.0
Low	30.0	22.2	18.2
Medium	60.0	38.9	59.1
High	10.0	38.9	9.1
Very High	0.0	0.0	13.6

The results from the respondent analysis corresponded closely with those from the product analysis, with Malawian trader households showing significantly greater knowledge than their South African counterparts (Inexperienced:  $\chi^2 = 141.0$ ;  $p < 0.0001$ ; experienced:  $\chi^2 = 32.9$ ;  $p < 0.0001$ ). In fact, in all respects the trends were similar to those in the previous method, Malawian traders demonstrating higher levels of LEK than non-traders and with inexperienced traders demonstrating more knowledge than experienced in South Africa.

Table 4.6 LEK level per trader group from the respondent analysis by country

LEK LEVEL	MALAWI (%)			SOUTH AFRICA (%)		
	Non-trading	Inexperienced trader	Experienced trader	Non-trading	Inexperienced trader	Experienced trader
No LEK	0.0	0.0	0.0	0.0	0.0	0.0
Low	30.0	9.1	0.0	30.0	42.9	30.8
Medium	50.0	54.5	55.6	70.0	14.3	61.5
High	20.0	36.4	11.1	0.0	42.9	7.7
Very high	0.0	0.0	33.3	0.0	0.0	0.0

#### 4.4.4 Quantitative analysis

When a numerical score was assigned to each of the individual's responses and an average was obtained for each, there was again little distinction between the knowledge levels of trading households but a significant difference between non-trading and inexperienced trading households in the pooled sample was found ( $t = 2.1$ ;  $p < 0.05$ ). Furthermore, looking specifically at Malawi, there were significant differences between trader groups with those involved in the trade being more knowledgeable than non-traders and among the traders, the experienced group being more knowledgeable than the inexperienced group. The greatest difference in knowledge levels was therefore found between non- and experienced trading households ( $F = 4.5$ ;  $p < 0.05$ ; LSD: non-trading households:  $p < 0.01$ ; experienced trading households:  $p < 0.01$ ). There was no significant difference between the trader groups in South Africa from this method although inexperienced trading households emerged with a higher average score.

In Malawi, trading households had more LEK than non-trading households in the honey domain and experienced trading households were most knowledgeable (Table 4.7). The same applied to LEK of trees although the disparities were less distinct. The greatest disparity in LEK levels among Malawian households occurred in the fish domain with trading households having far greater knowledge than non-trading households and experienced trading households being the most knowledgeable ( $\chi^2 = 11.6$ ;  $p < 0.01$ ). Among South African households there were no significant differences in the LEK displayed by the different groups although inexperienced trading households scored higher scores in the honey and *Aloe ferox* domains and experienced trading households in the tree domain.

Table 4.7 Quantitative LEK levels for different products by country

PRODUCT	MALAWI			SOUTH AFRICA		
	Non-trading	Inexperienced trader	Experienced trader	Non-trading	Inexperienced trader	Experienced trader
Honey	35.8	43.2	46.8	27.8	32.7	23.0
Trees	36.0	42.9	39.6	39.5	41.4	46.7
Fish	40.9	53.4	64.6			
<i>Aloe ferox</i>				37.8	43.0	41.9

Due to the subjective nature of this approach a sensitivity analysis was conducted on this method (Quantitative analysis) which revealed only small changes to the overall scores when

three different knowledge weightings were compared, therefore showing the method to be robust (Table 4.8).

Table 4.8 Sensitivity analysis of average LEK scores obtained by each trader group and the pooled sample

KNOWLEDGE WEIGHTING (%)	NON TRADING	INEXPERIENCED TRADER	EXPERIENCED TRADER	POOLED	ANOVA RESULTS
High	40.1 ± 14.4	51.9 ± 17.5	49.5 ± 20.4	47.1 ± 18.1	F = 2.4; p > 0.05
- no knowledge: 0					
- low: 25					
- medium: 50					
- high: 100					
- very high: 200					
Intermediate	36.1 ± 11.1	43.7 ± 10.5	41.4 ± 12.8	40.3 ± 11.7	F = 2.2; p > 0.05
- no knowledge: 0					
- low: 25					
- medium: 50					
- high: 75					
- very high: 100					
Low	37.0 ± 9.7	42.6 ± 7.6	41.1 ± 9.4	39.8 ± 9.4	F = 1.7; p > 0.05
- no knowledge: 0					
- low: 35					
- medium: 50					
- high: 62.5					
- very high: 70					
ANOVA RESULTS	F = 1.0; p > 0.05	F = 2.5; p > 0.05	F = 3.0; p > 0.05		

LEK may have played a role in traders' choice of products to sell with a significant difference (F = 5.1; p < 0.01) in LEK levels between those selling *Aloe ferox* and wood products and those selling multiple products with the latter two trades associated with higher LEK (Table 4.9). Wood products in this case refers to fuelwood, charcoal, and furniture, while those selling multiple products either sold a variety of different wood products or combined this trade with the sale of fish or honey.

Table 4.9 LEK levels of respondents across different traded goods

PRODUCTS	AVERAGE LEK SCORE
<i>Aloe ferox</i>	35.5 ± 10.5
Multiple products	48.5 ± 9.0

Reed mats	45.4 ± 12.4
Wood products	48.6 ± 12.2

A significant difference ( $F = 3.6$ ;  $p < 0.01$ ) was also found between LEK levels and respondents' most highly ranked income stream (Table 4.10). These scores were strongly influenced by country-level disparities in LEK level. The two income streams associated with the highest LEK levels were farm produce and NR consumption but these however were income streams ranked highly in Malawi, and reflect again the superior levels of LEK respondents showed here. In comparison, South African respondents across all household LEK categories, ranked government grants as their most important income stream ( $\chi^2 = 1176.9$ ;  $p < 0.0001$ ).

Table 4.10 LEK levels of respondents across different primary income streams

1 <sup>ST</sup> RANKED INCOME STREAM	AVERAGE LEK SCORE
Farm produce	43.6 ± 10.1
Grant	34.7 ± 12.3
Livestock	33.4 ± 9.4
NR sale	36.0 ± 7.4
NR consumption	49.8 ± 11.6

#### 4.4.5 The role of LEK in respondents' choice of coping strategy in response to shock

Across the two sites there was a significant difference in the distribution of coping strategies employed by those with low levels of LEK to those with high to very high levels ( $\chi^2 = 64.0$ ;  $p < 0.0001$ ) (Table 4.11). Those with low levels of LEK relied on kinship more heavily than those with high to very high levels of LEK, while the opposite was the case with the use of savings as a coping strategy, being the most frequently employed strategy by the more well-informed group. The fact that a larger proportion of less knowledgeable respondents could not offer a coping strategy and were dependent on kinship in times of stress, may suggest that they were in a worse off position than respondents with higher levels of LEK. The latter's considerable use of savings corroborates this.

There was a significant difference in the distribution of coping strategies across LEK levels in both Malawi and South Africa independently ( $\chi^2 = 107.0$ ;  $p < 0.0001$ ;  $\chi^2 = 31.9$ ;  $p < 0.001$

respectively) (Table 4.11). In South Africa no respondents were ranked as having very high LEK. The two most common responses given there by high LEK respondents in reply to shock were to either make use of savings or to offer no strategy at all. There was very little difference in the degree to which NRs were relied upon as a coping strategy between those at opposite ends of the LEK spectrum. The changing of the household diet was incorporated significantly more frequently by those with low LEK levels.

By comparison, well-informed Malawians also utilised savings more regularly than their less well-informed counterparts. For those with low levels of LEK, kinship and piece work were coping strategies employed more frequently, but more often than not they were unable to offer a response to shock. With regards to the use of NRs as a coping strategy the only significant difference that occurred between households with low and high to very levels of LEK were those located in Malawi with the more knowledgeable households adopting this strategy to a greater degree.

#### **4.4.6 The ad hoc trading households**

It was identified, post-analysis, that there were disparities within the non-trading households between those households who had entirely no involvement in the trade and those that traded on a very *ad hoc* basis. These disparities took the form of household vulnerability, shocks registered and the types of coping strategies that were employed in response to these. Consequently the LEK levels of these two groups were appraised in order to explicate the picture further.

What was found was that the group of households with no involvement in the trade had the lowest levels of LEK (significantly lower than the *ad hoc* group:  $t = 3.2$ ;  $p < 0.01$ ), while between the *ad hoc* trading households and both the inexperienced and experienced trading households, there was no significant difference ( $F = 0.03$ ;  $p > 0.05$ ) in the levels of LEK held by these groups. Moreover, LEK of honey showed a comparable pattern with the amended non trading households having the least knowledge ( $t = 2.4$ ;  $p < 0.05$ ) of this product while the *ad hoc* trading households had LEK of no significant difference ( $F = 0.9$ ;  $p > 0.05$ ) to the other two trading trader groups. This is noteworthy because honey was traded very irregularly and the fact that the trading households still displayed superior knowledge of this domain, is indicative of their greater levels of LEK.

Table 4.11 Coping strategies employed by respondents with different levels of LEK across two sites

COPING STRATEGY	MALAWI TOTAL	MALAWI LEK LEVEL (mean %)		SOUTH AFRICA TOTAL	SOUTH AFRICA LEK LEVEL (mean %)		POOLED TOTAL	POOLED LEK LEVEL (mean %)	
		Low	High - very high		Low	High		Low	High - very high
Agricultural adjustments	9	16.7	15.0	0	0.0	0.0	9	6.8	11.1
Cash loan	1	5.6	0.0	1	3.8	0.0	2	4.5	0.0
Changed diet	1	0.0	2.5	3	11.5	0.0	4	6.8	1.9
Cut down expenses	4	5.6	7.5	4	11.5	7.1	8	9.1	7.4
Kinship	3	11.1	2.5	7	19.2	14.3	10	15.9	5.6
Nothing	8	22.2	10.0	7	15.4	21.4	15	18.2	13.0
NR sale	5	5.6	10.0	3	7.7	7.1	8	6.8	9.3
NR use	1	0.0	2.5	6	15.4	14.3	7	9.1	5.6
Other	8	5.6	17.5	4	11.5	7.1	12	9.1	14.8
Petty trade	2	0.0	5.0	0	0.0	0.0	2	0.0	3.7
Piece work	5	16.7	5.0	2	3.8	7.1	7	9.1	5.6
Savings	8	5.6	17.5	3	0.0	21.4	11	2.3	18.5
Sold assets	2	5.6	2.5	0	0.0	0.0	2	2.3	1.9
Sold livestock	1	0.0	2.5	0	0.0	0.0	1	0.0	1.9
TOTAL	58	100.0	100.0	40	100.0	100.0	98	100.0	100.0

## 4.5 DISCUSSION

### 4.5.1 Gender and LEK

Generally speaking, trading households displayed more advanced levels of LEK across the study area. The peculiarity that required extra insight to unravel was the greater LEK levels inexperienced trading households in South Africa showed in comparison to experienced trading households. This was explained by the significant relationship found between gender and LEK, and the distribution of male and female respondents in each of the three trader groups in this part of the country. Male respondents had higher LEK levels than females in every trader group and for every product; they had also, on average, received better education. Furthermore, the largest proportion of females from the South African sample was located in experienced trading households. The highest scores obtained by South African females were those from experienced trading households and their LEK of *Aloe ferox*. The distribution of male and female respondents across the three trader groups in this country explains why in all three analyses, the inexperienced trading households performed the best.

In Malawi, the male respondents also displayed greater levels of LEK than the females across all three trader groups and two of the three products (save for trees), where female respondents from inexperienced trading households displayed slightly higher levels of LEK. The question then is was the choice of products for the study biased towards gender? It is generally understood that females frequently have greater levels of LEK than males because they harvest and process a much wider range of NRs than men but this is product specific with males having more knowledge of some products and females more knowledge of others (Shackleton C.M. & Shackleton S.E. 2004a).

It is understood that the collectors and users of wood and wood-based products are almost entirely male apart from for kindling, twig yard brushes and fuelwood collected for household consumption (Lado 2004; Shackleton C.M. & Shackleton S.E. 2004a; Gouwakinnou *et al.* 2011). The harvesting of fish and honey is purported to fall in the domain of men and boys (Shackleton C.M. & Shackleton S.E. 2004a; Singh A. *et al.* 2010). The *Aloe ferox* trade in South Africa was a livelihood which involved both males and females although of the 25 traders encountered, 72 % were female. Despite this, male traders from this region had more knowledge than females about this product.

The most marked difference in LEK levels between male and female respondents from South Africa and Malawi was in connection with honey; a finding which corresponds with the aforementioned classification of gender roles with regards to NR use (Shackleton C.M. & Shackleton S.E. 2004a). The same applies to male Malawians' greater knowledge around fish. Although fishing is considered a males role (Shackleton C.M. & Shackleton S.E. 2004a), the sale of fish was seen to be done largely by females across both surveys, while honey was collected and sold almost entirely by males.

With regards to LEK pertaining to trees the distinction was less clear, particularly in Malawi where there was very little difference in LEK levels between male and female respondents in this regard. Women are thought to know more uses for individual species, especially trees (Fortmann 1996 in Shackleton C.M. & Shackleton S.E. 2004a). Several studies have shown that females have more knowledge of medicinal plant species and more detailed knowledge of their uses than men (Lado 2004; Pilgrim *et al.* 2007; Quinlan & Quinlan 2007). Studies in Indonesia and the Amazon revealed that women were persistently more knowledgeable about herbaceous and non-forest plants than men, though in Tanzania men knew more tree species and their uses although this was only significant for charcoal and other wood-based trades (Luoga *et al.* 2000). In Malawi, wood and wood-based products were the most frequently recorded products being traded during the in-depth survey yet there was noteworthy female involvement in this activity.

Lado (2004) and Shackleton C.M. & Shackleton S.E. (2004a) described the vending of charcoal to be a man's responsibility but evidence from this site revealed that 41 % of those involved in this trade were female, all of whom bought and sold the product. A similar result was obtained from the rapid survey data. The fuelwood trade was engaged in almost equally by males and females who predominantly harvested this product themselves. Other wood-based trades like that of carvings, utensils, tools and furniture were found to be dominated by males although a number of females were also vending these items. According to Shackleton C.M. and Shackleton S.E. (2004a), "with the increasing need for cash income, the declining job market and the current trends in livelihood diversification gender roles are undergoing change and reversal." Based on the above discussion, this situation seems to more closely resemble the situation in northern Malawi with increased involvement of females in trades previously regarded as the domain of males. In Swaziland, due to commercialisation and



resource scarcity, tasks like the collection of fuelwood and water are increasingly becoming the responsibility of men (Hlanze *et al.* 2005).

#### **4.5.2 Age, the present era and LEK**

Because women are thought to be more involved in the extraction and processing of a greater diversity of NRs (Shackleton C.M. & Shackleton S.E. 2004a), they are thus thought to have a greater level of LEK than males (Lado 2004). A study of traditional knowledge in northeast India established that middle to old aged women (> 35 – 72 yr), knew of more traditional practices pertaining to foods than young women (> 16 – 35 yr), from the same community (Singh R.K. *et al.* 2010). Furthermore, women were significantly more knowledgeable in this regard than men, with the exception of plant species used in hunting, construction and making handicrafts (Singh R.K. *et al.* 2010). Elders (mean age 62 yr), were found to have more knowledge than the younger generation (mean age 17 yr) (Singh R.K. *et al.* 2010). By comparison, Luoga *et al.* (2000) demonstrated that older men (> 35 years old), at a site in Tanzania were the most knowledgeable of trees and their uses. Dovie *et al.* (2008) used a different age categorisation but also found older men (> 50 years old) to be the most knowledgeable for some products but females for others. Similarly, Gouwakinnou *et al.* (2011) found few overall differences, but there were some for specific uses or products. The results from my study correspond with this, albeit inclusive of other products besides trees.

Singh R.K. *et al.* (2010) also found that a gradient of knowledge existed among students between rural and urban areas with knowledge of indigenous plants and animals used in foods, increasing with distance from urban areas. Pilgrim *et al.* (2008) learned that levels of LEK diminished with reduced dependence on NRs and environmental interaction and increasing community wealth. Minimised transfer of knowledge between generations and the replacement of LEK for other forms of knowledge are also symptoms of modern economic growth (Pilgrim *et al.* 2008). These findings correspond with the relationship found in this study between respondents most highly ranked income stream and their LEK levels with those relying on subsistence farming and the consumption of NRs displaying more knowledge than those relying on government grants. This epitomises the distinction found between the Malawian and South African respondents in terms of their relative wealth and LEK levels.

### **4.5.3 Coping strategies and LEK**

As described already, the use of certain coping strategies, and, generally speaking, involvement in different livelihood activities requires a certain level of LEK, whether it be for the extraction and processing of NRs or agricultural activities (Pattanayak & Sills 2001; Uma Shaanker *et al.* 2004; Pierce & Emery 2005). De Waal and Whiteside (2003) define coping strategies “as the ability to return to a former livelihood on the basis of a diversity of income and food sources - and accumulated skills, including the knowledge of wild foods and kinship networks.” If households do not have the knowledge required to harvest and utilise NRs then in the face of adversity they are more vulnerable than those acquainted with NRs (McSweeney 2003).

The significant difference in the kinds of coping strategies employed by those with low levels of LEK to those with high to very high levels across the two study areas, thus lends some insight into the influence levels of LEK may have on household vulnerability. Those with low LEK levels from Malawi relied more heavily on kinship and piecework, while those from South Africa were forced to alter the household diet. Peters (1999) found that in Malawi it was the poorest households who were relying on *ganyu labour* (piece work) as a source of food and income with a third of their income coming from this activity, and this proportion increased as income declined (cited in Kerr 2005). The findings from this study and those of Kamanga *et al.* (2009) corroborate this. Kerr (2005) states that seasonal *ganyu* is a measure of vulnerability as opposed to a form of social capital as other authors have implied. By comparison, those with high to very high levels of LEK in Malawi and South Africa relied primarily on savings that they had accrued to endure times of hardship implying an improved state of wellbeing in contrast to households with low levels of LEK, presumably brought about by the more secure cash incomes from the trade in NRs.

### **4.5.4 The consumption and trade of NRs as a coping strategy and LEK**

As far as the use of NRs (trade and consumption) as a coping strategy was concerned, the result was different in each region. In South Africa there was no significant difference between household LEK levels and adoption of this strategy. Although the NR strategy made up a comparatively higher proportion of the total strategies employed in South Africa than it did in Malawi, only two resources were used in coping strategies at this site namely, fuelwood

(*Acacia karoo*) as a cost-saving strategy for ceremonies/funerals and, to a lesser extent, the increased harvesting of *Aloe ferox* sap for sale to generate extra income. *Acacia karoo* is a very popular species in the area and grows abundantly (particularly in fallow land) (Shackleton C.M. *et al.* 2007c). It is commonly used in households and is used primarily as fuelwood but also medicinally and for construction (Cocks & Wiersum 2002; Shackleton C.M. *et al.* 2007c; Weyer *submitted*). Consequently, both non-trading and trading households and both male and female respondents would have a good knowledge of this species (Shackleton C.M. & Shackleton S.E. 2004a).

By contrast, a significant difference was found between household LEK levels and the use of the NR strategy in Malawi where more knowledgeable households utilised this strategy to a greater extent (more specifically the trade). Bear in mind, through all methods, trading households from this site exhibited greater levels of knowledge than non-trading households and, furthermore, it was the non-trading households who were more frequently in a position where they could not offer a coping strategy in response to shock. LEK could therefore be a strong contributing factor for a household's ability to withstand shocks. The manifestation of this is that households with greater levels of LEK therefore have more options in terms of coping strategies they could employ, including the consumption and trade in NRs.

#### **4.5.4.1 The *ad hoc* trading households**

The subsequent disaggregation of the non-trading households into the *ad hoc* traders and those with no involvement or past experience in the trade provided a more lucid portrayal of varying degrees of vulnerability among households with different levels of involvement in the trade (described in CHAP. 3), and shed more light on the role LEK may have on households engagement in the NR trade and their choice of coping strategies when faced with stress.

Drawing from the results of the quantitative analysis, it was discovered that those with no experience or *ad hoc* involvement in the trade had the lowest levels of LEK while there was not a significant difference in the scores obtained by any of the three trading households (*ad hoc*, inexperienced, and experienced). With regards to LEK pertaining to the ephemerally used product honey, the same trend persisted, denoting specialised knowledge. In addition to this,

the *ad hoc* trading households relied more on the NR trade as a means of coping with shock than the amended non-trading households. One may purport then that it was the *ad hoc* trading households greater LEK that made available to them the option of utilising the NR trade as a means of coping, as opposed to the amended non-trading households who, because of an LEK deficit, were unable to draw on this type of coping strategy. Furthermore, the fact that the *ad hoc* trading households proportionately registered significantly greater levels of AIDS affliction (based on the SADC FANR VAC 2003 proxies, and the AIDS proxy shocks), contributes to the understanding of the role LEK may be playing in household responses to HIV/AIDS and, concurrently, the expansion of the NR trade.

#### **4.5.4.2 Respondent profile #3: high LEK and coping with stress**

Only a handful of respondents from this study volunteered that one or more of their family members were HIV positive and only one acknowledged that they themselves had HIV; he was a farmer from Malawi who was supporting a family of 11, eight of whom were attending school, and three of which were orphans that he had espoused from family members who had passed away. Their household had registered six different shocks over the course of the last two years including the loss of their banana crop due to floods and the illness of several of his children. The household relied on the food they could generate from their field and the NRs they could obtain from their surrounding natural environment. His poor health however meant that he was often not fit to perform these tasks and this responsibility then fell on his wife and children. In his favour however he harboured an impressive level of LEK – among the top six scores from the study. Having this knowledge allowed him to employ the sale of honey on an *ad hoc* basis in order to cope with the stress on himself and his family.

#### **4.5.4.3 Respondent profile #4: low LEK and coping with stress**

On the opposite end of the LEK spectrum, one lady from Malawi described the plight of being the breadwinner in the household and having to support her incapacitated old aunt and four orphaned children whom she was trying to put through school but struggling to cover the fees. To make matters worse she herself had been ill for more than three months, receiving free treatment from a clinic in the region. The household's primary income stream was the production of, among other items, groundnuts, which they occasionally sold if there was a surplus. However, the respondent expressed that she had not been able to tend to the crop for the last three months due to her poor health and she was relying on the assistance from the children. The loss of part of their chicken brood to disease only contributed to their food

insecurity. Aside from the assistance from her adopted children they were unable to employ any other coping strategies. This respondent registered the seventh lowest score in the LEK appraisal.

#### **4.5.5 The sustainability of LEK**

What then are the implications of HIV/AIDS on the maintenance of LEK and further dissemination thereof? A number of authors have stressed the risk that this disease could sever ties between generations and rein in the fluency with which LEK is spread (De Waal & Whiteside 2003; FAO 2003b; Torell *et al.* 2006; Kaschula 2008). Family members often die before passing on their expertise to other members (Mutangadura *et al.* 1999; Barnett & Whiteside 2002); the repercussions of this are manifold. For the younger generation this is particularly deleterious as they have to now fend for themselves and may not have the know-how to do so (Torell *et al.* 2006). This can have negative subsidiary effects for the environment. A study of the impacts of HIV/AIDS on small scale fishing communities in Uganda revealed that unskilled youth were taking on fishing responsibilities after working age men had died of AIDS, but doing so without any knowledge of principles like sustainable harvesting (FAO 2004 in Torell *et al.* 2006). This problem could percolate through all areas of NR management as conservation organisations lose staff members, education and training investment, worker productivity (Drimie 2002; Erskine 2005; Gelman *et al.* 2005; DeMotts 2008), and what Torell *et al.* (2006) describe as “institutional experience and memory.” On the ground this could relate to a shrinking of the task force responsible for monitoring protected areas and a subsequent rise in indiscriminate harvesting techniques – particularly as households that have been impacted by the disease may adopt a short-term approach to harvesting in light of the typically bleak outcomes of the disease (Loevinsohn & Gillespie 2003).

HIV/AIDS has been shown to alter livelihoods as the labour force at the household level weakens due to mortality and the demands of having to care for those who are sick (Baylies 2002; Campbell *et al.* 2002; Holding-Anyonge *et al.* 2006; Torell *et al.* 2006; Hunter *et al.* 2007). This is especially worrying for rural households whose livelihoods are characteristically labour intensive due to their engagement in agricultural activities, and the harvesting and processing of NRs for example (Drimie 2003; Torell *et al.* 2006). A narrative from a study on household food security responses to AIDS in South Africa (Kaschula 2008) illustrates this: “People do not eat the *imifino* (wild spinaches) growing in the forest anymore.

They assume it is because it is no longer available, but I do not believe it. If people search for *imifino*, they will find it in the forest. But people do not search for it anymore. I am too old and my daughter is sick now, that is why we do not go.” In this way, households who have taken on the responsibility of orphans, although immediately under greater pressure to provide for an expanded family, also have improved labour availability, provided the children are old enough to assist. The fact that non-trading households had a significantly higher proportion of orphans is a possible explanation for the unexpectedly large proportion of this trader group utilising NRs as a coping strategy; a finding which corresponds with that of Kaschula’s (2008).

Labour availability is one thing but again the potential limiting factor is that the children require the necessary knowledge of NRs in order to contribute to enhanced food security in the household (Kaschula 2008). Another negative spinoff of the HIV/AIDS cycle is that with more time spent caring for the sick and less time spent working and playing in the environment, LEK is less likely to be spread (Agrawal 1995; Berkes *et al.* 2000). McGarry and Shackleton (2009) however found that significant fora still exist whereby orphaned children left to fend for themselves by living off the land, exchanged knowledge of these resources among themselves and adults in the community at large. The largest proportion of orchid gatherers encountered in southern Tanzania by Challe and Price (2009), were HIV/AIDS affected orphans whom in comparison to adults (both HIV/AIDS affected and unaffected), gathered this resource most frequently. The majority (85 %) of these orphans acquired their knowledge from their peers (Challe & Price 2009).

In the absence of this knowledge these valuable resources may go unused. In Paumgarten’s (2006) study, one of the reasons stated for a decrease in the overall use of NRs was a decline in the inter-generational transference of knowledge and skills associated with the use of NRs. The poor were at times obliged to purchase certain NRs, either because of a knowledge deficit or because the products were not available locally (Paumgarten & Shackleton 2009).

#### **4.5.6 HIV/AIDS, NR sustainability and LEK**

The latter point from the previous paragraph exemplifies another problem area. With increasing dependence on NRs the risk of depletion is real. Multiple studies have shown that communities impacted by HIV/AIDS display a greater reliance on the NR base to meet their basic needs and mitigate vulnerability, particularly with respect to mortality (Haddad & Gillespie 2001; Barany *et al.* 2005; Torell *et al.* 2006; Hunter *et al.* 2007; Kaschula 2008;

Twine & Hunter 2008). In response to weak health infrastructure in southern African countries, the World Health Organisation advocated the inclusion of traditional healers in national AIDS programmes in 1991. Dold & Cocks (2002), in examining the medicinal product trade in the Eastern Cape province of South Africa (including two sites incorporated in this study), revealed that 525 tonnes of plant material, comprising at least 166 taxa and valued at approximately R27 million per annum was being traded in that study area alone. More than half of the traditional healers they spoke to described an increase in the number of patients they had dealt with over the previous five years and 81 % expected the number to increase over the next five years above all because of HIV/AIDS (Dold & Cocks 2002). Medicinal product traders from my study provided similar insights. Similarly, a large proportion (93 %) of traditional healers in Malawi and Mozambique expressed a general decline in the availability of medicinal plants over the last ten years (Barany *et al.* 2005). A large majority believed the number of healers to have increased over the previous five years and also owed this to escalating illness, while attributing the resource availability slump largely to destructive harvesting methods (Barany *et al.* 2005). The concern that HIV/AIDS may alter people's attitudes and values regarding the environment and its goods and services has already been alluded to as something that may lead to increased indiscriminate harvesting (Loevinsohn & Gillespie 2003).

Furthermore, it has been implied that as resources diminish this may cause increased strain on the household labour force who now have to travel further to access resources at a time when time and effort are valuable commodities (Barany *et al.* 2005). In addition to this, lack of access to resources could lead to loss of LEK. In southern India, loss of bamboo has led to an erosion of the knowledge and skills associated with the working of bamboo in communities that have been traditionally dependent on bamboo (Chaluvaraju *et al.* 2001 in Uma Shaanker *et al.* 2004). Restrictions on access to NRs imposed by institutions could have a similar effect. In Malawi the charcoal trade has been banned but in addition to this those trading reed mats and fuelwood spoke of encounters with forestry officials who had confiscated their stock.

It is evident that the nexus between HIV/AIDS, NR dependency, LEK and its influence on the wellbeing of humans and their environment is a complex one. With reference to this relationship from the perspective of the environment, Uma Shaanker *et al.* (2004) draw the following links. They believe the worst case scenario for the ecological outcomes of harvesting is typically when there is a high dependence on resources, poor LEK and

exploitative markets e.g. short-term private contractors as opposed to marketing by forest-margin dweller stakeholders (Uma Shaanker *et al.* 2004).

There have however been conflicting debates around the impact of HIV/AIDS on the environment. Kaschula (2008) draws attention to the fact that with the onset of the disease in an area and subsequent increased morbidity rates, agricultural lands lie fallow and this can provide opportunity for re-colonisation by wild and naturally occurring species. Frank and Unruh (2008) investigated the intersection of HIV/AIDS, land tenure, and changes in rural livelihood decisions in southern Zambia. They found that through a unique practice whereby widows draw on the stigmatisation associated with AIDS to retain their unused land rather than it being 'inherited' by one of her deceased husband's family, more land is indirectly being held in forest.

#### **4.6 CONCLUSION**

Across the two study areas, trading households emerged as having superior levels of LEK in comparison to non-trading households. Further inspection of the latter group however revealed that the portion of non-trading households who traded on an *ad hoc* basis actually had comparable levels of LEK to the trading households. Coupled with this group's comparatively poor level of vulnerability and their disproportionately high level of AIDS affliction, it is purported that the trade offered the *ad hoc* traders a critical means of coping with AIDS proxy shocks. This is consistent with the work of Shackleton C.M. and Shackleton S.E. (2004b), who showed that one way in which households may utilise the NR base as a safety-net is through the temporary/*ad hoc* sale of NRs.

However, at first glance it is not clear whether it was this knowledge that contributed towards these households' decision to engage in the trade or whether, due to their involvement, their levels of LEK have subsequently increased. Yet, a look at the distribution of knowledge between Malawian and South African households around the three products lends some insight into this debate. As far as the most commonly traded products in each of the two regions is concerned (fish in Malawi and *Aloe* in South Africa), the trading households, as may have been expected, emerged as having greater LEK. The distinction was not as clear with regards to the most commonly used product (trees), but again, in both regions, the trading households had greater LEK. It was however the ephemeral product, honey, that provided the



clearest contrast between trading and non-trading households. In both Malawi and South Africa, trading households again had advanced LEK in this regard. Therefore, although this particular product was seldom traded in each of the regions, it was the trading households that had more knowledge of it. This suggests that a household's level of LEK may have been a contributing factor in their choice of livelihood and coping strategy when facing trials, as opposed to the other way around. Given the high proportion of *ad hoc* trading households registering some degree of AIDS affliction, further evidence is provided for the degree to which this disease could be contributing to the expansion of the NR trade.

The LEK appraisal also drew attention to the role gender and age play in LEK pertaining to different products and offers some insights into the importance of not biasing certain user groups in the analyses. Furthermore, differences in knowledge of resource selection and use, based on gender and age, can inform and sharpen conservation prioritisation, planning and monitoring (Dovie *et al.* 2008).

## CHAPTER 5: CONCLUSION

### 5.1 THE CONTRIBUTION OF THE NATURAL RESOURCE TRADE TO RURAL AND URBAN LIVELIHOODS

The rapid survey (CHAP. 2), conducted across several southern African countries, provided a snapshot of the NR trade and those involved. What became clear are the growing linkages between rural and urban areas in terms of their use of NRs, portrayed especially by the significantly broader array of NRs being sold in urban areas. This relationship was also expressed in the considerable distances that some rural traders reported travelling to urban areas and the associated time spent away from home; elucidated further by the significantly higher ranking rural respondents assigned to the NR trade in comparison to urban traders, perhaps providing sufficient incentive for undergoing these large journeys. As such, these findings echo those of many others in southern Africa (Cocks & Dold 2006; Shackleton S.E. *et al.* 2008), and internationally (Kaimowitz 2003; Avocèvou-Ayisso *et al.* 2009).

#### 5.1.1 HIV/AIDS and migration

A number of traders who have migrated to urban areas still maintain rural coping strategies to survive life in the city and this may involve receiving food transfers from their rural-based families (Kruger 2006), while remittances given in return are an important income stream for those who remain behind (Wiersum & Shackleton 2005). This rural-urban linkage has important implications in the HIV/AIDS context, with purported links between migration and the spread of the epidemic (Drimie 2002; Torell *et al.* 2006; Masanjala 2007). Crush *et al.* (2006) provide a coherent explanation of the complex relationship between migration, food security and HIV/AIDS: "HIV/AIDS is a disease that demonstrably impacts rural food production. Not only does this compromise the food security of rural producers, it could reduce the flow of food from countryside to town (thus making the urban-based migrant more vulnerable to food insecurity). At the same time, the rural household becomes more dependent on cash earnings and remittances for survival, increasing the pressure for remittances. New forms of return 'distress' migration to rural areas simultaneously increases the burden of provision on the rural household. Again, if the migrant is expected or forced to remit a greater proportion of his or her urban pay packet to compensate for declining agricultural production, their own ability to purchase food may be reduced. Given that migrants spend a large

proportion of their wages on necessities such as food, their own diet could suffer. Migrants with HIV/AIDS themselves are, over time and in the absence of anti-retroviral treatment, likely to be less able to work to full capacity and to remit. The problem here is that migrants are, by most accounts, more vulnerable to HIV infection.” In my study, traders from rural areas emerged as being worse off in terms of their household AIDS affliction (based on their proxy count), which has obvious implications given the high number of rural migrants to urban areas. In addition to this, the trade in NRs as a coping strategy in response to non-AIDS proxy shocks and stresses, may also expose rural migrant traders to greater risk of being infected with AIDS. Thus, the relationships between AIDS and the NR trade are therefore probably varied and complex.

### **5.1.2 The importance of NRs for the meeting of peoples’ basic needs and for survival and the need for state recognition of this**

The overall picture portrayed through this work was one of an immense dependence on NRs across both rural and urban areas. Based on the types of products being sold most abundantly (wild foods, wood and medicinal products), one might infer that these products are fulfilling an important role for the meeting of peoples’ basic needs of food, fuel, shelter and medicine (Shackleton C.M. & Shackleton S.E. 2004a). The use and sale of these products could also be representative of a household’s reaction to trying circumstances. Studies in Malawi and Mozambique showed that HIV/AIDS has resulted in an increased demand for wild foods and fuelwood and that in areas with a high incidence of HIV-related illnesses coupled with a scarcity of health services has led to a greater dependence on medicinal plants (Holding-Anyonge *et al.* 2006). According to Holding-Anyonge *et al.* (2006), in 2006 antiretroviral treatment cost in the area of US\$ 200 per person per year, well beyond the reach of many in southern Africa, consequently rendering medicinal plants a critical alternative, particularly because the poorer the households and communities, the worse the impact of HIV/AIDS (Whiteside 2002).

This has important corollaries for all parties concerned; for one, government needs to acknowledge the importance of these resources to the poor and take cognisance of the fact that they themselves would need to bear the cost of them were they to be lost (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton C.M. *et al.* 2007a). This serves as a major impetus for the incorporation of these people-environment relationships into policymaking (Kaimowitz 2003; Kepe 2003). Secondly, if rural land use was to be changed or degraded, the local people

would have to source elsewhere the resources on which they are dependent (Shackleton C.M. 2001). This would invariably be at a monetary cost to themselves unless the resources could be bartered with other locals – a bleak upshot for those living in poverty that cannot afford to stretch their scanty income any more thinly.

Part of the reason behind poor state recognition of the importance of NRs is that the pecuniary-based definition of poverty does not account for the fact that rural communities rarely equate benefits with simple monetary rewards (Berkes 2004; Fandohan *et al.* 2010). Furthermore, a substantial part of the rural economy is ‘hidden’ in that the transactions that take place do not find their way into the GDP figures (Shackleton *et al.* 2001; Paumgarten, 2005; Shackleton C.M. *et al.* 2007b). Arnold (2004) states that “in many countries the aggregate of NRs contributes as much, if not more, to national product as industrial roundwood.” Shackleton C.M. *et al.* 2001 show that in South Africa the trade and consumptive use of NRs in rural areas is the equivalent in value as agriculture and livestock combined. Interestingly, the government has extension services for livestock and for arable agriculture, but none for NR harvesting or trade. The value of NRs is still shrouded in mystery and consequently has been given little attention; something which has major ramifications for policy and any attempts to reinforce rural efforts to reduce poverty and vulnerability (Kepe 2003; Paumgarten 2005).

### **5.1.3 The degree of reliance on the NR trade**

The dependence on the sale of NRs was portrayed in this study by the long hours traders were working, and the large proportion who had no other alternative livelihood and for whom the trade was their household’s only source of income. The importance of this source of revenue was also reflected in it being ranked higher than all other income streams (both cash and non-cash). With reference to South Africa and the debate around what role the NR trade can play in poverty alleviation, Shackleton S.E. *et al.* (2008) state that “it is important that the role of natural product trading is viewed in the wider socio-economic and poverty context within which this livelihood opportunity is pursued, as well as the suite of reasons producers themselves provided for entering the trade. The alternatives available to the rural poor, who are often poorly educated and skilled with limited access to formal employment opportunities, are seldom considered.”

Though there were a considerable number of traders in this study who had been previously unemployed, some had begun trading immediately after finishing school and had received an average of  $10.3 \pm 2.2$  years of education (section 2.4.2). Furthermore, an almost equal number of those who were previously unemployed had been previously formerly employed. This could reflect an escalating dependence on the trade, particularly in South Africa, where this scenario was especially prevalent. On the other hand it could be indicative of mounting pressure HIV/AIDS is placing on households, a manifestation of which could be that those formerly employed and those having received an education are forced to abandon existing or potential vocations because of the need to care for those who are sick at home. One-third of those involved in the trade, who had been previously formerly employed, expressed having started the trade in response to death (primarily the breadwinner) or illness in their households. A common response (30 %) from traders conferred with during the rapid survey to what prompted them to trade was due to death or illness in their households. This verifies the findings of Shackleton S.E. *et al.* (2008), who reported similar results.

## **5.2 The safety-net role of the natural resource trade**

### **5.2.1 Shocks experienced by households over a two year period**

The impact of HIV/AIDS on the trade of NRs was appraised from a rural perspective during the in-depth survey (CHAP. 4), given that households from these areas were found to be significantly worse off in terms of their AIDS affliction based on the SADC FANR VAC (2003) proxies. Shocks were experienced by almost all (95 %) of the households incorporated in the in-depth survey, with almost one-third of households registering between four and six different shocks over the two year period. This mirrors the findings of Paumgarten and Shackleton C.M. (*in press*), who reported that every household in their samples in two villages, had experienced some household shock during the previous two years. The shocks registered in my study were largely non-AIDS proxy shocks, although on the whole, morbidity was the most frequently recorded shock. Although non-AIDS proxy shocks were more frequently encountered, AIDS proxy shocks were ranked as having more of a significant impact on households. Thus, quantity or frequency of shocks is not the only measure that researchers should explore, as the nature, intensity or quality may be equally, or more important in driving responses and outcomes. This is crucial understanding for policy responses.

According to Koestle (2002 in Masanjala 2007), “the AIDS epidemic compounds the problems faced by households by increasing the likelihood of livelihood collapse due to natural disasters, seasonal changes and the shock of accidents or sudden illness.” What became apparent was that the proportion of households registering AIDS proxy shocks decreased with increasing involvement in the trade, while this pattern did not persist with non-AIDS proxy shocks. Furthermore, the proportion AIDS proxy shocks made of total shocks recorded for each trader group was significantly greater for non-trading households (section 3.4.1.2). A similar pattern surfaced with regards to the measure of AIDS affliction based on the proxy count. It was discovered that non-trading households were comparatively poorer than trading households which may have aggravated the impact of the shocks they encountered, particularly AIDS proxy shocks (Whiteside 2002; Freedman & Poku 2005; Chuma *et al.* 2007). Non-trading households also recorded significantly more shocks over the two year period and this was significantly related to household monthly income.

### **5.2.2 Coping strategies employed in response to shocks**

Households respond to shocks in different ways depending on the resources they have available to them (Pattanayak & Sills 2001; De Waal & Whiteside 2003; Dekker 2004; Masanjala 2007; Mutenje *et al.* 2010). The greater a household’s level of participation in the trade, the less they seemed to rely on kinship as a means of coping with stress, while comparatively speaking, trading households made far greater use of savings to deal with adversity (section 3.4.2). In general, the utilisation of NRs (both the consumption and trade thereof), was the most regularly employed coping strategy. The use of the NR trade (both in terms of proportion of strategies and of households), increased with increasing association with the trade, however non-trading households also adopted this strategy. It was a strategy used significantly more regularly in the face of AIDS proxy shocks across each trader group.

### **5.2.3 Levels of vulnerability among trading and non-trading households and the safety-net role of the NR trade**

The initial analysis revealed that the non-trading households were more vulnerable than the trading households based on a number of wealth indicators, the types of shocks registered, and their responses to these (section 3.4.4). However, after having disaggregated the non-trading group into those who trade on an *ad hoc* basis and those who have no involvement in the trade in a post-analysis investigation, a clearer picture of vulnerability came to light. The group that did not engage in the trade at all appeared to be more secure than those who were involved on

a very *ad hoc* basis, having a larger proportion of households with savings, assets, livestock, grants and overall monthly income. In comparison, households involved in the trade on an *ad hoc* basis, despite having slightly more income streams and a larger proportion of monthly income derived from livelihood activities as opposed to government handouts, were worse off in terms of their AIDS affliction (based on their proxy count), and had a larger proportion of households registering AIDS proxy shocks.

Based on the mean number of shocks per household, the proportion of households registering AIDS proxy shocks and AIDS affliction (SADC FANR VAC 2003), the proportion of households relying on kinship and those not being able to offer a response to shock, the group of households who traded NRs on an *ad hoc* basis were observed to be the most vulnerable group in the study. The trade thus offered a critical safety-net for this group (there was not a significant difference in the proportion of *ad hoc* trader, inexperienced trader and experienced trader households who utilised this strategy). This offers valuable insight into whether or not HIV/AIDS is contributing to the expansion of the NR trade, if the households most severely impacted by probable AIDS related shocks are turning to this activity as a safety-net. This finding is substantiated by a result from the rapid survey (CHAP. 2) which showed that a significantly greater proportion of traders from households registering high AIDS affliction (three to five proxies), had started trading in response to death or illness in their households. The work of Shackleton S.E. *et al.* (2008) corroborates this. Wealth differentiation would have been one factor affecting the way in which households coped with shocks, as illustrated by the amended non-trading households who, due to their more secure position in comparison to the *ad hoc* group, coped by selling livestock or cutting down expenses. Another could have been the level of LEK held by the household.

### **5.3 The role of local ecological knowledge when coping with HIV/AIDS as a livelihood shock**

#### **5.3.1 LEK and the use of NRs as a coping strategy**

Trading households (inexperienced and experienced combined) emerged as the most knowledgeable group derived from the results from the product, respondent, and quantitative analyses. A household's level of LEK was observed to be influential in the products traders sold, the household's primary income stream, and, more importantly, the coping strategies that they employed when faced with shocks. Households with low levels of LEK were perceived to

be more vulnerable because they were relying on strategies like kinship, piece work and changing of the household diet or, more commonly, were not able to offer a coping strategy at all. By contrast, those with high to very high levels of LEK utilised savings to a far greater degree.

A key finding was the difference in the way in which NRs and, more specifically, the trade thereof, was drawn on by households of differing LEK levels (CHAP. 4). In Malawi, it was households with high to very high levels of LEK that were able to use this strategy more frequently than those with low levels of LEK. More importantly, the group found to be most vulnerable in the study, the *ad hoc* traders, surfaced with comparatively high levels of LEK (not significantly different to the trading households). One might infer that this could have been the stimulus for their use of the NR trade as a means of coping with the shocks they experienced, most importantly, AIDS proxy shocks. By contrast, the group who were not involved in the trade in any way or had had no experience in the past, had significantly lower levels of LEK, which, one might postulate, resulted in their nominal use of this strategy because they did not have the know-how to do so. This inference is bolstered by the LEK differentiation between trading and non-trading households regarding the ephemerally used product honey where the trading households displayed more LEK of this product despite not being involved in its trade. This would suggest that those with higher levels of LEK (*ad hoc*, inexperienced and experienced trading households), had the option from the onset of whether or not to engage in the trade based on their superior LEK. The work of McGarry and Shackleton (2009) revealed the importance of LEK offering a coping strategy to AIDS orphans needing to obtain wild foods from the environment. Furthermore, the fact that trading households were in a better position, regarding their level of livelihood security, may be because they had achieved some degree of success from the NR trade, impelling them over time to an improved level of livelihood stability. This portrays a spectrum of involvement in the NR trade from those who engage on an *ad hoc* basis, possibly in response to calamity with the intention to only trade on a temporary basis, but, if the activity yields favourable returns, more time and effort may be assigned to it if the opportunity avails itself. The fact that the *ad hoc* group were only involved very intermittently may also be a symptom of household shocks like HIV/AIDS constraining the labour pool.



### **5.3.2 LEK held by different user groups**

Gender is perceived to play an important role in the LEK held by individuals (Lado 2004; Dovie *et al.* 2008; Singh R.K. *et al.* 2010), and this ultimately had an influence on the overall differences in LEK held by trading and non-trading households (CHAP. 4). The products that were incorporated into the study would also have had a bearing on the overall results, derived from the opinion that certain products are harvested and processed by specific genders e.g. woodcarving by men (Shackleton C.M. & Shackleton S.E. 2004a). Males displayed significantly more knowledge than females across all trader groups and for each product except trees where a significant difference was not found between genders. Previous literature has found variable results, with some reporting men holding higher LEK, others finding women do so and others concluding that there is no difference (Dovie *et al.* 2008; Gouwakinnou *et al.* 2011).

## **5.4 The significance of HIV/AIDS in driving the natural resource trade as a safety-net and livelihood strategy**

### **5.4.1 The continuum of NR trade involvement**

The use and trade of NRs can take place in times of crisis as a safety-net, [or what Shackleton C.M. and Shackleton S.E. (2004b) refer to as an emergency net], seasonally as a gap filler, or on a regular basis (McSweeney 2004; Takasaki *et al.* 2004; Avocevou-Ayisso *et al.* 2009). The results from this study show that the trade offers those involved, both a vital safety-net and an opportunity to improve their overall wellbeing. Shackleton S.E. *et al.* (2008) shed light on a continuum of involvement in the NR trade. At the bottom end of the spectrum is ‘survival’, where the trade is one of a number of safety-nets people may fall back on as a last resort. Following this, the adoption of the trade for ‘coping or necessity’, also entails a response to setback or a lack of opportunities, but can contribute to the mitigation of poverty and the reduction of vulnerability. Others might engage in the NR trade to supplement marginal household income through ‘diversification by choice’. From this standpoint traders may be able to raise the standard of living within their households. For those at the other end of the spectrum, the NR trade can become a full-time activity when ‘specialisation’ occurs. Although the role of the NR trade as a coping strategy may have been the catalyst for initial household involvement, it can become the activity of choice, ensuring basic living requirements and providing a pathway out of poverty for some.

In this study, the initial classification of households into those not involved in the NR trade, households with the presence of an inexperienced trader and those with the presence of an experienced trader, and then the subsequent disaggregation of non-trading households into *ad hoc* traders and those with strictly no involvement in the trade, offers scope for comparison along the lines of the aforementioned continuum. The *ad hoc* trading households' degree of involvement could be classed as 'survival', given their dire situation in terms of household shocks (particularly AIDS proxy shocks), and their turning to the NR trade among other coping strategies, most notable of which was kinship. The inexperienced trading households seemed to fit well between those who either engaged in the trade 'to cope or by necessity' or whose incentive was 'diversification by choice'. The rationale for this is that these households were generally in a lower income bracket than the experienced trading households but had diversified livelihoods, having large proportions (at times the largest) of households owning a variety of livestock and cropped lands (both fields and cultivated gardens), in addition to having significantly more cash income earners per household. The consumption and trade of NRs was used by a significantly greater proportion of inexperienced trading households as a coping strategy in comparison to experienced trading households, which corresponds with Shackleton S.E. *et al.* (2008), who stated that the replacement of other safety-nets with the safety-net option the NR trade provides, is indicative of this rung in the livelihood strategy typology. Lastly, the experienced trading households appeared to fit the criteria of 'specialisation'. These households devoted significantly more time to the NR trade, traded a greater variety of products, earned more from the trade, and appeared, on the whole, to have the most stability.

Trading households had larger monthly incomes than non-trading households, and this figure increased with increasing involvement in the trade (section 3.4.4), although the *ad hoc* trading households, in comparison to those not involved in the trade in any way, were worse off in this regard. This corresponds with the findings of Belcher *et al.* (2005) who found that those involved in the trade on a subsistence level were poorer than those for whom the NR trade had become a specialised activity, comprising the bulk of their household income. Similarly, Fandohan *et al.* (2010) found that the more time spent in the trade in terms of hours per week, the better were the returns and proportional contribution to total income.

Furthermore, among trading households, a significant relationship was found between monthly income and the use of the NR trade as a coping strategy, with wealthier households utilising

this strategy to a greater degree. However, among non-trading households the opposite was the case, with poorer households utilising this strategy to a greater degree and, based on the outcomes of the disaggregation of this trader group, this reflects the *ad hoc* trading households' reliance on this strategy. In terms of monthly income then we see a continuum of increasing adoption of the NR trade as a coping strategy with increasing involvement.

#### **5.4.2 The HIV/AIDS – poverty cycle and the role the NR trade could play in mitigating the effects of this**

Under the right circumstances the trade can become a households' primary livelihood activity which can generate incomes significantly higher than the poverty line and other locally based livelihood opportunities such as agriculture or wage labour (Shackleton C.M. & Shackleton S.E. 2004b; Shackleton C.M. *et al.* 2007a). There is then the possibility that households could attain an improved level of wellbeing, and the trade be deemed viable for poverty reduction. If cognisance is taken of the inextricable links between HIV/AIDS and poverty (Whiteside 2002), this is an important finding. Masanjala (2007), in his use of the livelihoods framework, addressed the linkages between poverty and HIV/AIDS and found that the latter had a bearing on all livelihood assets including human, social, financial, physical and natural capital. In summary: "the AIDS epidemic depletes livelihood assets, undermines normal livelihood strategies, renders households more vulnerable to collapse of livelihoods and thus creates a cycle of poverty and HIV and AIDS" (Masanjala 2007). According to Freedman and Poku (2005), "although the proximate cause of Africa's AIDS crisis is HIV, the underlining societal causes are much broader and more familiar. Across the continent, poverty structures not only the contours of the pandemic but also the outcome once the individual is infected with HIV. Thus, until poverty is reduced there will be little progress with either reducing transmission of the virus or creating an enhanced capacity to cope with its socioeconomic consequences." On the other hand, in both Botswana and Zimbabwe there have been marked declines in HIV/AIDS prevalence rates over the last ten years, particularly so in Zimbabwe despite the regions worsening poverty levels (UNAIDS 2008c, 2008d; HDR 2010). However, any links between the NR trade and HIV/AIDS could also be tied to poverty and what role this livelihood activity plays in the alleviation thereof.

There has been much debate about whether or not the trade in NRs can contribute to poverty alleviation or whether it can only go as far as to assist those who are struggling to survive (Wunder 2001; Belcher 2005; Ros-Tonen & Wiersum 2005). Angelsen and Wunder (2003), in

their deliberation over this distinguish between the terms ‘poverty reduction’, ‘poverty prevention’ and ‘poverty alleviation’. ‘Poverty reduction’ implies people become better off over time, ‘poverty prevention’ refers to the role NRs play in maintaining a minimum standard of living and ensuring survival and ‘poverty alleviation’ encompasses both terms (Angelsen & Wunder 2003). From the discussion above it would seem that the degree to which the NR trade can contribute towards poverty reduction or poverty prevention within a household, may depend on where the household sits on the continuum of involvement in the activity, with those who have achieved some success from the NR trade standing a good chance of reducing the level of poverty they may be experiencing. For the majority however, including those on the other end of the continuum, the trade, despite concerns raised about it acting as a ‘poverty trap’ (Neumann & Hirsch 2000; Wunder 2001) offers households a means of preventing poverty. This is particularly so if one factors in the consumption of NRs and its role in meeting peoples basic needs.

Bryceson and Fonseca (2006) explain that in Malawi a process of depeasantisation and deagrarianisation has been taking place which has involved a move away from longer-term household-based cropping cycles to off-farm *ganyu* casual labour. This has led to underutilisation of household land and labour, increased food insecurity and exacerbation of poverty (Bryceson & Fonseca 2006) – an example of how placing all one’s dependence on a single livelihood strategy can lead to a poverty trap (Neumann & Hirsch 2000; Wunder 2001). The same has been said for a reliance on the NR trade. Shackleton S.E. *et al.* (2008) however believe (in the context of South Africa), that this is ‘an inappropriate label’, based on the following factors:

1. the lack of alternatives people have due to illiteracy and unemployment, small landholdings and a highly variable climate
2. the favourable returns from the activity when compared to local wage labour, farming and other self-employment
3. the positive role small enterprise activities play in helping households to cope with the financial burden of HIV/AIDS
4. the fact that the trade fulfils a variety of functions, from its provision as a safety-net, to allowing households to diversify or even to specialise and accumulate

The direct-use value of regular domestic use of NRs, according to Shackleton C.M. and Shackleton S.E. (2004b), “is the same order of magnitude as cash incomes from the trade.”

Natural product processing and trading can provide a pathway out of poverty, over and above its ability to prevent it and this is particularly possible when the activity is coupled with other income deriving ventures (Shackleton C.M. *et al.* 2007a; Shackleton C.M. *et al.* 2007b; Shackleton S.E. *et al.* 2008). There is a “need for a holistic livelihoods approach that considers the benefits derived from a variety of products and activities rather than focusing on a single, high value product and market” (Shackleton S.E. 2006b). Attempts to mitigate poverty and the impacts of HIV/AIDS by advocating the use of NRs need to be approached systematically and deliberately; and “both at the level of the site, with informed attention to endogenous dynamics, and also with due attention to international, regional, and national-level exogenous factors” (Sunderlin *et al.* 2005).

#### **5.4.3 Implications for the environment and the sustainability of NR use**

It can no longer be ignored that the analyses of rural livelihoods and need for poverty alleviation are incomplete without giving attention to the NR component and vice versa (Campbell *et al.* 2002; Sunderlin *et al.* 2005; Shackleton C.M. *et al.* 2007b). What though are the implications for the environment and, ultimately the sustainability of these resources and their future availability? For endemic taxa or species with limited geographical range, an increase in their value and intensity of use may have serious consequences and can result in local extinction (Sunderland *et al.* 2004). An example of this would be *Cassipourea flanaganii*, an endemic and highly valued species in the Eastern Cape of South Africa (Sunderland *et al.* 2004), which is stripped of its bark for a skin lightening cosmetic, but done so indiscriminately, often leading to the death of the tree (Cocks & Dold 2004b). In addition to this, species that have slow growth rates like *Hyphaene petersiana* of southern Africa and those that are slow to become reproductively mature such as *Vitellaria paradoxa* are also particularly vulnerable to overharvesting (Sunderland *et al.* 2004).

In Kenya, the export value of the woodcarving trade is estimated at over US\$20 million annually, generating self-employment opportunities for approximately 80 000 carvers who are breadwinners for over 400 000 family members (Choge 2004). However, as a result of this swift growth in the industry and the number of people engaged, it is causing a major conservation problem through depletion of limited stocks of highly favoured tree species

(Choge 2004). Both De Jong *et al.* (2000) and Paumgarten (2006) found the growth in the curio/woodcarving trade to be associated with economic downturns, associated unemployment, and growing tourism in Zimbabwe and South Africa, respectively. Paumgarten (2007) observed that this particular trade was at first initiated as a coping strategy but that for many it had become a full-time livelihood strategy. The trade in fuelwood and charcoal are of particular concern for sustainability in the context of this study, given the high and widespread demand for these products, and the life history of the species (typically slower growing, hard-wood trees).

Where the commercialisation of NRs is purported to cross the bridge to environmental conservation is where their increased harvest adds to the perceived value of the natural environment, such that there is now a greater incentive to preserve that resource (Arnold & Perez 2001; Shackleton C.M. 2001). Additionally, the extraction of NRs is said to be less ecologically destructive than competing land uses like timber harvesting or agriculture (Arnold & Perez 2001). Conversely, the repercussions of an NR boom and bust economic cycle have been discussed whereby during a boom, rapid over-exploitation of the resource takes place leaving a depleted resource bust phase, overall fluctuations in economic output and an ultimately degraded environment (Crook & Clapp 1998; Avocevou-Ayisso *et al.* 2009; Ticktin & Shackleton C.M. 2011). Perhaps this may only be the case though with high-value NRs that have caught the attention of the economic elites who have subsequently come in and exploited the resource. “Higher value tends to be associated with higher harvest levels, more intensive management, and the exclusion of some stakeholders by others” (Belcher 2003). It has been suggested that domestication, integrated with extractive activities, might help to reduce the inconsistencies associated with boom and bust cycles and thus contribute to long-term sustainability of markets – the notion of agroforestry might find its place here (Arnold & Perez 2001).

#### **5.4.4 A conflict of interests: use and trade of NRs by the rich and the poor**

It is imperative that the market for NRs is both economic and sustainable over the long-term for those involved (Crook & Clapp 1998). There is always a risk involved when rural people abandon certain livelihood activities for the trade of NRs only for it to peter out and leave them with less than what they had before (Arnold & Perez 2001). Arnold and Perez (2001) admonish that there can be a conflict of interests between those using NRs for subsistence purposes and those generating an income whereby the poorer users can be deprived by

increasing commercialisation. This is pertinent from the HIV/AIDS perspective in that, the disease arguably disproportionately affects the poor (Whiteside 2002; Chuma *et al.* 2007), and generally leads to their increased reliance on NRs (Haddad & Gillespie 2001; Barany *et al.* 2005; Torell *et al.* 2006; Hunter *et al.* 2007; Kaschula 2008; Twine & Hunter 2008; Mutenje *et al.* 2010). This could undermine the NR base (Anyonge *et al.* 2006; Torell *et al.* 2006) and evolve complexities in the milieu of NR demand.

There is much debate regarding the level of access the poor have to high value NRs and what potential the commercialisation of these resources has for poverty alleviation. Belcher (2003) sums it up succinctly: “the poor often do not have access to the more valuable NRs *and* most of the multiple forest products that people use for subsistence or even for small-scale trading do not have good potential for development. They tend to have low commercial value and the very reasons that they are accessible to the poor (open access, common, low value, lack of markets and market infrastructure) conspire against successful commercialisation/development. If markets can be stimulated and value increased, the poor do not have the resources (by definition) to take advantage.” It is therefore often the wealthier and more powerful people in the community who capture opportunities for the commercialisation of NRs and could hinder the progress of the most poor and encourage over use of resources (Arnold & Perez 2001). Furthermore, an increasingly strong link is being developed between rural and urban areas and this at times manifests itself in the exploitation of rural NRs by outsiders (Shackleton C.M. *et al.* 2001).

Having said that, the issues of context and alternative opportunities should be taken cognisance of to temper this perspective. In South Africa, for example, a combination of dry forests and high unemployment rates rations the spectrum of alternative livelihood opportunities, thus rendering NRs and the trade thereof a crucial option and a significant proportion of total income streams among the poor (Shackleton C.M. *et al.* 2007a). Ultimately, the NR trade is vital in that it meets the needs of a broad range of people, by acting as a safety-net, while allowing some to diversify or even to specialise and accumulate (Shackleton S.E. *et al.* 2008).

#### **5.4.5 Management of NR use**

In a scenario where outsiders are controlling access to NRs, stronger local institutions are required for the management of land rights and NR access and the restriction of outsider

exploitation which may require the support of government (Shackleton C.M. *et al.* 2001). For example, the case of Dwesa/Cwebe in the former Transkei in South Africa found that despite the fervent self-mobilisation of the community in the face of discriminatory oppression which led to their winning of a land-claim in 2001, the community still had difficulty in dealing with transgressors (Shackleton S.E. & Willis 2000). Cousins and Hornby (2000 in Fay 2007) in their perspectives of Communal Property Associations across South Africa, state that “the absence of post-registration support for these new institutions raises questions about the value of acquiring ‘rights’ without any means to enforce them.” De Jong *et al.* (2000) aver that “sustainable harvesting of NRs cannot be separated from the institutional issues surrounding resource use and marketing.” Of concern though is that AIDS is wiping out key members of local institutions who have undertaken to manage local NR use, leaving a void in accumulated experience and knowledge (Erskine 2005; Gelman *et al.* 2005; Torell *et al.* 2006).

Local rules put in place by local institutions can serve to either facilitate or restrain conservation (Berkes 2004). The common scenario unfortunately is that these institutions are more concerned with local use allocation and conflict management, than about preservation (Berkes 2004). Thus the crux of the matter is that either conservation will take place in isolation from the views of locals and their livelihood needs, or the community is involved in the plight to bridge the gap between conservation and poverty alleviation (Berkes 2004). Taking cognisance of the inherent management practices of some communities, the latter seems to be the most logical approach, as demanding as this may be. The conservation by commercialisation hypothesis is, to a degree, founded on the inherent yet often dormant potential that lies within rural communities in their instinctual management of NRs based on their own LEK (Arnold & Perez 2001). The inadequacies of top-down approaches to management have now been recognised and there is a general recognition of the need for local participation in the process of resource management (Fabricius *et al.* 2004). The facilitation of this has however proved to be somewhat confounding, particularly in this day and age of merging rural and urban markets (Byron & Arnold 1999; Frost *et al.* 2007).

The level of dependency a community has on a particular set of resources is an important aspect in this debate. It seems that with time and increasing levels of dependency communities develop the means to maintain the productivity of these resources. A study which involved an analysis of wild fruit harvesting techniques of different communities in India, showed that those with greater levels of dependence on this resource adopted more sustainable methods of



harvesting, for example beating branches to dislodge trees and leaving behind fruit for tree recruitment and consumption by wildlife (Uma Shaanker *et al.* 2004). Though this is a context-specific outcome, it should have important implications for the way in which management is approached from the top because it portrays a scenario which could contribute to conservation and, if not poverty alleviation then poverty prevention (Uma Shaanker *et al.* 2004). Similarly, Steele (2008) found that dependency was the primary variable correlated with ecosystem health in South African savannas.

#### **5.4.6 Linkages between NR dependency and NR availability**

The worst case scenario for the ecological outcomes of harvesting is typically when there is a high dependence on resources, poor local ecological knowledge and exploitative markets, e.g. short-term private contractors as opposed to marketing by forest-margin dweller stakeholders (Uma Shaanker *et al.* 2004). If, however, LEK is rich and the institutions and market structure through which the trade of NRs is played out are sound, then high dependence, (i.e. in most cases) does not necessarily need to mean ecological destruction (Uma Shaanker *et al.* 2004). Sound institutional and market structure could be portrayed as “a long-term incentive structure with secure property rights and local stakeholder marketing” (Uma Shaanker *et al.* 2004).

It is maintained that the transaction costs involved in NR extraction for trade are high both for the merchant and for the environment and that only the most sensitive management practices will allow for extraction without the subsequent alteration of the natural environment (Crook & Clapp 1998). This is a somewhat myopic statement in light of the fact that regardless of how much debate around NR harvesting ensues, poor people need to survive and will continue to harvest. Is the bottom line of the NR commercialisation debate not then the identification of who the primary stakeholder is; i.e. either those who are wanting to earn a profit from the trade or those who are merely eking out an existence? In the context of this debate, the benefits of the commercialisation of NRs for the latter cannot be denied.

#### **5.5 Concluding statement**

Times of crisis, and in particular, HIV/AIDS, could be acting as catalysts for the expansion of the commercialisation of NRs as poor households seek means of coping with stress by selling one or more NRs. This work on trading households with high AIDS affliction, embarking on the trade in response to death and illness, elucidates this connection. But, as some authors have

asserted, a certain level of knowledge is required for people to utilise these resources for their benefit (Pattanayak & Sills 2001; Uma Shaanker *et al.* 2004; Pierce & Emery 2005). Such knowledge includes what species to use, where to find them and how to harvest and utilise them (Uma Shaanker *et al.* 2004). Despite the *ad hoc* trading households' vulnerable state, they had at their disposal, sufficient LEK to unlock certain key coping strategies, namely the NR trade. In this sense there are apparent linkages between LEK, HIV/AIDS and the expansion of the commercialisation of NRs.

The aforementioned relationship is played out in the context of an equally byzantine connection between HIV/AIDS and poverty. The importance of NRs in this milieu cannot be understated and there are certain fundamental criteria that need to be met for the benefit of these resources and the trade thereof to be fully met. There is a desperate need for state recognition of a number of issues affecting the use, availability and management of NRs, including:

1. the significant role that NRs play in rural livelihoods and the wealth that they carry
2. support for rural people in the diversification of their livelihoods
3. management of power relations and the tendency for the elite to dominate markets
4. devolving responsibility and authority (not a divorce between the two) across multiple institutions
5. giving tenure and political rights for market stability
6. building on the management potential that exists within local communities including their LEK
7. taking strain off indigenous species through the encouragement of domestication

In areas where HIV/AIDS prevalence, chronic poverty and access to NRs overlap NRs remain vital to the survival of those who have limited options and assets (Sunderlin *et al.* 2005). Paumgarten (2005) states that "if the insurance value of NRs is considerable, it may promote resource-conserving behaviour, especially in countries where governments are unable to provide basic services." It is imperative to go beyond the confines of debate surrounding whether attempts to reconcile poverty/HIV/AIDS alleviation and NR commercialisation work or not but to concede that sometimes it does and sometimes it doesn't. Rather, it is important to learn about the conditions under which it does or does not work (Arnold & Perez 2001; Berkes 2004). There is thus a need to design and implement policy that accept the distinction

between those who can improve their livelihoods through NR activities, and those who rely on them for their survival (Byron & Arnold 1999; Arnold & Perez 2001; McSweeney 2005).

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