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**ASSESSMENT OF THE LIVELIHOODS  
IMPORTANCE OF FORESTRY, FORESTS AND  
FOREST PRODUCTS IN SOUTH AFRICA**

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September 2004

## TABLE OF CONTENTS

<b>LIST OF TABLES AND BOXES</b>	ii
<b>EXECUTIVE SUMMARY</b>	iii
1. INTRODUCTION	1
2. TERMS OF REFERENCE	2
3. TERMINOLOGY	3
4. THE CONTRIBUTION OF FORESTS TO RURAL LIVELIHOODS: AN OVERVIEW OF INTERNATIONAL PERSPECTIVES	3
5. PERCULIARITIES OF THE SOUTH AFRICAN SITUATION	5
6. A PROFILE OF RURAL POVERTY IN SOUTH AFRICA	7
7. A PROFILE OF THE FOREST RESOURCE IN SOUTH AFRICA	8
8. THE NATURE OF RURAL LIVELIHOODS IN SOUTH AFRICA	10
9. THE CONTRIBUTION OF FORESTS TO RURAL LIVELIHOODS: SOUTH AFRICA	11
9.1. Benefits streams within total livelihoods	11
9.2. Subsistence goods	13
9.2.1. Supply of basic needs	13
9.2.2. Cash saving	18
9.2.3. Safety-net functions of forest goods	18
9.3. Small-scale trade in forest goods & forest product enterprises	20
9.3.1. Income from trade in forest goods	20
9.3.2. Other benefits from trade in forest goods	23
9.3.3. Tourism enterprises	24
9.4. Benefits from employment	27
9.5. Cultural & spiritual benefits	29
9.6. Ecosystem services	30
9.6.1. Water provision	30
9.6.2. Carbon sequestration	30
10. KEY TRENDS IN FORESTRY-POVERTY DYNAMICS IN SOUTH AFRICA	30
11. OPTIMISING CONTRIBUTIONS FROM FORESTS & FORESTRY TO LOCAL LIVELIHOODS	31
11.1. International policy level	31
11.2. National policy level	32
11.3. Local and Project level	33
12. CONCLUSIONS	34
13. ACKNOWLEDGEMENTS	36
14. REFERENCES	37
<b>END NOTES</b>	43

## LIST OF TABLES AND BOXES

Box 1: Poverty in rural South Africa	7
Box 2: Area of wooded biomes & plantations	8
Box 3: Contribution of forest resources to total livelihoods	12
Box 4: Proportions of indigenous forest tree species used	15
Box 5: Value of forest products per hectare	15
Box 6: Everyday use of forest products	16
Box 7: Gross incomes to crafters in KwaZulu-Natal	22
Box 8: Returns to the Khulanathi Grower of the Year 1996	23
Box 9: Pro-poor tourism	25
Box 10: Tourism in Knysna in the heart of the southern Cape forests	26
Box 11: Annual cost to company of non salary contribution of formal forestry sector	27
Box 12: Benefits from employment by small-scale contractors	28
Box 13: Agenda for Action	32
Table 1: Contribution of direct forestry goods to household income streams	12
Table 2: The range of forest resources used by rural communities	14
Table 3: Mean ( $\pm$ SE) amounts used per household	17
Table 4: Some illustrative values of incomes to small-scale traders in forest resources	22
Table 5: Trends affecting the forest-poverty relationship	31
Table 6: Typical constraints to optimising livelihood benefits from forests and forestry enterprises	35

## EXECUTIVE SUMMARY

This report presents a comprehensive summary of readily available literature pertaining to the livelihood importance of forestry and forest products in South Africa. It is part of a larger project examining the role of forestry and forest products in poverty alleviation. Through the use of case examples and selected statistics it demonstrates the benefits gained from forests and forestry, it provides illustrative numbers of people receiving such benefits, and estimates of the overall contribution of forestry to rural livelihoods. Within this report the definition of forest follows that of the FAO and refers to any land with greater than 10 % coverage by woody, perennial plants. It is thus an all-embracing term to include indigenous forests, savannas, woodlots and commercial plantations.

The examples presented indicate that there is a wide variety of benefits obtained from forests and forestry that reduce poverty or have the potential to do so:

- Supply of subsistence goods
  - supply of basic needs
  - cash saving
  - safety net functions
- Small-scale trade in forest resources
  - incomes
  - reduced vulnerability
- Tourism enterprises
  - employment
  - craft outlets
  - maintenance of culture & traditions
- Employment
  - wages
  - livelihood security
  - infrastructural development
  - training & capacity development
- Ecosystem goods and services
  - e.g. water provision, nutrient cycling, carbon sequestration

Many role players obtain most, or all, of their livelihood from forestry related activities or products. For example:

- small businesses sub-contracting to the commercial plantation sector
- wood-carvers
- tourism operators and employees in tourism enterprises,
- full-time producers and sellers of NTFPs.

In many instances the full-time engagement in forest related activities has either lifted participant households out of poverty, or ensured that they have never been close to poverty. However, for many others with low skills in remote, rural areas, with few employment opportunities or markets for forest products, the direct benefits are more for household consumption, such as fuelwood, edible fruits, medicinal plants and construction timber. Whilst these consumptive benefits are vital to their daily survival and resilience against external shocks, the use of NTFPs has not lifted them out of poverty, although it certainly does have a poverty alleviation role. If the NTFPs, woodlots and small, income-generating opportunities were not available to such marginalised communities or households, their ability to survive or cope would be markedly less. Returns to labour through collection of NTFPs are frequently higher than casual wage labour rates in the same area.

The number of people extracting forest resources for direct use is in the millions, and has significant value. For example:

- 27 million people rely on medicinal plants for health care. 65 % of the plants are forest or savanna species.
- Users of forest resources includes both urban and rural populations.
- Between 9 – 12 million people use fuelwood, wild fruits and wooden utensils obtained from forests and savannas.
- Each year each user household uses on average 5.3 tonnes of fuelwood, 104 kg of wild fruits, 185 large poles for fences and construction and 58 kg of wild spinaches.
- The direct-use value of forest resources consumed is at least R8 billion per year.
- Access to forest resources contributes between 20 % and 25 % of total livelihood accruals.
- The gross value of direct-use is comparable to competing land uses.
- If these forest goods were not available then these benefits they provide would have to be provided by the State, or rural poverty would deepen.

Direct or self employment in the forestry and forest-products sector is high and growing:

- 300 000 people are directly employed within the plantation industry.
- The direct downstream benefits are 2 – 3 times greater.
- There are over 10 000 small-growers of timber.
- Approximately 800 000 people operate in the craft industry.
- Up to perhaps 100 000 households engage in small-scale trade in forest products.
- Many traders participate on a part-time basis, earning sufficient to meet only selected household needs. The returns to labour for full-time traders can be rewarding, and are usually better than locally available alternatives.

Interventions to optimise the value and contributions of forestry and forest products to local livelihoods are scale dependent and also differ between forest products, and between different regions of the country. Generally, the international and national forestry-related policies are supportive of measures for poverty alleviation and reduction through sustainable use of forest resources and job creation. However, operationalisation of such policies at the local level meet with mixed successes. Several opportunities are obvious, but are frequently outweighed by a number of local-level constraints. Key policy related thrusts for DWAF need to be:

- Integration of poverty-environmental issues into national development frameworks (currently poverty is stressed, but the environmental dimension is overlooked)
- Improved monitoring and assessment of the poverty-environment nexus
- Strengthen resources rights of the poor
- Enhance the capacity of the poor to manage the environment
- Reduce the environmental vulnerability of the poor
- Increase the use of environmental valuation
- Encourage sustainable consumption and production
- Improve communication of policy objectives and instruments
- Improve uniformity of policy application and resolution of cross-sectoral issues and responsibilities
- Improve capacity development of departmental staff
- Develop and implement an appropriate and cost effective monitoring programme

- Improve mensuration of the resource stocks of key species and determination of sustainable harvest yields
- Support existing small-scale entrepreneurs with respect to business and marketing skills
- Design and implement pro poor resource access and sustainable harvesting programmes on State lands
- Understand that rural livelihoods, especially of the poor, are multidimensional, and account for this in project development.

## **1. INTRODUCTION**

It has been long appreciated, both internationally and within South Africa, that forests (in the broadest sense of the word, and therefore including savannas and plantations) offer numerous benefits to adjacent communities and society at large (NFAP 1997). Such benefits include consumptive resources, spiritual and aesthetic needs, employment, and ecological services such as carbon sequestration and water provision. However, in many situations access to such benefits is neither uniform nor equitable both between and within communities.

The majority of forests, by their very nature, are located within rural and frequently remote areas. Typically this means that such areas are underdeveloped in terms of infrastructure, government services, markets and jobs. It is not surprising, therefore, that communities living in and adjacent to savannas and forests are characterised by seemingly high levels of poverty and limited livelihood opportunities (Wunder 2001). This is a developmental challenge for State agencies the world over. Indeed, the role of forests and forestry is coming under scrutiny; in particular, whether or not forests and forestry play a role in sustaining local livelihoods and contributing to poverty alleviation, or alternatively, whether forest-dependent livelihoods offer limited options resulting in persistent poverty. Poverty alleviation is a binding policy goal internationally, as stipulated and agreed in the Millennium Development Goals (2002). Within South Africa, poverty alleviation has been a national priority since the democratic transition in 1994, and poverty is greatest in rural areas (Carter & May 1999). Forestry (indigenous, plantation, and savanna) is frequently an important economic activity in these rural areas, and is therefore posited as a potential key player in rural poverty alleviation, or at the very least, poverty reduction. However, the relationship between forestry and rural poverty in South Africa has not been explicitly explored, nor the various case studies and contributions considered as a whole. Consequently, the UK Government, through the Department for International Development (DFID), provided support to the Department of Water Affairs and Forestry (DWAF) through the Water and Forestry Support Programme (WFSP) – Forestry Programme (FP) to assess the role and value of forestry in rural livelihoods in South Africa.

This report represents the second of five deliverables due from the broader project examining forestry-poverty linkages in South Africa. The other deliverables are:

- 1: A survey/inventory of forest related initiatives designed to benefit people, primarily rural people
- 3: Case studies of selected initiatives
- 4: Analysis of comparative returns to forestry
- 5: A synthesis report

## 2. TERMS OF REFERENCE

The specific Terms of Reference for this Task were to:

*Undertake an assessment of the livelihood importance of forests (natural and plantation) in South Africa, in particular the overall livelihood benefits that accrue from forests. Specific areas of interest were:*

- livelihood benefits gained from forests and forestry, including employment income, employment benefits (provision of health, schooling, etc.), commercial business income (e.g. contractors, carvers, NTFP businesses, etc.), household use (fuel, food and fruits, thatch, construction materials, grazing, spiritual, etc.) the relationships between the presence of forests and local income.
- what are the obstacles to and opportunities for further household benefit from forests?
- the portion of household budgets derived from forests.
- the numbers of people involved.

This was to be achieved via means of a review of work and literature in South Africa, informed by reference to international work, including that from neighbouring countries. The review of existing work was augmented by personal communications from key informants/experts for some areas where information was weak.

## 3. TERMINOLOGY

**Forest:** Within this report, the word forest/s conforms to the international definition used by the FAO, to mean any land with greater than 10 % coverage by woody, perennial plants. It is thus an all-embracing term to include indigenous forests, savannas and plantations. It may also include agroforests and trees on farms or residential areas. In terms of this report, it excludes urban forests.

**Livelihood:** A livelihood is taken to mean the capabilities, assets and activities required for a means of living (Carney 1998).

**Poverty:** For the purposes of this report a working definition of poverty follows May (1999), as the “inability of individuals, households or entire communities to command sufficient resources to satisfy a socially acceptable minimum standard of living”. I acknowledge that there are numerous other definitions, and refinements on the above, but that this one is robust enough to embrace most dimensions of poverty, as well as accommodating the fact that it is socially defined, and hence embraces the spatial variation in conceptualisation and indices. This is useful within the context of forestry and poverty links in a country as large as South Africa, characterised by large spatial variation in the nature of resources, access to markets, household incomes, agro-ecological potential,

infrastructure and the like, and thus it becomes harder to quantify or establish relative benchmarks. For those readers preferring such benchmarks against which to interpret the incomes presented in this report, the current nationally stipulated minimum wage in rural areas of South Africa is R713 per month (R8 556 per year), and the minimum living requirement, or poverty line, is approximately R1 050 per month (R12 600 per year).

**Non-Timber Forest Product (NTFP):** Whilst acknowledging that there are numerous definitions of NTFPs internationally, within this report I have adopted a generally inclusive term, and taken it mean any biological resource (animal or plant) harvested from forested lands (as per the definition above) by rural households for domestic consumption or small-scale trade, with no, or limited capital investment. For example, it would include a small-rural enterprise of two people cutting and selling firewood or carving timber from a woodland, but would exclude timber felling and extraction by a large, commercial forestry company. It excludes free-range grazing.

#### **4. THE CONTRIBUTION OF FORESTS TO RURAL LIVELIHOODS: AN OVERVIEW OF INTERNATIONAL PERSPECTIVES**

Examination of the nature of the links between forests and rural livelihoods and poverty is not unique to South Africa. There have been a number of seminal works within the last five years posing the same question, albeit largely based on work in tropical forests of south-east Asia and South America, with some notable exceptions (e.g. Cavendish 2000, Oksanen *et al.* 2003). Contributions from Africa and savanna regions are limited. This section provides a brief overview of the international literature, in particular those aspects that provide direction to how the analysis of the South African situation may be best pursued.

It is now well appreciated in a number of disciplines, including the environmental, conservation, economics and development fields, that forests and forest products add to the well-being and, at times, the very survival of millions of rural poor throughout the world (Byron & Arnold 1999, World Bank 2002, Kaimowitz 2003). Moreover, such benefits are not restricted to rural people since many forest products are used and marketed within urban communities. However, attempts to delve deeper and to develop models and predictive capacity of the prevalence, magnitude and nature of the “dependence” on forests and forest products have been persistently thwarted by problems relating to definitions, and the spatially and temporally dynamic nature of such use and dependence. That said, current understanding intimates the following:

- In developing countries forest products are an integral component of the livelihoods of the majority of rural households, and a lower, although not insignificant, proportion of urban households (Byron & Arnold 1999).

- In many households the use of forest products is not their primary source of livelihood, but is complementary.
- The timing of availability and use of forest products can be critical, even for those households that do not use forest resources frequently or in large amounts. This represents the safety-net function of forest resources, or an economic buffer in adverse times (Arnold & Ruiz Pérez 2001).
- Households using forest resources on a regular basis and in meaningful quantities for direct household consumption usually enjoy a significant saving of scarce cash resources (Shackleton & Shackleton 2003a).
- Wealthier households and communities may well use greater amounts of forest products than poorer households, but this represents a smaller proportion of their total income streams than that of poorer households (Byron & Arnold 1999, Cavendish 2000).
- Thus, use of forest resources and products for both subsistence and income are particularly important to poorer households in rural communities (Byron & Arnold 1999, Neumann & Hirsch 2000, Cavendish 2000).
- Generally, returns to labour from the use of forest resources are low for most participants, but for a small few, specialising in niche markets and products, incomes from forest resources can be significant (Wunder 2001), as well as for those employed in the formal sector for commercial plantations and tourism.
- The informal sector use of forest resources by rural communities, especially poorer households, rarely leads to poverty alleviation, but it may prevent intensification of poverty (Neumann & Hirsch 2000, Wunder 2001). Thus, a distinction between poverty prevention, and poverty reduction is important.
- The higher incomes from trade in forest products are frequently (but not exclusively) secured by wealthier households since poorer ones lack the skills, technology and access to capital that may be required to start up and capture markets (Arnold & Ruiz Pérez 2001). Nonetheless, barriers to entry are relatively low compared to other livelihood options, and hence use of and trade in forests resources is a viable strategy for the poorest of the poor (Dubois 2003), that is readily adopted in South Africa (Shackleton & Shackleton 2003a).
- The cash benefits resulting from informal trade are variable across households and are directly related to the degree of effort expended. Some actors process and sell forest resources on a part-time or *ad hoc* basis, whilst others do so for several hours a day, most days of the week (Shackleton & Shackleton 2003a).
- Although the cash earned may be small, participation in trade is an important source of self-esteem, pride and independence, especially for women.
- There has been much focus on categories of poor people and targeting of analyses re the benefits accruing to the poorest of the poor. This often overlooks the other key players in rural communities, who facilitate some of the benefit streams, for example entrepreneurs, forestry staff, etc. (Dubois 2003).

- Forests provide numerous indirect benefits that are difficult to value precisely in economic terms, including cultural sites and species, and aesthetic benefits.
- They also provide benefits to society at large and the international community, encapsulated in the value of ecosystem services such as water yield and regulation, pollination services, option values, and carbon sequestration.

## **5. PERCULIARITIES OF THE SOUTH AFRICAN SITUATION**

Section 4 summarises current international understanding with respect to the relationship between rural people and forests, especially in terms of livelihood contributions and poverty. As already mentioned, the bulk of that understanding comes from studies in tropical areas of Latin America and Asia. From the information and analyses presented here, there is much commonality between the knowledge from tropical forests, and those of the drier forests and savannas of South Africa. However, there are also some noticeable differences that have a strong bearing on the contribution of forest and forest products to local livelihoods and poverty, and hence the policy interventions required:

- The southern African savannas and forests are characterised by a markedly drier and variable climate. This undermines the viability of agriculture as an alternative land use and livelihood option. Consequently, the potential relative contribution of forest products to livelihoods is greater.
- Human population densities in the rural areas are considerably higher, an artefact of biased land policies that concentrated indigenous populations into small parcels of demarcated land. Thus, land use pressures are high, and in most areas, there is no such thing as “pristine forest” – all are modified by human activity and settlement. Thus, there is greater need for and emphasis on species conservation for key products, than forest conservation as a whole.
- Species richness is lower, and hence relative dominance higher, than in tropical forests. Consequently, the population densities of some key resources are reasonably high (e.g. marula fruit, thatch grass, mopane worms), as compared to the sparse distribution in tropical forests (Wunder 2001). Thus, there is potential for greater returns per effort as the travel and harvest time is reduced. However, one should be wary of generalisations across the hundreds of species that are used, both in tropical forests and in drier regions.
- There is very limited, large-scale commercial logging in indigenous forest and woodlands in South Africa, and hence it is not a primary threat to forest biodiversity, structure and function, nor a significant opportunity for employment. The only exception is the State controlled logging in the Knysna forest based on a pre-emptive death system. Logging does occur for valuable species in the savannas, but by small-scale wood-carvers and furniture-makers. Thus, the key threats to forest conservation are land conversion to human settlement or agriculture, and over-harvesting of species, or axiomatically, conversion to plantation forests. The plantation sector provides the bulk of domestic timber supply.

- South Africa has a large and well-regulated plantation forest sector that provides relatively secure jobs and other benefits to tens of thousands of employees and their dependents, as well as being the basis for multiple downstream, value-added industries and enterprises, and infrastructural investment. The benefits from employment are usually sufficient to lift workers out of poverty.
- As in tropical areas, the returns to labour from forest products are low. However, in the drier forests and woodlands of South Africa it is viewed as a viable and vital livelihood contribution since (i) alternative options for labour are scarce, or even absent in the remote rural areas, (ii) land for agriculture is in short supply, and (iii) the returns to agriculture can be low and equally risky due to climatic uncertainty.
- Previous literature recognises horizontal redistribution of wealth within rural communities but downplays it in favour of external markets for improved livelihoods and a pathway out of poverty. This holds true in South Africa as well, but the prevalence and value of local markets within communities is significant. These local markets transfer cash resources from wealthier households to poorer ones.
- Urban demand remains high. It is argued by Wunder (2001) that urban populations in tropical countries are generally wealthy relative to their rural counterparts, which leads to greater purchasing power, resulting in reduced use and consumption of forest products. This is not necessarily the situation in South Africa, because of strong cultural ties to the use of forest products. Urban demand remains high and there is less substitution. It is probable that substitution is more a function of time since urbanisation that increasing wealth status *per se*.
- The international literature stresses the safety-net value of forest products. As such they are available at crucial times of the year or during times of household misfortune, thereby preventing intensification of poverty. But little is made of the direct cash saving this daily-net use represents. Access to effectively free goods from the forest means that scarce cash resources can be saved or invested in other forms of capital. This is significant in areas or to households where there are very few cash incomes streams, and of low magnitude.
- The macro- and micro-economic analysis from tropical areas conclude that use of forests and forest products is usually an option of last resort. Whilst a valid conclusion, it is based on reports of central tendency such as means or modes. Yet, the dispersion and variability in the data also need to be considered. Certainly, use of forests and forest products is not a viable strategy for poverty alleviation on a wide scale. But it is possible for some households, however small the percentage. These households in turn have ripple effects within their local community, as they provide employment for others, they buy goods locally, they contribute to the development of local infrastructure (roads, schools, bridges, sports fields).
- The widespread prevalence of HIV/AIDS in South Africa is being felt. Urban dwellers too sick to work are returning to their rural kin. This is one contributor to the increased commercialisation of forest and woodland resources, the inability of many households to escape poverty. Households afflicted by HIV/AIDS may also have higher per capita needs for resources such as water, medicinal plants, and fuelwood.

## 6. A PROFILE OF RURAL POVERTY IN SOUTH AFRICA

Within the ambit of this report it useful to provide a brief profile of poverty, especially rural poverty, within

### **Box 1: Poverty in rural South Africa**

- 70 % of South Africa's poor live in rural areas
- 70 % of rural dwellers are poor
- 22 % of households lack secure access to the basic services of piped water, housing and energy
- 5 % of rural households report no cash incomes
- 12 % of rural households report pensions are their only source of cash income
- 26 % rely on remittances from urban centres
- Almost one million rural households lack access to arable land

South Africa. For detailed statistics readers are referred to Statistics SA (2000) and Hirschowitz *et al.* (2001); whereas recent reviews and commentary have been provided by May (1999), Carter & May (1999), Ngwane *et al.* (2001), Zegeye & Maxted (2002) and Aliber (2003), as well as the Government "Poverty & Inequality Report" (2000) with contributions from a range of authors.

Approximately 44 % of the South African population live in rural areas. Yet, despite South Africa being a large country with a wealth of natural assets (renewable and non-renewable), a large proportion of the South African population lives in poverty. The precise numbers differ in time and space, and according to what definition and measures are used. Yet, there is little doubt that there is widespread poverty, and that it is concentrated, although not exclusive to, the rural areas, especially amongst the black population (Government of South Africa 2000, Aliber 2003). The concentration of poverty within the black population and in rural areas is directly attributable to the previous apartheid policies (Aliber 2003). For example, Carter & May (1999) suggest that almost 70 % of black rural households have incomes below the poverty line, which is currently approximately R1 000 per month. Overall, the Integrated Rural Development Strategy reports that 70 % of South Africa's poor live in rural areas (Box 1), and that 70 % of rural dwellers are poor (Government of South Africa 2000). It is reported that 75 % of children in rural areas are in households with incomes below the poverty line (Government of South Africa 2000). Furthermore, approximately 22 % of households lack secure access to the basic services of piped water, housing and energy, and thus live in dire poverty. Some 5 % of rural households report no cash incomes whatsoever, for 12 % pensions are their only source of cash income, and 26 % rely on remittances from urban centres. Despite being rural dwellers, almost one million African households have no access to demarcated arable lands. These statistics are likely to have worsened in the last decade as a result of the large job losses during the late 1990s. Superimposed on this is the spectre of the growing impacts of HIV/AIDS on rural livelihoods and development.

At a municipal level, the recent report by Lewis *et al.* (2003) is illuminating in that it examines the incidence of poverty in those municipalities endowed with significant forest cover. The key conclusion was that there are both wealthy and poor districts within these municipalities, and thus the presence of forests and economic opportunities associated with forest activities do not guarantee against poverty. Indeed, for several of the more forested municipalities, the incidence of poverty is higher than national norms, but the opposite also

applies. Hence, either (i) examination of aggregated data at a municipal level is too coarse to assess the benefits of forests and forestry to rural people, or (ii) the constraints to realizing the potential livelihood benefits and economic opportunities afforded by the presence of forests are too great, and hence have not, as yet, been overcome by most of the residents of those municipalities. Or alternatively (iii) forests and forestry offer minimal livelihood benefits.

## 7. A PROFILE OF THE FOREST RESOURCE IN SOUTH AFRICA

As with the subject of poverty, there are many comprehensive reports and summaries of the forestry resource in South Africa, the full details of which are unnecessary here. But a brief overview is beneficial in setting the scene, particularly for readers unfamiliar within the subject area. Interested readers are referred to Midgley *et al.* (1997), NFAP (1997), Scholes (1997), Owen (2000), Mayers *et al.* (2001), Lawes *et al.* (2004a) and the various chapters of the national State of Forest Report (currently in draft format).

There are numerous estimates of the extent and quality of the forest resource in South Africa, albeit with slight variations between authors. These variations are not important in terms of the brief of this document. Key components are (i) savannas, (ii) plantations, (iii) indigenous forests, and (iv) woodlots. Summary profiles are provided below. It has been estimated that approximately 2 - 3 million households gain some "significant benefit" from forests (NFAP 1997).

- Savannas are the largest biome in South Africa, and are characterised by a co-dominance of trees and grasses. The tree component contributes certain ecosystem goods and services absent from non-treed biomes, and hence savannas are classified as forests under the FAO system. At a national level Low & Rebelo (1996) divided the biome into 26 savanna types. The potential area is in the region of 42 million hectares (33 % of South Africa), of which 11 % are partially transformed and 10 % totally transformed (Thompson *et al.* 2001). Savannas thus contribute the bulk of the wooded land area of South Africa (Box 2). Approximately 8 % of the savanna biome is conserved, but in recent years many agricultural enterprises (especially livestock-based ones) are converting to game-based operations, thereby restoring to a greater or lesser extent, large areas of savanna. Approximately one-quarter of the

**Box 2: Area of wooded biomes & plantations and proportion of national total wooded area per province**

Savanna	42 000 000 ha	96.0 %
Plantations	1 350 000 ha	3.1 %
Indigenous forest	350 000 ha	0.8 %
Woodlots	51 000 ha	0.1 %
Limpopo Province	12 148 500 ha	27.7 %
Northern Cape	10 683 400 ha	24.4 %
North-west Province	8 277 000 ha	18.9 %
KwaZulu-Natal	5 792 200 ha	13.2 %
Mpumalanga	3 154 300 ha	7.2 %
Eastern Cape	2 218 600 ha	5.1 %

savanna biome is zoned as communal land, but over 70 % of the former homelands are in the savanna biome. Approximately 9.2 million rural people live in South Africa's savanna biome, and depend upon the goods and services that it provides for some component of their livelihood (Shackleton *et al.* 2001a). Preliminary, illustrative estimates by Shackleton *et al.* (2001a) indicated an annual value of approximately R4 billion for each of the livestock and game industries in the savanna biome, R8 billion from non-timber forest products (forest resources), R1 billion for water and R0.3 billion for carbon sequestration.

- Indigenous forests constitute the smallest biome in South Africa, covering approximately 350 000 ha (0.1 %). Almost 75 % of them are conserved either as declared State forests, or within formal protected areas. Access and harvesting of products was typically restricted for decades, until significant policy shifts in the mid-1990s, when more participatory policies and programmes came into being (NFAP 1997, Mayers *et al.* 2001). Low & Rebelo (1996) recognise three different types at the national scale. The majority of forest patches are less than 10 ha, which poses certain management and conservation challenges (Geldenhuys 2000). There are relatively few people that reside within the indigenous forests, but many communities living adjacent to indigenous forests extract multiple resources for subsistence and income generation (von Maltitz & Grundy 2000, Lawes *et al.* 2004b). Lawes *et al.* (2000) summarise the primary benefits from indigenous forest, along with some estimates of value for certain sectors, but there is no national estimate of the value of South Africa's indigenous forests.
- Plantations cover approximately 1.35 million ha of South Africa (0.5 %) (FSA 2003), mainly in the moister areas (> 800 mm p.a.). Slightly over 76 % are in private hands, the rest being State owned. Over 80 % of them are located in only three provinces, namely Mpumalanga (40 %), KwaZulu-Natal (38.9 %) and the Eastern Cape (11 %). There are approximately 66 000 direct employees, with over 300 000 dependents. These forests produced approximately 17 million m<sup>3</sup> of commercial roundwood in 2002, with a forestry worth of R3.3 billion. Through primary processing the forest products industry has a value of approximately R13.8 billion (in 2002), of which 81 % is from exports. This represents 7.3 % of national GDP in 2002. The value of carbon sequestration of plantation forests has been estimated at R106 million in 1995/1996 (Hassan 2002). Many forest plantations also allow controlled use of forest products such as firewood, mushrooms, honey and grazing (Evans *et al.* 1998). The values of plantation forests and the forest products industries come with some environmental costs, especially in terms of water abstraction and biodiversity impacts (e.g. Armstrong *et al.* 1998, Tewari 2001, Timberwacht 2003), many of which have not been adequately costed, and deducted from forestry GDP statements (Hassan 2002). However, there has been a steady commitment to improvement of environmental performance by the forestry industry, with over 80 % of the plantation area now certified. Plantation forestry has seen a recent growth as a livelihood option for small-growers, with most of the large commercial companies having schemes to promote small-growers. There are over 10 000 small-growers utilising an average of 1 – 3 ha each, providing a total area of approximately 18 000 hectares concentrated in KwaZulu-Natal (Cellier 1999, Cairns 2000).

- Woodlots. There is limited formal description and analysis of the structure, functioning and benefits from woodlots in South Africa. Gandar (1994) reported that there was approximately 51 000 ha under various administrative models, including those under nominal control or responsibility of Tribal Authorities, Municipalities and DWAF. The size of individual woodlots ranges from 1 ha to several hundred hectares. Most are seemingly in a poor condition and produce far less timber (construction poles and fuelwood) than their potential (Gandar 1994, Ham & Theron 2001). Using a narrower definition LHA (1998) identified 93 woodlots, covering an area of 12 953 ha, situated largely in the Eastern Cape and Limpopo Provinces.

## **8. THE NATURE OF RURAL LIVELIHOODS IN SOUTH AFRICA**

Up until recently the prevailing view on rural livelihoods in South Africa was that they were insecure and largely unviable, having been undermined by a plethora of negative policies under the colonial and apartheid eras. Much was written on the demise of arable agriculture and livestock husbandry in rural livelihoods, replaced by cash- and remittance-based livelihoods driven by migrant labour to urban areas and State welfare grants. Yet, with the development of more holistic models of livelihood analysis (Carney 1998), and what makes them viable and sustainable, some of these prevailing views have been questioned (Shackleton *et al.* 2001b). Whilst perhaps not being found totally wanting, it is clear they require further refinement, both in conception and methodological approaches. Significant omissions have been to overlook (i) the contribution of natural resources to livelihoods, (ii) the direct-use values attached to all land-based livelihood activities, and (iii) the complex and dynamic nature of rural livelihoods. The first two are particularly germane to the questions posed by this project, although the last is also pertinent. Current understanding indicates that rural livelihoods in South Africa are typically characterised by the following attributes (Cousins 1998, Shackleton *et al.* 2000a):

- Multiple and diverse income portfolios and strategies
- Strong and multiple linkages to urban sectors
- Complexity in time and space and the links to social networks
- Dynamic in response to sensitivities and vulnerabilities to macro and micro changes in the surrounding contexts
- Differentiated into social, cultural and economic groups within and between households
- Access to land and products there from are important
- Institutionally mediated
- Limited participation in formal markets

## **9. THE CONTRIBUTION OF FORESTS TO RURAL LIVELIHOODS: SOUTH AFRICA**

Given the foundations laid in the previous sections, it is now possible to illustrate the role of forests, forestry and forest products in rural livelihoods in South Africa. For some of these benefits there is a wealth of information from numerous case studies, whilst in other instances information may be scarce. In instances of the former, I have not, in the interests of brevity, attempted to summarise all the information, but have used selected works and information to illustrate the point of links between the forest sector and poverty reduction or alleviation in rural livelihoods. In cases of the latter, these have been highlighted as areas requiring further investigation. Although the focus is on rural communities and households living next to, or using forests, it must be remembered that urban populations also make extensive use of forests and forest products; for example for ecotourism, as markets for natural resources, as well as maintaining spiritual and cultural beliefs (e.g. Mander 1998, Cocks & Wiersum 2003).

The first challenge in reporting on the benefits of forestry to rural livelihoods in South Africa is the issue of scale. Very few statistics on employment, extraction rates and the like are collected and reported on a biome basis. The exception here is the plantation forestry industry. Hence, in reporting national or provincial level data, one has to make assumptions to convert them to a per biome basis, which are stated in the report. For each section I have attempted to derive national level statistics, which because of the assumptions, are sometimes relatively rough, but do represent a first attempt. These are then followed with reference to one or more case studies to illustrate the point in detail, and for which the data or information are more robust and confident. Similarly, there is rarely any breakdown for existing data between provinces. Case studies are at the local level and hence provide a poor basis for provincial comparisons. National statistics are frequently scaled up from local studies in only a single, or perhaps two, provinces (e.g. estimates of the magnitude of the trade in medicinal plants (Mander 1998)).

### **9.1. Benefits streams within total livelihoods**

For participants in secure employment in the formal sector, their livelihood base is typically less diverse than that portrayed by most rural households. They enjoy significantly reduced household vulnerability stemming from job security and the compliance of most companies with minimum wage and working condition legislation. In these instances, the bulk of the household livelihood is met by forestry-related employment, either in primary plantation activities, or down-stream processing. Such households are not counted amongst the poorest of poor. Nonetheless, many formal employees also engage in collection of and/or trade in forest goods, such as honey or fuelwood, or graze their livestock in forestry areas.

In the informal sector, it is well appreciated that forest ecosystem goods and services are widely used by rural people, and to a lesser extent, urban people. There are multitudes of papers and reports describing and

analysing returns from specific activities such as fuelwood collection, selling of curios products, use of woodlots, formal employment, and the like. All these works have focussed largely on the resource in question; its use, its value; its conservation; its management. In comparison, there are relatively few studies that have examined the use of forest resources from a livelihoods perspective, and even fewer again that have estimated or measured the proportion of total income streams of households that can be ascribed to forest goods and services. In order to do so, it requires that all income streams are included in the livelihoods analysis. Even then there are differences in approach that make direct comparison complicated or inappropriate. For example, should browse and fodder be included as a forest/woodland product, or be assigned to the livestock income stream; should own labour be costed and deducted when calculating net incomes? Acknowledging such differences, this section summarises the few South African studies to date, with comparative ones from other countries (Table 1).

Table 1: Contribution of direct forestry goods to household income streams

% contribution to total hh income	Gross/ net incomes	Country/ Province	Site	Vegetation	Reference
22.0 %	Net	Limpopo	Manganeng	Savanna (arid, degraded)	Crookes (2003)
28.2 %	Net	Limpopo	Makua	Savanna (arid, degraded)	Crookes (2003)
19.3 %	Net	Limpopo	Thorndale	Savanna (arid)	Dovie (2001)
15.2 %	Net	Zimbabwe	Romwe & Mutangi	Savanna (miombo)	Campbell <i>et al.</i> (2002)
17.2 %	Net	Zimbabwe		Savanna	Cavendish (2001) in Campbell <i>et al.</i> (2002)
22 % (1993/94) * 23 % (1996/97)	Gross	Zimbabwe	Shindi	Savanna (miombo & mopane)	Cavendish (2000)
4.0 – 20.0 %	Net	Cameroon	Mount Cameroon	Lowland forest	Ambrose-Oji (2003)

\* The original values were 35 % and 37 %, but I have deducted the contribution of livestock fodder and gold panning.

Ntshona (2002), working in Mkemane in the Matatiele area of the Eastern Cape assessed the contribution to livelihoods via ranking exercises. Forest resources were ranked as the highest contributor to livelihood by 9 % of households, as a high contributor to livelihood by 60 % of households, a low contributor by 17 %, and the lowest contributor to livelihood by only 14 % of households.

The above studies indicate that use of forest resources generally contributes between one-sixth and one-quarter of total livelihood income streams, either for direct-use or for income generation. Frequently it may not be the primary livelihood activity. Yet it is often greater than one or both of the other land-based activities of livestock husbandry and arable production. At approximately 20 % of total livelihood, the contribution of forest resources are keenly appreciated by rural communities, and the loss of these resources requires significant changes to livelihoods to cope and adapt.

**Box 3: Contribution of forest resources to total livelihoods**

The above studies indicate that use of forest resources contributes between *one sixth* and *one quarter* of total livelihood income streams, either for direct-use or for income generation.

## 9.2. Subsistence goods

In terms of direct household provisioning, the use of forest goods provides three benefits, namely (i) the supply of basic needs, (ii) a saving of cash resources, and (iii) a buffer or safety-net during times of misfortune.

### 9.2.1. Supply of basic needs

There is a multitude of information reporting the widespread use of forest resources by rural households in South Africa. This includes anthropological household case-studies as well as quantitative, replicated community surveys. Most reports focus on one or two specific products in a project area, for example use of firewood (e.g. Liengme 1983, Banks, *et al.* 1996, Ham & Theron 2001), edible fruits (e.g. van Eck *et al.* 1997, Shackleton *et al.* 2000b, Cunningham & Shackleton 2004), medicinal plants (Mander 1998, Williams *et al.* 2000, Botha 2001), or weaving fibres (Cunningham 1987, Cawe & Ntloko 1997, Gyan & Shackleton in press), to name a few. Fewer studies deal with use of all resources at a project site (e.g. Dovie *et al.* 2002, Shackleton *et al.* 2002a, b, Cocks & Wiersum 2003). Irrespective of area, approach, methods or focus, it is consistent across all this literature that rural, and to a lesser extent urban, households make extensive use of a wide range of resources and species to meet their daily livelihood needs. The range of resources used are mentioned by Shackleton & Mander (2000) and von Maltitz & Grundy (2000) and are summarised in Table 2.

A significant illustration of the subsistence contribution of forests, woodlands and plantations to rural livelihoods is encapsulated in three stark statistics. The first is that over 80 % of rural households still use fuelwood as their primary source of energy<sup>i</sup> (Williams & Shackleton 2002). Nearly all of this, some 13 million m<sup>3</sup> annually (DME 1996), is supplied from indigenous forests, savannas and plantation offcuts. Whilst there is no information on the relative breakdown between these sources nationally or provincially, there is no doubt that savannas supply the bulk of it, probably greater than 80 %, because of (i) 70 % of the former homeland populations reside in the savanna biome, (ii) savannas cover almost 40 times more area than plantations, and 100 times more than indigenous forest, (iii) most savanna species readily coppice after chopping, whereas key forest species do not, and (iv) harvesting from indigenous forests and plantations is regulated far more than it ever has been from savannas. Alien invasive species such as wattle (*Acacia melanoxylon*) are key resource in areas with limited natural woody vegetation, for example the Makana district of the Eastern Cape. Rural communities divorced from accessible wood supplies, either access woodlots, buy fuelwood from further afield, or use alternative energy sources, usually at a higher cost. This fuelwood use has a gross national value of approximately R3 billion annually<sup>ii</sup> (Williams & Shackleton 2002), or just under R2 000 per using household per year, or R167 per month, which represents 23 % of the minimum wage. Unsustainable use of fuelwood resources is a threat to not just the resource base and ecology, but also to rural livelihoods. A shortage of fuelwood has been implicated in changed cooking patterns with potentially ill effects to household nutrition (Brouwer *et al.* 1997). Fuelwood is also the energy source for a range of small-scale, home-based industries in rural areas, such as beer brewing, brick firing, cooking meals

for sale, baking, etc. Madubansi (2003) documented an 11 % increase between 1992 and 2002 in the proportion of households having to purchase fuelwood to meet their needs in the rural villages of the Bushbuckridge lowveld, presumably due to increasing scarcity

**Table 2:** The range of forest resources used by rural communities

<b>Products from woody plants</b>		
<ul style="list-style-type: none"> <li>• Fuelwood</li> <li>• Charcoal</li> <li>• Kindling</li> <li>• Browse for livestock</li> <li>• Mulch/compost</li> </ul>	<ul style="list-style-type: none"> <li>• Construction timber - poles for houses, kraals, &amp; fences</li> <li>• Utensils &amp; tools (spoons, axe handle, hoe handles)</li> <li>• Carving wood</li> <li>• Wood for furniture</li> </ul>	<ul style="list-style-type: none"> <li>• Woodroses</li> <li>• Bark fibre for weaving</li> <li>• Barks, roots &amp; leaves for medicine</li> <li>• Twig brushes</li> <li>• Sap for beverages</li> <li>• Sap/oil for dyes and medicines</li> </ul>
<b>Products from grasses</b>		
<ul style="list-style-type: none"> <li>• Thatch</li> <li>• Weaving fibre (baskets, ropes, mats)</li> </ul>	<ul style="list-style-type: none"> <li>• Fodder/grazing</li> </ul>	<ul style="list-style-type: none"> <li>• Brushes</li> </ul>
<b>Mushrooms</b>		
<ul style="list-style-type: none"> <li>• Food</li> </ul>	<ul style="list-style-type: none"> <li>• Medicine</li> </ul>	
<b>Fruits, nuts and seeds</b>		
<ul style="list-style-type: none"> <li>• Fruit for food</li> <li>• Fruit for juice</li> <li>• Fruit for alcoholic beverages</li> </ul>	<ul style="list-style-type: none"> <li>• Kernels/.nuts for eating</li> <li>• Kernels/nuts for oils</li> <li>• Kernels/nuts for medicine</li> </ul>	<ul style="list-style-type: none"> <li>• Jams</li> <li>• Seeds for decorations, beads, dancing rattles, etc.</li> </ul>
<b>Herbaceous plants</b>		
<ul style="list-style-type: none"> <li>• Edible herbs</li> </ul>	<ul style="list-style-type: none"> <li>• Medicine</li> </ul>	<ul style="list-style-type: none"> <li>• Decorative flowers</li> </ul>
<b>Animals and animal products</b>		
<ul style="list-style-type: none"> <li>• Insects for food</li> <li>• Birds and birds eggs for food</li> <li>• Fish for food</li> <li>• Animals for food</li> </ul>	<ul style="list-style-type: none"> <li>• Animal skins for leather and cultural artefacts</li> <li>• Animal fats and products for medicines</li> </ul>	<ul style="list-style-type: none"> <li>• Honey and beeswax</li> </ul>
<b>Abiotic resources</b>		
<ul style="list-style-type: none"> <li>• Clay for building (plaster, filler, bricks)</li> <li>• Clay for pottery items</li> <li>• Clay for cosmetic/decoration</li> </ul>	<ul style="list-style-type: none"> <li>• Rock for buildings, fences, retainer walls</li> <li>• Soil for cultivation</li> <li>• Soil for medicinal</li> </ul>	<ul style="list-style-type: none"> <li>• Sand for building</li> <li>• Water for drinking, cooking, washing, building</li> </ul>

The second is that there are 27 million consumers of traditional plant medicine in South Africa, driving a multi-million rand industry<sup>iii</sup> (Mander 1998). The primary sources of these medicines are forests (Mander 1998, Dold & Cocks 2002), with over 65 % of material in the Durban markets being forest or savanna species. This proportion is similar in the Eastern Cape (Cocks *et al.* 2004), and slightly higher (closer to 70 %) in the Faraday market in Johannesburg (Williams 2004). Approximately one-third of medicinal plant material is bark (Grace *et al.* 2002).

The third is that traditional or commercial use is made of 94 % of canopy tree species and 77 % of sub-canopy tree species encountered in South African indigenous forests (Geldenhuys 1999) (Box 4).

Other widely used resources include wild spinaches and fruits. Shackleton and Shackleton (2004a) reported that across quantitative surveys of 14 villages in the savanna biome, the most widely used resources were wild spinaches, fuelwood, wooden utensils, grass hand-brushes, edible

**Box 4: Proportions of indigenous forest tree species used**  
(after Geldenhuys (1999))

	<b>Canopy species</b>	<b>Sub-canopy trees</b>	<b>Woody shrubs</b>
Total in forests	109	185	274
Total used	102	143	120
% used	93.6	77.3	43.8

fruits and twig hand-brushes, all used by 85 % or more of households. More than half the households surveyed also made use of edible insects, wood for construction, bushmeat, wild honey and reeds for weaving. It is probable that the proportion admitting to the use of bushmeat and medicinal plants are underestimates due to fear of religious or legal sanction in some areas. The annual, gross, direct-use value of these resources from the savanna biome alone has been *conservatively* estimated to be over R8 billion<sup>iv</sup>, most of which is unaccounted in the formal national and provincial economic statistics (Shackleton *et al.* 2001b). Adding in indigenous forests and plantation subsistence resources would suggest a gross value of over R10

**Box 5: Value of forest products per hectare**

The gross, direct-use value of NTFPs from savannas, forests and plantations is probably in excess of R10 billion annually. This equates to approximately R250 per hectare throughout the *entire* savanna and forest biomes, and land under plantations. Given that the vast bulk of this land is not used for harvesting of subsistence resources, the gross annual value extracted per hectare from accessible lands will be markedly higher, closer to R750 – R1 000 per hectare. This compares favourably with cattle ranching and plantation forestry in many parts of the country.

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hectare. This compares favourably with cattle ranching and plantation forestry in many parts of the country (Shackleton 1996, Pollard *et al.* 1998).

For any particular forest resource, such as fuelwood or weaving materials, several species may be used. Frequently these are not directly substitutable (Botha 2001), and resource users know the subtle differences in characteristics and properties of each. However, increasing scarcity of preferred species may catalyse substitution by a less preferred species. Communities in the savannas of the northern provinces frequently use more than 200-300 plant species (Shackleton *et al.* 2002a, Dovie 2001). Less appear to be used in the Eastern Cape (Hassan & Haveman 1997, Shackleton *et al.* 2002). Individual households use dozens of species. For example, any single household in the Bushbuckridge lowveld may use as many as 20 edible fruit species (Shackleton *et al.* 2000b), 21 edible herb species (Shackleton *et al.* 1998) and the same number of species for

fuelwood (Griffin *et al.* 1992). Individual traditional healers work with hundreds of different plant species (Mander 1998), and most rural households know many of these and may use up to two dozen species during self-medication for a range of minor ailments or charms.

**Box 6: Everyday use of forest products** (from Shackleton & Shackleton 2004c)

“Every morning Lettie Mathebula wakes up at 5 a.m to prepare the morning porridge for her family of five. She cooks on an open fire using fuelwood that she collects twice per week. She uses 8-9 kg per day, or 3.4 tons per year. If she had to buy it, the cost would be over R1 000, or approximately R3.00 per day. She is concerned about dwindling supplies as she must now walk further to find suitable wood. She spends about ten hours per week collecting fuelwood. She knows that she would struggle to afford electricity or paraffin, or to purchase wood from a vendor.

At 7 a.m. the children leave for school, stopping to pick a handful of fruits from the Large Sour Plum (*Ximenia caffra*) bush to eat on the way. Mrs Mathebula then releases the goats and cattle from the kraal to graze nearby. She notices a gap in the thorn fence of the goat kraal and makes a mental note to collect some branches later on. Her kraals have about 3 m<sup>3</sup> of wood, and she replaces about 185 poles and branches every year. Since she was widowed, she usually purchases the larger poles from her neighbour at R8 per pole.

Having swept the yard with a grass hand-brush, the next task is to prepare the *morogo* (wild spinaches), collected the night before, for lunch. Most of their meals consist of maize porridge, *morogo* and cultivated vegetables such as tomatoes, groundnuts, beans and cabbage. Rarely do they have meat. During summer they eat *morogo* twice per day, consuming approximately 58 kg over the year. The annual market value of this would be R1 900. It is marula season and time to make marula beer. Mrs Mathebula’s daughters collected a wheelbarrow full the previous evening. Although the family does not drink beer, Mrs Mathebula always brews some and invites her neighbours to share it. As a single mother she relies on her neighbours a great deal. Sometimes she sells the beer in the local town. Once the beer is fermenting she goes to collect her fencing material. On the way she procures some *Commiphora* bark medicine for her son, who has a stomachache. She regularly self-medicates with some of the more popular herbal medicines. On return, Mrs Mathebula continues to work on the reed mat that she is making. She sells 2-3 mats a month at the monthly pension markets or to her neighbours. She earns R50-R100 per mat depending upon the size and decoration. Towards early evening, Mrs Mathebula again lights the fire and cooks the dinner; pap with wild spinach relish and peanuts.”

In terms of the amounts used per household, most studies have relied upon respondent’s estimation of the amounts consumed, rather than empirical observation and measurement. The degree of accuracy of such an approach is probably inversely proportional to the regularity with which the resource is used. Thus, for those forest resources used on a daily basis, such as fuelwood or wild spinaches, the power of recall is good and the estimates are probably reasonable, especially if based on a large sample. Given that these forest resources are also used by most households, the confidence limits around the mean are narrow. For those forest resources harvested only every few years, such as thatch grass or housing poles, the power of recall is weaker. Either way, there is a need for a number of in-depth empirical studies of the precise amounts used for most resources, the exception being fuelwood, where this has already occurred, mainly as part of the Biomass Initiative. Across those studies with comparable units, it is evident that user households extract considerable volumes of forest resources on an annual basis (Table 3); approximately 5.3 tonnes of fuelwood per household, 58 kg of wild spinaches, 104 kg of edible fruits and 185 large poles for fencing, kraals and houses.

Other than wild spinaches and poles for housing, the standard errors are approximately 20% or less of the mean, indicating relatively consistent usage across a wide range of socio-economic conditions and environments.

**Table 3:** Mean ( $\pm$  SE) amounts used per household (from Shackleton & Shackleton 2004a).

<b>Resource</b>	<b>Units</b>	<b>Quantity used per hh per year</b>	<b>Range</b>	<b>No. of villages in sample</b>
Wild spinaches	kg	58.2 $\pm$ 26.3	12.8 – 198.4	7
Fuelwood	kg	14.5 $\pm$ 1.6	8.2 - 23.2	10
Grass hand brushes	no.	4.5 $\pm$ 0.5	3.3 - 8.6	10
Wild fruits	kg	104.2 $\pm$ 15.6	19.4 – 165.1	10
Twig hand brushes	no.	4.6 $\pm$ 0.3	4.0 - 5.6	6
Wooden poles for fences & kraals (excluding brush wood)	no.	143.1 $\pm$ 31.3	33.1 – 273.0	10
Wooden poles for housing (excluding laths and brush wood)	no.	43.2 $\pm$ 11.8	0 - 113.3	10

Just as communities and households are socially and economically differentiated, so to is their access to and use of forest resources (Kepe 1997). Although relatively little work in South Africa has specifically disaggregated resource use and income data based on socio-economic characteristics, there are clear indicators that poorer and more isolated communities, as well as households that are less well off or headed by women, are often more dependent on the natural resource base (Shackleton *et al.* 2002a, Shackleton & Shackleton 2002). This finding is not unusual and a significant number of studies across the tropics have demonstrated that it is generally the poorest households who are most directly reliant on non-timber forest products (NTFPs) for both subsistence and cash income (Clarke *et al.* 1996, Campbell *et al.* 1997, Qureshi & Kumar 1998, Cavendish 2000, Neumann & Hirsch 2000, Cavendish 2002). Similarly, a number of studies have indicated that among households headed by women forest resources often contribute significantly more to total household income than is the case for households headed by men (Clarke *et al.* 1996). Cavendish (2000) found that female-headed households generally had greater total shares of income derived from the sales of palm wine, wild fruit and thatching grass than any other household headship type. Thus, women with few other sources of income on which to rely and no means to leave their family to seek employment, have transformed previously subsistence activities into a means of income generation on either an *ad hoc* or full-time basis (Shackleton & Shackleton 1997; Shackleton *et al.* 2001a). In some rural communities it has been shown that households who engage in land-based livelihood activities such as crop production and livestock rearing are more likely to derive significant benefit from forest resources than households that do not participate in farming activities. Dovie (2001) found significant correlations between household income derived from Forest resources and crops, wild resources and livestock, and between crops and livestock.

### **9.2.2. *Cash saving***

Recently, Shackleton & Shackleton (2003a) suggested that a distinction should be made between the ‘daily net’ and ‘emergency net’ dimensions of forest-product use. The first encompasses the benefits accruing from forest resources that are accessed on a frequent and regular basis, especially the saving of scarce cash resources, which may then be deployed towards other household needs. In contrast, the emergency net refers to the standard safety-net function previously described in the literature. Being able to collect and use NTFPs to meet daily needs for energy, shelter, food and medicine, allows the scarce cash resources to be used to secure other household needs and to attempt to accumulate the necessary asset base for a more secure livelihood. This includes education of children, investment in agricultural tools, capital for income generation activities, and the like. Such a cost saving would best be reflected by replacement values of the goods that the NTFPs substitute, rather than direct-use value based on farm-gate prices. This needs to then be summed across the wide number of resources used. Thus, it is several thousands of Rands per household per year (Shackleton & Shackleton 2004a). The magnitude of the cost saving is greater to poorer households than for wealthier households simply by virtue of the reduced total income sources and sizes for poor households (Cavendish 2000, Shackleton & Shackleton in press). Moreover, the cost saving has benefits not only at the household level, but also the national level (Shackleton 2001). The role of daily net NTFPs in the provision of energy, food, medicine and shelter to the rural poor alleviates some of the costs (several billions of Rands annually) that the government would incur had it to provide these services in rural areas (although at a higher social cost). Thus, the government has a vested interest in ensuring the sustainable supply and use of these resources until it is capable of providing such services.

### **9.2.3. *Safety-net functions of forest goods***

This refers to the role of forest goods in assisting households to cope in times of adversity. Such times occur with a shock or sudden changes in the economic, social or climatic environments in which households exist and function. This includes events such a death or retrenchment of the head of the household or breadwinner, droughts, floods, frosts or disease leading to crop failure or death of livestock, major economic structural adjustment, need to pay annual school fees, unanticipated and large increases in costs of staple foods and goods, and the like. During such times it is common for rural households to turn to forest resources to tide them over what they perceive is a temporary setback. This may take three forms (Shackleton & Shackleton 2003):

- Use of forest goods not usually used by that household, either species or types; e.g. use of wood poles collected from the environment for building purposes rather than the purchase of commercial poles or cement blocks; use of emergency grazing in plantations.
- Increased consumption (either on a relative or absolute basis) of forest goods already a component of their livelihood. Typically this involves substitution of purchased commodities, with harvested ones; e.g. increased use of wild spinaches, or a decline in use of paraffin in favour of fuelwood.
- Temporary sale of forest resources on local and regional markets; e.g. roadside wood-carvers, fuelwood vendors.

In these situations the changed or increased use of forest resources is typically a coping strategy, and could be termed as an "emergency net". Simple calculation of the direct-use value of the forest resources used during such times of adversity does not adequately reflect their true value, because it does not account for the emergency insurance component of use during these times of hardship. An additional measure of value is required, equivalent to the option value assigned to natural habitats and resources by resource economists. Frequently, this emergency net coping strategy evolves into a more permanent livelihood activity; an adaptive strategy.

Because the safety-net function of forest resources is temporally variable, little information exists regarding the prevalence of this activity throughout rural communities. This needs to be addressed. But there is little doubt it is widespread. Many small-scale vendors of forest resources recount that the initial impetus for them taking to vending was some household hardship, especially for those with limited or no education (Ndabeni 2001, Rogerson & Sithole 2001, Shackleton & Shackleton 2003a). Nearly all detailed case studies of specific forest product industries or descriptions of rural household dynamics reveal the use of a coping strategy based on one or more of the three safety-net forms mentioned above, at some time or other. It is a ubiquitous phenomenon. It is well illustrated by direct quotes such as:

- (i) a female interviewee in Ntilini village (Eastern Cape) who said that she had moved to the village *"to struggle for a better life"* after losing her job in the nearby town of Fort Beaufort (Shackleton & Shackleton 2003a).
- (ii) an old man of 60 at Pikoli village (Eastern Cape) who was selling a pile of sneezewood poles that took him three days to collect for only R30. In explaining the low price he said *"There is no work in this place; I'm still five years from my pension"* (C. Fabricius pers. comm.).
- (iii) a teenage school girl selling marula beer at the roadside in Bushbuckridge (Limpopo Province): *"we have no money for school fees, therefore I must sell so I can go to school. Once I have enough fee money I will stop selling"* (Shackleton 2002b).
- (iv) a male craft worker in Nzikazi (Mpumalanga): *"Our motel was closed down and I did not have another means of survival. The only option was to use my hands and mind"* (Rogerson & Sithole 2001).
- (v) a 35 year old mother and medicinal plant collector and vendor (Eastern Cape): *"after my husband started getting ill I did not know how to raise my seven children. Women who had been collecting iMpepho advised me to try it too. They taught how to identify these plants. I can identify most of them but have no idea what they are used for. All I know is that they are in demand and that my children can have food. Now this is my daily job, but I do take a day off to collect fuelwood every week"* (Kepe 2002).

### 9.3. Small-scale trade in forest goods & forest product enterprises

#### 9.3.1. *Income from trade in forest goods*

There is wide-spread trade in forest products within rural communities and in external markets. There are no national or regional estimates of the numbers of people or households involved, on either an *ad hoc* or semi-permanent basis. But, by all accounts, across the numerous types of forest products it is probably millions. For example:

- There are over 10 000 timber small-growers, earning a net income of between R1 000 and R5 000 per year. These, in turn, support a small, but growing, number of small-scale contractors involved in land preparation, harvesting and transport (Cairns 2000).
- Shackleton & Shackleton (2003a) reported on the basis of several random household surveys that at least 4 % of rural households were engaged in selling one or more forest products, and it is higher for poorer households, than more wealthy ones;
- Mander (1998) estimates there are 300 000 traditional healers in South Africa, serving 27 million customers;
- There are at least 800 000 people involved in the craft industry<sup>v</sup> (DACST 1998), over 70 % of households in some areas (Marcus 2000);
- There are 15 000 people in the Eastern Cape alone dependent on small-scale sawmilling (Horn 2000);
- The aloe gel and bitters industry is worth at least R8 million annually to thousands of rural tappers, and considerably more along the whole market chain (Newton & Vaughan 1996);
- Amarula liqueur is exported to 27 countries internationally with an annual turnover of hundreds of millions of Rands. But all the marula fruit for this industry is collected and sold on by rural people, with an investment value of over R2 million per annum in the local areas (Mander *et al.* 2002). There are *at least* 3 500 households engaged in various forms of income generation from marulas, supporting over 20 000 dependents.
- The game hunting industry is worth over R300 million per year, concentrated in the savanna biome (Hosking 1996).

Not all these statistics are restricted to products from the forest or savanna biome, but nonetheless they do provide some glimpse of the magnitude of people trading forest and related products. Given that the forest and savanna biomes constitute 35 % of the country, and are biologically rich, it can be roughly concluded *at least one-third* of the above statistics can be assigned to these biomes, namely forest-using communities and households. For those products based on timber and tree products (e.g. saw-milling; marula traders, small timber growers), then the bulk of the value and participation can be assigned to the wooded biomes and plantations.

The high participation in small-scale trading in forest products belies the frequently poor returns to labour. Many commentators have noted that participation in such industries does not lift most participants out of

poverty, but that it does play a significant role in poverty reduction. Yet, in making such a conclusion, many commentators fail to consider the alternatives available to the rural poor, locally or further afield, as they are already marginalised by poor skills, education, infrastructure, remoteness and limited access to real employment opportunities. So, whilst returns to labour are low in absolute monetary terms for some products, they frequently compare favourably to immediate alternatives of local wage labour, *assuming that it is available*, as well as providing some other benefits not captured in direct economic analyses (see Section 8.3.2). For example:

- Shackleton & Shackleton (1997) compared the net returns to labour per hour worked across a number of locally marketed forest products within rural communities of the Bushbuckridge district. It varied from R2.50 per hour (for reed mats) to approximately R7.50 per hour for thatch grass (in 1997 monetary values). In comparison, daily wage labourers were paid R5 – 10 per day ( $\pm$  R1.00 per hour) by local community farmers, or R20 a day (R2.50 per hour) on regional commercial farms. This assumes that opportunities for wage labour were available, which frequently was not the case.
- Mander *et al.* (2002), in analysing the returns and benefits of the marula industry in the Limpopo lowveld, found that “even if the time costs were taken into consideration, it is more profitable to sell marula beer than to earn a labour wage of R12.50 per day for full time employment”.

Another option is arable agriculture. But in the more arid areas of the country, as is much of the savanna biome, this is an equally risky venture. Thus, engagement in small-scale trading within rural communities, or in local regional markets, may frequently represent a better return. Especially since it is usually only one livelihood strategy within the household portfolio. As already commented, rural livelihoods are diverse and opportunistic. Overall, the factors that make forests resources attractive to poorer sectors of society as a means of earning a living (such as low barriers of entry; low or zero capital requirement; high labour intensity) are the same factors that cause them to have a relatively low market value.

Although as a general comment, the cash returns to small-scale trading in forest products are low, it is true to say that they are also highly variable, being influenced by a host of local and external factors. A key one, not much discussed within the literature, is simply the actual amount of time the entrepreneurs devote to trading in forest resources. The range in weekly or monthly incomes across any trading sector shows a high degree of variation, typically 3 – 5 times the mean (Krüger & Verster 2001) (Table 4). That is because many producers or vendors, engage in forest product trade as a part-time activity, either a few hours a week, or at a particular time of the year. Consequently, it is not surprising that their absolute incomes are low. However, despite the low returns to labour for many forest resources, for those individuals or households, capable and willing to devote the energy and time to cash-generating activities, many can make a livelihood more secure than other land-based livelihood options, or the demoralising false security of insecure casual wage labour. For example:

- Cairns (2000) reports plantation forestry small-growers earning profits of over R30 000, which they subsequently invest in physical assets and family education (Box 8).

- Shackleton (in press) mentions the case of a single mother who “had paid all her son’s personal expenses at medical school on the income she made from selling her trademark colourful and beautiful decorated reed mats”.
- Both Mander (1998) and Botha (2001) documented some medicinal plant vendors with net incomes of over R40 000 per year.
- Gyan and Shackleton (in press) reported that full-time vendors of palm brooms in the Eastern Cape earned 10 - 20 times more than their part-time colleagues.

**Table 4:** Some illustrative values of incomes to small-scale traders in forest resources

Activity	Prov.	Mean annual income (Rand)	Gross/ Net	Range (Rand)	Notes (incl. year data collected)	Reference
Palm brush vendors	EC	4 272	Net	0 – 12 000	2002	Gyan & Shackleton (in press)
Marula beer traders	LP	500	Net	89 – 2 299	2001 - income for 2 month season only	Shackleton (2002)
Small timber growers	KZN	± 3 000	Net	1 100 – 4 000	1999	Cairns (2000)
Roadside fuel-wood vendors to tourists	KZN	338	Gross	120 – 1 400	1999	Lewis & Mander (2000)
Small-scale sawmillers	EC	11 250	Net		1999 - income from only 5 months of the year	Horn (2000)
Medicinal plant vendors	MP	16 740	Gross	360 - > 40 000	1999	Botha (2001)
Woodrose sellers	LP	2 895	Gross	635 – 6 002	1997	Dzerefos <i>et al.</i> (1999)
Medicinal plant traders in Durban market	KZN	39 480	Gross		1996	Mander (1998)
Woodcarvers - Hardwoods	LP	3 603	Net	2 584 – 16 928	1994	Shackleton & Shackleton (2004b)
- Softwoods	MP	9 838	Net		1997	
Mopane worm collectors	LP	2 500	Gross		1992 – income for 1 month season only	Styles (1994)
Aloe gel tappers	EC	± 12 000	Net		1994	Newton & Vaughan (1996)
Wild fruit sellers	LP	1 044	Gross	240 - > 20 000	1993	Shackleton <i>et al.</i> (2000)

Thus, for any single forest product enterprise, be it marula beer sellers, woodcarvers, timber small-growers, medicinal plant collectors, fuelwood vendors, and the like, there are a large number that earn relatively small amounts, but there are also those that earn several or tens of thousands of Rands per year (Boxes 7 and 8). Consequently, a key question becomes: if there are local examples of successful entrepreneurs, why do those earning so little not scale up

**Box 7: Gross incomes to crafters in KwaZulu-Natal**  
(From Marcus 2000)

- 63 % of crafters earned incomes of < R250 per month
- 20 % earned incomes of between R250 – R500 per month
- 8 % earned between R5000 and R1 000 per month
- 9 % earned over R1 000 per month

“Although most craft-derived income is concentrated in the lower end of the income range, even under present conditions, *crafting provides some people with incomes that equal or even exceed the middle and top end of contributions made to households by formal sector employment* (my emphasis), other informal sector activities and state grants. .... If production and market conditions were improved ... household incomes could be increased substantially”.

their operations and consequent income, especially as the barriers to entry are so low? This has not been answered within South Africa, but any research project doing so will have to include examination of very micro-level household circumstances and personal motivations, as well as issues relating to access and proximity to markets, local abundance of the resource in question, etc. Of further importance is that the sectoral studies of specific resource enterprises only capture the incomes from the specific resource under examination. But many traders in forest resources may trade in greater than one resource, which is not captured by these studies.

**Box 8: Returns to the Khulanathi Grower of the Year 1996** (from Cairns 2000)

“In 1993 her husband planted 2.1 ha. A tractor was hired from a sugar farmer by Mondi to prepare the soil (R2000). The husband originally employed his wife, three daughters and neighbour’s wife to weed the woodlot and paid them R10 per day to work the land.

After her husband’s death the forest was registered in her name. She feared that her husband’s family would take back a portion of her land. In order to strengthen her claim on the land she planted two new woodlots of 0.8 each in 1997. She used Mondi contractors for everything. The contractors consisted of 10 women who worked for two weeks.

The first forest (2.1 ha) was harvested in 1999. The total income from the forest was R52 483 (Mondi records) from 40 truck loads (372 tons). The Mondi loan repayment was R5 185 and the contractor cost about R15 600 to fell and take the load to the Esikhaweni depot. She was paid R141 per ton at the weighbridge. She therefore cleared R32 000 profit. She had no such expectation. The largest sum of money she had ever seen was a gift of R500 from her husband. She had been expecting about R1000 from the trees.”

It is also evident from Table 4 that some resources are only available on a seasonal basis, for example, mopane worms, marula beer, mushrooms, and wild fruits. Nonetheless, the income earned is still considered important, even if for only a few months of the year. Typically it is used to help pay off debts or payments that also occur more on an annual basis rather than a monthly one, such as school fees, agricultural implements, window and door frames for a new room. Some vendors adapt readily to the seasonality, and utilise different resources as the seasons change. For example, at the end of the marula season, vendors may change to making and selling reed mats, the raw material for which is usually harvested in autumn. In late autumn they may harvest and sell a dozen or a few hundred bundles of thatch grass. In winter it might be dried wild spinaches. Others do not do this, and remain divorced from the income-generating activities based on NTFPs once the season for their specific resources comes to an end. Traders using non-seasonal resources (such as saw-millers, wood carvers, fuelwood and medicinal plant vendors), obviously have greater security.

**9.3.2. Other benefits from trade in forest goods**

Key indices of the importance and role of forest product enterprises in rural livelihoods are invariably the cash returns and net profit. Yet there are a number of other benefits associated with forest product enterprises

that are also appreciated by participants, which currently have not been valued in monetary terms (and perhaps may never be). These have been summarised from Marcus (2000), Rogerson (2000), Krn̄ger & Verster (2001) Rogerson & Sithole (2001) and Shackleton & Shackleton (2003a).

- low barriers to entry
- the ability to work at home (frequently mentioned by mothers)
- being ones own boss and not at the beck and call of an exploitative employer
- opportunity to involve and work with all family members
- the income earned is proportional to the effort expended, and so the harder one works the more income one can potentially make
- the ability to earn and control cash independent of the household head (frequently mentioned by women)
- to be able to make a contribution to the household, however small (mentioned by pensioners)
- keeping alive traditional products, processing techniques and knowledge
- passing on such traditions and knowledge to the younger generations in the household context
- pride in having a skill and a means to support one's family when so many around are unemployed and demoralised
- the satisfaction of simply being occupied, irrespective of the returns
- development of social networks and social capital (via joint collection trips; working together; sharing knowledge with other producers and traders)
- business skills that can be applied to other livelihood strategies
- recognition by community leaders and members for running a successful project that helps people in the community

### **9.3.3. Tourism enterprises**

Tourism is the fastest growing economic sector in South Africa. There were approximately 6.5 million foreign tourists in 2002 (StatsSA 2003), spending, on average, R6 000 – R8 000 per head within South Africa in 2000 (Saayman & Saayman 2003). Harvey (2003) reports that approximately R48.8 billion was spent by foreign tourists in South Africa in 2002. Tourism now contributes over 7 % of national GDP. The majority of international tourists include a trip to see indigenous game in State or private conservation areas, most of which are situated in the savanna areas of the country. Using data from Low & Rebelo (1996), it is apparent that 69 % of land in protected areas is within the wooded biomes. In terms of bed nights, domestic tourism accounts for approximately 55 – 60 % of the national market (Rule *et al.* 2003), but spending is less per capita per night. However, the full amount accrues within South Africa. Thus, the domestic market is equivalent to a conservative estimate of a further R30 billion annually. Therefore, taking the area under savannas and forests as 35 % of South Africa, a rough estimate of the tourism value is in the order of R27.5 billion annually<sup>vi</sup>. Using the figure of 69 % of protected areas in the wooded biomes, the tourism value accruing could be as much as R62 billion annually.

Most of this value is captured by large commercial operations, and not poor rural communities directly, with a few exceptions. However, the commercial tourism enterprises are a valuable source of employment and infrastructural investment such as roads, communications, clinics and schools, since many of the ecotourism enterprises are in remote areas, where few alternatives exist for local communities. The number of people employed varies in accordance with the size of the enterprise, and the nature of the clientele visiting. For example, large savanna parks average approximately one employee per 400-500 ha; whilst in smaller-scale parks the figure is closer to one employee per 250 ha; and luxury lodges closer to one per 50 ha (Richard Davies, pers. comm. 2003). South Africa's premier reserve, the Kruger National Park, (KNP) attracted over one million visitors in 2002. With at least eight million hectares in State protected areas, and a further 10 million under private ecotourism ventures, this represents a pool of *at least* 60 000 employees supporting between 300 000 and 500 000 dependents, of which between one- and two-thirds are in savanna or forested areas. There is also a growing commitment to sourcing support industries (such as laundries, vegetables) to protected areas within neighbouring communities, rather than distant urban areas, as well as linking with aspects of cultural tourism (Kibirige 2003). At least 60 % of the total orders for KNP supplies are placed within the local towns and villages (Engelbrecht & van der Walt 1993). Thirty percent of the visitors to KNP are day visitors, who are accommodated in hundreds of accommodation enterprises within 10 – 40 km from the park (Engelbrecht & van der Walt 1993). Figures for Hluhluwe-Umfolozi park in KwaZulu-Natal are similar, in that 50 % of the services required by this area are sourced in the immediate local economy (Foggin & Münster 2003).

An appreciation of the potential for ecotourism to contribute to poverty alleviation directly (rather than just trickle down effects) is growing, with emerging enterprises explicitly stating local job creation as one of the core objectives, or criteria for success, now encapsulated in the phase “pro-poor tourism” (Mahony & van Zyl 2002, Ashley & Roe 2002). The number of wage earners in these enterprises may still be a small proportion of rural households, but the wages earned are typically twice or greater than that of homesteads without employment in such ventures (Box 9). The tourism enterprises also then create opportunities and downstream effects for four to ten times more people besides the wage earners, such as casual labourers, crafters and small businesses (Ashley & Roe 2002). Indeed, tourists are the primary buyers of crafts produced by rural enterprises. Thus, growth in the tourism sector has positive economic benefits for very rural

**Box 9: Pro-poor tourism** (from Ashley & Roe (2002))

Wilderness Safaris opened a pro-poor ecotourism operation with the deep rural areas of Maputaland, northern KwaZulu-Natal. Tangible benefits included:

- ± 120 direct wage earners
- Annual wage per earner varying between R1 000 and R25 000
- Cash income over twice the average for the area, and sufficient to “lift their households out of poverty”
- Two-thirds of employed staff are women
- Thousands of indirect beneficiaries

Less tangible benefits are:

- Improved access and infrastructure in remote areas
- Greater services
- Increased training and education amongst employees with positive spin-offs within the local communities
- Increased appreciation and value of local cultural assets

communities.

Game parks are not the only type of tourism experience offered by forests and woodlands. Ecotourism is a significant factor in the planning and management of indigenous forests and plantations, which is now

**Box 10: Tourism in Knysna in the heart of the southern Cape forests**

(From: Vermeulen 2004)

“In 1997 about 650 000 people visited Knysna, the third largest town in the southern Cape. In a report compiled by WESGRO (1998), it was calculated that the tourism industry contributes about one-third of Knysna’s Gross Regional Product, 35–40% of total employment and about 50% of local fixed investments. In addition, about 35–40% of local enterprises are primarily dependent on tourism while about 35–40% of all rates and taxes of the municipality can be linked to the tourism industry. From this it was calculated that the tourism industry contributed about R205 million to Knysna’s Gross Regional Product in 1997, and that in 1998, 6100 people in Knysna were employed in firms directly or indirectly related to the tourism sector. In addition, it was calculated that tourism would be responsible for 300–360 of the 1100 new jobs created in a year with 5% real growth (WESGRO 1998). If only 5–10% of the total number of people visiting the region could be attributed to the existence of the indigenous forests, the forests would contribute R10–20 million to the Gross Regional Product of the town and Knysna alone”

mandated within the National Forest Act (1998). There are several well known hiking trails in these areas, such as the various forest trails around Sabie in Mpumalanga province, Hogsback in the Eastern Cape, the Tsitsikamma trails, Wolkberg trail and the like. Tourism to forested areas is associated with walks, bird-watching, waterfalls and streams

offering a variety of experiences to ecotourists. For example, the Knysna State forest attracts over 200 000 visitors a year (a conservative estimate) using over a dozen day walks, two hiking trails, scenic routes for driving, picnic sites, a camping site, four mountain bike trails, a horse trail, and a youth hostel (Vermeulen 2004). Over 75 000 people a year visit the ‘Big Tree’ (a particularly large *Podocarpus falcatus* tree for that forest) in the Knysna forest. Approximately 30% of income from the state-owned forests in the Knysna/Tsitsikamma forests comes from ecotourism (Vermeulen in press) (Box 10). Small villages such as Hogsback and Sabie are marketed as primary tourism destinations, each with museums, several trails and lodges all adopting forest related marketing profiles and images. They boast over 300 and 120 beds/camp sites, respectively. There is a growing market for small-scale tourism enterprises in these areas, offering a range of services such as low-price accommodation, guided trails, transport, and curios markets. For example, there are at least 93 hiking trails in the Eastern Cape, and 177 in the Western Cape.

Tourism is also a growing sector and opportunity for marginalised communities (Ashley & Roe 2002, Mahony & van Zyl 2002). Many initiatives are new and in an almost experimental stage, but nonetheless, progress is being made. There are a number of models from small-scale tent camps or rondawels, to more up-market ventures. Examples include:

- the community tourism venture at Mtentu River mouth on the Wild Coast
- Sagoli hot springs in the arid woodlands of northern Venda
- The tourism lodges planned in the Makuleke area of the Kruger National Park

- Contractual parks and agreements in which communities are planning and operating tourism ventures within parks (e.g. several of the areas run by the Mpumalanga Parks Board; the community funded camp in Hluhluwe-Umfolzi park)

#### 9.4. Benefits from employment

The benefits from employment are greater than simply a regular and secure salary, although that is undoubtedly core. Salary levels are variable, depending upon the nature and profitability of the enterprise. Within the formal sector, the bulk of the large plantation-forestry companies, and their subcontractors, comply with minimum wage levels (currently just over R700 per month) set by the central government, as well as other employee benefits advocated in the labour law, such as pension schemes, vacation leave, sick leave, compensation for work related accidents, unemployment fund contributions and further training opportunities. At the opposite end of the scale, small household or micro-enterprises are rarely able to comply with minimum wage regulations (Horn 2000), with many based on family units, rather than formal employment. But given the acute unemployment within the rural areas, there is rarely any difficulty in finding assistants, apprentices or employees. The knowledge and receipt of a regular cash payment reduces livelihood vulnerability. This is not confined to working life, as all formal companies also make provisions for and contributions to employee pension or provident funds to support former employees upon retirement.

The development of commercial enterprises, especially large-scale, or if small-scale, highly profitable ones, such as plantation or ecotourism ventures creates more than primary level employment in the rural areas. For example, FOA (1996) reports that 63 % of plantation forestry workers are housed in company housing, most of which are serviced with water, sanitation and electricity (Box 11). The capital investment of this housing is in the region of R320 million in current terms.

The maintenance and servicing of these houses and services generates downstream jobs and benefits not linked directly to the forestry sector. The majority of employees on tourist game ranches and lodges are also housed on the company property. Where housing is unavailable, larger companies offer financial assistance to employees to purchase housing in the region where they work.

<b>Box 11: Annual cost to company of non salary contribution of formal forestry sector (FOA 1996)</b>	
• Pensions & unemployment fund	R35.6 million
• Housing	R25.5 million
• Education & training (employees)	R20.9 million
• Schooling (employees' children)	R 5.2 million
• Health services	R 4.3 million

The provision of housing in rural areas for employees of formal forestry companies is inextricably linked with the provision of other services and amenities required by any community, be it urban or rural. Thus, the six largest forestry companies (representing over 70 % of the planted area under plantation forestry; and two-

thirds of the annual turnover) each provide pre- and primary-schools and clinics in areas where they have a concentration of employees (FOA 1996). These are usually also open to neighbouring communities. Over 14 000 children are schooled in these forestry-sponsored schools. Where the worker housing density does not merit the construction of a school, transport is provided to the nearest state school. There are over 60 medical clinics under the auspices of formal plantation companies providing preventative and basic health care to employees and neighbouring communities.

A key benefit of formal employment is access to vocational, technical or academic training (Box 12). The FSA reported that approximately 65 % of employees receive some formal training in any given year. Of particular importance is access to adult literacy classes, which plainly have broader livelihood benefits well beyond the ability of the employee to perform his or her job. Many forestry subcontractors provide food rations to employees, which reduces food insecurity within the rural household, but with a trade-off of lower cash wages.

**Box 12: Benefits from employment by small-scale contractors**

Vuyani Kharma has been forestry sub-contractor for three years. He used to be a field supervisor on a commercial plantation. He received training to become an independent contractor. At first he was worried about how his new business would cope and whether or not he would be better off. But now he earns a lot more than he used to as a supervisor. He also likes being his own boss. He employees approximately 45 workers. Many of them are largely unskilled labourers. Without the jobs he offers them they have no cash incomes. He often hires more than he needs because he knows how scarce jobs are. When he has a vacancy he does not advertise, people just arrive looking for jobs. He pays a basic salary on a monthly basis, along with UIF contributions, workman's compensation, and paid leave. He provides training in pruning, fire breaks and control, and first aid. He is hoping to train some of his team to operate sprayers, which will bring him more business. Workers are provided with appropriate work clothing. He knows of another subcontractor that helps employees with vegetable gardening at their homes.

The downstream benefits of both the salary and the non-salary component of employee remuneration have not been quantified, but must be substantial, especially given that they are paid out in rural areas where unemployment is acute. These salaries contribute significantly to the turnover of the small, commercial sector in these areas, such as food, drink and clothing stores, garages and repair shops. Factor in employees of wood-processing industries in rural areas

dependent upon raw timber from plantations, such as saw mills, and the buying power and contribution of the formal sector salaries to the rural economy is significant. There were overall 180 processing plants associated with plantation forestry in 2002 (FSA 2003). The analysis of Hassan (2003) indicates a downstream employment multiplier effect of between two and three times resulting from processing and value addition of plantation timber. The size of downstream indirect employment is unknown.

In the informal sector, timber, a key forest product, is used in other economic enterprises such as brick making, beer brewing, and small-scale vending of cooked food near schools, clinics and taxi ranks. Inadequate access to timber, whether from plantations or indigenous forests and woodlands, undermines the economic viability of these enterprises.

## 9.5. Cultural & spiritual benefits

The cultural and spiritual benefits afforded by forests to rural communities are clear, but little studied. This is partly because the notion of culture has different meanings and interpretations, and is frequently difficult to define or describe in tangible or monetary terms. The problems stated above with respect to differences in approaches and measurement of use and value of more tangible goods are small relative to those that arise when dealing with cultural uses. Even if monetary values could be assigned to the cultural and spiritual dimensions of forests and forestry it would appear, on the surface, that these have no role to play in poverty alleviation or reduction. However, embracing the definition of poverty employed in this report, it is clear that satisfaction of social and spiritual dimensions to livelihoods is vital in reducing vulnerability and maintenance of an acceptable standard of living.

At a landscape level communities and households identify and revere certain sacred sites within forests and woodlands. These include spiritual sites identified by leaders and diviners centuries ago and are now either taboo, or used for specific ceremonies, as well as grave-sites of past relatives and leaders. For example, sacred forests in Venda (Eeley *et al.* 2004), sacred pools in Xhosa regions, and the association of specific clans with animal and plant totems (Fox 2002, Bernard & Khumalo 2004). The majority of iron-age sites in South Africa are found in the woodland biome, because of the large demand for timber for smelting and construction by the iron-age peoples. The recently restored Thulamela site in the Kruger National Park is a prime example. There are over 250 archaeological and historic sites in the Kruger National Park alone.

In terms of specific resources, many are used for cultural and traditional reasons rather than utilitarian. The most striking one in terms of demand and influence on species populations is the demand for medicinal plants that are used as charms or curses. Cocks & Møller (2002) found that approximately 30 % of the total value of medicinal plants could be ascribed to cultural uses. Other resources also have explicit cultural significance as recently argued by Cocks & Wiersum (2003), including wood-piles, and use of certain fuelwood species only for specific rituals and ceremonies. They calculated that that over half the annual direct-use value harvested by rural households in a village in former Ciskei, was attributable to cultural purposes as opposed to utilitarian ones. In attempting to place a value on cultural aspects of the environment, Campbell *et al.* (1997) reported that cultural use of the environment and goods accounted for 29 % and 16 % of total environmental goods value appropriated by residents at Jinga and Matendeudze villages, respectively, in Zimbabwe. In comparison, many respondents in the study of Fox (2002) indicated that a value could not be attached to the cultural and spiritual significance of their local environment and sacred site, and that damage or destruction of these would have intangible consequences, as indicated in the following quotes (in Fox (2002)):

- (i) “it means that the ancestors would be homeless”

- (ii) “it means our culture would be dead”
- (iii) “in our culture, our traditions, our beliefs, the environment and ancestors are one thing, and that it is very important to Xhosa culture because we see ourselves as part of the environment”

Much of the big game species that characterise Africa are found mainly in the woodland biome, and their images have become a part of people’s everyday life in adverts, logos, music, stories and theatre. Much of the indigenous oral tradition and folklore revolves around humankind’s interaction with wild animals such as lion, buffalo, leopard, and the like, all of which dominate in the woodland biome.

## **9.6. Ecosystem services**

There is limited information on the ecosystem services value attached to wooded biomes and regions or the country. There has been no calculation of Total Economic Value for a specific site. Where some estimates have been made, they have not apportioned what fraction of the benefits are captured exclusively or primarily by rural communities and what proportion by society at large. Some illustrative values from Shackleton *et al.* (2001a) for the savanna biome are provided below. Given the large area of the savanna biome relative to the other wooded areas, it is likely the value of ecosystem services will be one or two orders of magnitude greater.

### **9.6.1. Water provision**

The savannas of South Africa receive about 41 % of the total annual precipitation, but yield only 27 % of the annual runoff. The total usable water originating in the savanna biome is approximately 8.3 Gm<sup>3</sup> per year. This has an annual use value of approximately R1 billion if a unit value of 10-15c per m<sup>3</sup> is applied.

### **9.6.2. Carbon sequestration**

With uncertainty regarding carbon credits and the market value that will be applied per unit of carbon sequestered, current calculations are speculative. With that caution, Shackleton *et al.* (2001a) determined a value of approximately R300 million per year<sup>vii</sup>. The value for plantation forests is approximately R50 million per year (Hassan 2002).

## **10. KEY TRENDS IN FORESTRY-POVERTY LINKAGES IN SOUTH AFRICA**

The previous sections outline the *status quo* with respect to benefits reaped from forests and forestry, but do not reflect the dynamic nature of these links and key trends over the short to medium term. This is largely because trend information or data are not captured and centralised. The statutory provision for a regular State of the Forest Report would be a crucial vehicle for addressing this deficiency. Trend data are important as

will reflect positive and negative responses to policy interventions at the national and international level. Key trends either strengthening or reducing reliance on forestry and forest products are summarised in Table 5.

Table 5: Trends affecting the forestry-poverty relationship

<b>Trends indicating or resulting in a strengthening of reliance on forestry and/or forest products</b>	<b>Trends indicating or resulting in a weakening of the reliance on forestry and forest products</b>
<ul style="list-style-type: none"> <li>• Increasing unemployment in South Africa, with the rural areas most affected</li> <li>• Increasing HIV/AIDS rates</li> <li>• Increasing numbers of people engaging in trade in natural resources</li> <li>• Growth of small-scale forestry support sector</li> <li>• Growing acceptance of forestry outgrower schemes</li> <li>• Decreasing institutional controls on resource use, both by central or provincial government, as well as traditional authorities</li> <li>• Increasing resource scarcity for many species and areas, but by no means ubiquitous</li> <li>• Increasing tourism and involvement in local communities in tourism initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• A static or decreasing rural population in many areas due to urbanisation and/or HIV/AIDS</li> <li>• Increasing service delivery around water and energy, thereby reducing to some extent, reliance on the local environment</li> </ul>

## **11. OPTIMISING CONTRIBUTIONS FROM FORESTS & FORESTRY TO LOCAL LIVELIHOODS**

A number of policy documents, action plans and strategies exist to optimise the benefits to rural households through access to, and use of forest resources. Scale is important here, as some operate at the international level, others at national level, and others still for specific projects or resources within a small geographic area.

### **11.1. International policy level**

Lead agencies in developing and guiding appropriate policies have been CIFOR, FAO, UNDP, the World Bank and several donor agencies such as DFID, GTZ and Danida, amongst others. Recently some of these independent processes were merged and a collaborative ‘Agenda for Action’ proposed (Box 13) as a guideline for strengthening the role of forestry in poverty alleviation (Dubois 2003). This parallels the recently revised World Bank Group strategy on forests and forestry, wherein one of the three main pillars is

“harnessing the potential of forests to reduce poverty” (World Bank 2002). The various facets of these new strategies and agendas are appealing, and require a multi-sectoral approach at the international level, and through South Africa’s engagement at that level. Key ones in terms of the current South African situation have been indicated within Box 13. In particular those relating to the links between poverty and the

**Box 13: Agenda for Action** (From Dubois 2003)  
(Key ones for South Africa as indicated ◀◀)

**1. Improve governance**

- a. Integrate poverty-environment issues into national development frameworks ◀◀
- b. Strengthen decentralisation for environmental management
- c. Empower civil society, particularly poor and marginalised groups
- d. Address gender dimensions of poverty-environment issues
- e. Strengthen anti-corruption efforts to protect the environment and the poor
- f. Reduce environment related conflict
- g. Improve poverty-environment monitoring and assessment ◀◀

**2. Enhance the assets of the poor**

- a. Strengthen resource rights of the poor ◀◀
- b. Enhance the capacity of the poor to manage the environment ◀◀
- c. Expand access to environmentally sound and locally appropriate technology
- d. Reduce the environmental vulnerability of the poor ◀◀

**3. Improve the quality of growth**

- a. Integrate poverty-environment issues into economic policy reforms
- b. Increase the use of environmental valuation ◀◀
- c. Encourage appropriate private sector involvement in pro-poor environmental management
- d. Implement pro-poor environmental fiscal reform

**4. Reform international and industrial country policies**

- a. Reform international and industrial country trade policies
- b. Make foreign direct investment more pro-poor and pro-environment
- c. Enhance the contribution of multilateral environmental agreement to poverty reduction
- d. Encourage sustainable consumption and production ◀◀
- e. Enhance the effectiveness of development cooperation and debt relief

environment. Current sectoral and cross-sectoral policy frameworks in South Africa are strong on poverty alleviation, but very few make the links between environmental quality and poverty.

**11.2. National policy level**

At a national level South Africa has several policies in place that are germane to the issues covered in this report and broadly in agreement with the international level ‘Agenda for Action’ described above. Since the 1994 democratic transition, the core of many sectoral policies in South Africa has been

poverty reduction, redress and equitable sharing of resources, including forestry resources. These principles are contained in the National Forests Act (1998), and accompanying National Forestry Action Plan (1997), as well as policies relating to the RDP, Integrated Rural Development, NEMA, Small-business and Enterprise Development Plan, etc. These have been carried through as requirements within local Integrated Development Plans that are mandatory for each municipality. Thus, the policy environment within South Africa seems to be well founded and places poverty alleviation and equitable sharing of resources (including forestry resources) high on the agenda.

The challenge comes with implementation, especially at the local level to make real differences on the ground. Many government departments (national, provincial and local) lack capacity in terms of skills, infrastructure and resources to implement the above policies directly or monitor their implementation by third parties. There are also inconsistencies or imbalances in policy application. For example, the rights of access afforded to State and private forests by adjacent communities are not uniformly implemented nor always

conform with the spirit of public policy statements about supporting local livelihoods and development (Evans *et al.* 1998); the national energy policy expresses support to development of fuelwood woodlots in cooperation with DWAF, but policy implementation has focussed on supply of electricity with no new efforts at woodlot development (Shackleton *et al.* 2001a); the forestry policies place woodlands under the jurisdiction of DWAF, but they have minimal expertise or experience in terms of woodlands, and hence have made little progress on their mandate. Even within the private sector or amongst parastatals policy implementation can be found wanting, with much of what actually happens on the ground being left in the hands of the local manager.

Thus at a national and provincial level there is a need for:

- Greater communication of policy objectives and instruments
- Improved uniformity of policy application and resolution of cross-sectoral issues and responsibilities
- Improved capacity development of departmental staff
- Development and implementation of an appropriate and cost effective monitoring programme
- Improved mensuration of the resource stocks of key species and determination of sustainable harvest yields
- Support for small-scale entrepreneurs with respect to business and marketing skills

### **11.3. Local and Project level**

At the local level opportunities and constraints differ between geographic localities as well as the nature of the resource. The latter is particularly important as each resource is different, and therefore requires a different set of policies, criteria and indicators to guide appropriate management, and thereby optimise opportunities for use in rural livelihoods and poverty reduction. For example, the policy guides, targets and stakeholders appropriate for a valuable timber species, such as *Pterocarpus angolensis*, are very different to those required for thatch grass, especially at the local level. Guidelines have been produced for various sectors in different areas, such as medicinal plant trade in KwaZulu-Natal (Mander 1998), small-scale sawmillers (Horn 2000), handicrafts in Mpumalanga (Rogerson 2000), fuelwood trade in Limpopo Province (Gandar 1994), marula beer brewers in Limpopo (Shackleton 2002), multipurpose use of Sihangwane Sand Forest (Lewis & Mander 2000), to mention a few. Key opportunities are:

- Supportive policies for the forestry sector, and linkages with poverty alleviation and job creation
- The abundance of forested lands in South Africa (especially woodlands and plantations)
- The strength of South Africa's commercial forestry sector in international terms, and the increasing levels of productivity and efficiency of this sector
- Growing empowerment of civil society and greater devolution of government functions to the local level
- Growing efforts to include rural communities in tourism initiatives

- A vibrant skills base in terms of handicraft production
- A good scientific and local-level knowledge of many key forest resources (although sustainable yields still need to be determined for most)
- Growing domestic markets for forest products
- Growing tourism markets to forested areas
- Reasonable and improving infrastructure (roads, communications, transport) within many (although not all) rural areas, providing for improved market access and job opportunities
- Low barriers to entry for small-scale enterprises
- High participation by women in forestry related activities and enterprises

Whilst cautioning against generalisation across different types of resources and localities, some recurring constraints to optimising livelihood benefits (direct-use and commercial use) are apparent (Table 6). Many echo the constraints and guides located in numerous texts and strategies around successful implementation of natural resource management (NRM) programmes and projects. Other commentary is provided by Marcus (2000), Ashley & Roe (2002) and Briedenham & Wickens (2004).

## 12. CONCLUSIONS

From the illustrative figures provided above a number of key conclusions regarding the links between forestry, forest products and poverty reduction or alleviation can be made for the South African situation:

- The presence of forests confers both opportunities and constraints on rural livelihoods in South Africa.
- The relative balance between the opportunities and constraints afforded to communities living close to forests is spatially and temporally variable.
- In most instances, the constraints are more of a function of forests being in rural, and therefore usually remote, areas with limited infrastructure, access to markets, employment and government services (including educational facilities), rather than forests themselves being directly limiting on livelihood opportunities, other than competition for land.
- Indeed, *millions* of South Africans do derive benefits from forests, forestry and forest products.
- Rural livelihoods are diverse, and therefore most households do not rely solely on one or two livelihood options. There are relatively few that depend solely on forest resources as the major component of their livelihood, typically restricted to employees in the formal sector, for plantation forestry companies, sub-contractors and tourism enterprises. There are equally few that depend solely on wage labour or on agriculture. At approximately 20 % contribution to livelihood, forest resources represent a large and vital component.
- The downstream or multiplier effects of commercial forestry enterprises are significant, up to three times.

Table 6: Typical constraints to optimising livelihood benefits from forests and forestry enterprises (Key ones where DWAF should concentrate its efforts in the short-term are indicated ◀◀)

Focus area	Constraint
Resources	Unsustainable demand for some resources ◀◀
Land and resource tenure and access	<ul style="list-style-type: none"> <li>• Insecure tenure or access rights to land and forest resources ◀◀</li> <li>• State and private enterprises not allowing harvesting (sustainable) of natural resources on land under their control ◀◀</li> <li>• Weak and eroding institutional controls on land and forest resources ◀◀</li> </ul>
Competition for land and resources	<ul style="list-style-type: none"> <li>• Potential competition between domestic and commercial demand for forested lands and resources</li> <li>• Competing uses for specific land parcels or resources undermining focussed group initiatives and management approaches ◀◀</li> <li>• Biodiversity and water yield impacts of further development of commercial plantations</li> </ul>
Markets and marketing	<ul style="list-style-type: none"> <li>• Insecure and/or distant markets for forest products</li> <li>• Non-existent or weak marketing skills amongst rural role-players</li> </ul>
Knowledge and skills	<ul style="list-style-type: none"> <li>• Extremely low education and skills base of rural users, entrepreneurs, and job seekers</li> <li>• Poor local and scientific knowledge regarding management and sustainable harvest levels of many species ◀◀</li> </ul>
External interventions	<ul style="list-style-type: none"> <li>• Failure to build upon existing local skills and initiatives, in favour of funding new projects and organisational structures ◀◀</li> <li>• Greater emphasis given to formal sector employment creation as opposed to facilitating and supporting informal sector development</li> <li>• Excessive bureaucracy and regulation in establishing small-scale enterprises</li> <li>• Failure to recognise and build upon the fact that rural households engage in multiple livelihood strategies ◀◀</li> <li>• Greater priority afforded to agriculture and agricultural enterprises than those founded on forestry and forest products</li> <li>• External interventions frequently target specific geographical communities, but do not identify and prioritise the poorest of the poor within such communities, such that local elites often capture a disproportionate amount of the benefits ◀◀</li> <li>• Insufficient capital to develop small-scale <i>ad hoc</i> initiatives into viable rural enterprises</li> <li>• Development of new tourism ventures and marketing of tourism nodes rarely include informal sector participants, despite their close proximity</li> <li>• Failure to recognise and build upon the cultural dimensions to resource use</li> </ul>
Economic climate	<ul style="list-style-type: none"> <li>• Large-scale job losses in the formal sector over the past decade</li> </ul>
HIV/AIDS	<ul style="list-style-type: none"> <li>• The debilitating effects of HIV/AIDS on household labour, security and skills</li> <li>• Return of AIDS afflicted urban relatives to rural households, placing further strain on rural networks and livelihoods</li> </ul>

- The downstream effects of small-scale enterprises based on forest products have not been enumerated, but are also important although probably smaller in magnitude than commercial forestry enterprises.
- Forest resources are not a means of alleviating poverty for millions of rural people, but nor are most of the other activities in which the rural poor engage. Access to and use of forest resources can however,

undoubtedly prevent intensification of poverty. Degradation of the forest resource is invariably associated with deepening poverty and increased livelihood vulnerability.

- For others the frequency or permanency of the benefits offered by forests is not important, but they do value and require access to those benefits on a seasonal basis for financial, spiritual or direct use purposes, or on an *ad hoc* basis in times of hardship or adversity, as a safety-net until conditions improve again.
- For a small proportion of rural households (< 5 %), employment in the formal sector associated with forestry and ecotourism, or informal trade in forest products, represents the primary source of cash income and livelihood, and have definitely helped households overcome poverty, or have prevented them being counted amongst the poor.
- The returns to labour from engagement in forestry related enterprises are usually greater than daily wage labour rates to casual or full-time workers in the agricultural sector, if such casual labour were available in such remote and underdeveloped areas, which is often not the case. In terms of informal traders it can be 2 – 3 times greater, whereas formal employees earn from 2 – 15 times more.
- Whilst there are certain parallels and similarities between South Africa and the situation in more tropical, developing countries, there are also some important differences that generally serve to increase the importance of forests, forestry and forest products in rural livelihoods.
- The cultural, spiritual and ecosystem services values of forests require further definition and measurement.
- The three poorest provinces in South Africa (Eastern Cape, Limpopo Province and KwaZulu-Natal) are well endowed with forests, and therefore should be the focus area for future interventions.

### **13. ACKNOWLEDGMENTS**

This report contains much data, statistics and commentary not in the public domain, made available by colleagues and interested parties. In particular Sheona Shackleton made valuable inputs through reading and commenting on a draft version, as well as numerous discussions over concepts and ideas. Roger Godsmark of FSA was always willing to supply information and names and contact details of people involved in the broader forestry industry in South Africa.

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## ENDNOTES

<sup>i</sup> Based on data generated from the national Biomass Initiative in the early 1990s.

<sup>ii</sup> Calculated a mean value of R1 975 ± R490 per household per year multiplied by 1.53 million households in the wooded biomes.

<sup>iii</sup> Extrapolated from empirical surveys in KwaZulu-Natal.

<sup>iv</sup> Determined as the mean of R900 per person per year from empirical surveys by Shackleton, multiplied by 9.2. million rural people in the savanna biome.

<sup>v</sup> Derivation of the number of crafters is not supplied in the source document.

<sup>vi</sup> Total foreign and domestic tourism = R78.8 billion, multiplied by 35 % of South Africa under wooded biomes = R27.5 billion. Assumes that they remain in the wooded biome for entire stay. That is unlikely, but so too the opposite applies; tourists visiting Cape Town usually also spend some of their trip in a wooded biome; hence can assume they even each other out.

<sup>vii</sup> Calculated as the replacement requirements of using either paraffin or electricity and the expected carbon emissions from these, costed at R7 per ton of carbon.