

# The Dry Forests and Woodlands of Africa

Managing for Products and Services

*Edited by*

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# Contribution of Non-wood Forest Products to Livelihoods and Poverty Alleviation

*Sheona Shackleton and Davison Gumbo*

## DEFINING NON-WOOD FOREST PRODUCTS: DIVERSITY AND CONTEXT

The term non-timber forest product (NTFP) was first popularized by de Beer and McDermott (1989) in an attempt to raise awareness of the importance of forests for uses other than commercial logging. They drew attention to the fact that many forest resources, other than timber, held significant value for local people and their economies and certainly did not deserve the label 'minor' forest products. They defined NTFPs to encompass 'all biological materials other than timber, which are extracted from forests for human use'. Since then there have been various refinements of this definition and much debate over what should and should not be included as an NTFP (Belcher, 2003). Wickens (1991) defined 'timber' more explicitly as industrial roundwood and derived sawn timber, woodchips, wood panel and pulp, and added plantations as well as natural forests as a source of products. With this clarification, woodcarvings, fuelwood, charcoal and other locally manufactured wood products such as furniture all fall under the NTFP banner. This contrasts with the Food and Agriculture Organization of the UN (FAO) term – non-wood forest products (NWFP) – that purposely excludes wood in all its forms. Recently, the use of the term NWFP has become so widespread, that it now

often encompasses products from ecosystems other than forests (Belcher, 2003).

Drawing on the above, an NWFP has been defined for the purposes of this book as any raw or processed product, excluding commercial timber, that is produced from an indigenous or wild biological resource found within the dry forest zone and that is harvested for either domestic consumption or trade. In some instances, the resource may be cultivated or sourced from modified or non-natural systems (as for some edible leafy plants), but cannot be regarded as a conventional agricultural crop.

Non-wood forest products are an extremely diverse and complex category (Figure 4.1). As is evident from the above, they include a diversity of biological groups or 'types of resource' (herbaceous plants, climbers, trees, insects, birds, mammals, fungi, etc.) as well as thousands of species, all with differing biological and ecological characteristics. Many species have multiple and sometimes even competing uses. The types of raw and processed products are also vast, including wood products, fruits, seeds, exudates, leaves, bark, roots, bulbs, stems, fibres, whole organisms (e.g. insects, mammals and fungi), honey, oils, juices and various extracts and derivatives, some requiring sophisticated processing technology. Some products (e.g. wild fruits) may be extremely seasonal, only available for very short periods in the year. The uses NWFPs can be put to are just as varied, and may include, for example, for food, medicines, craft, building and fencing, energy, as inputs into farming systems (e.g. wooden tools and implements, organic fertilizers, veterinary medicines), and as new organic products for the cosmetic, botanical, pharmaceutical and health food industries.

Categories of NWFPs thus include a mix of products and species with very different ecological, social, livelihood and market niches, and equally diverse management and trade practices, and end products and consumers (Wynberg and Laird, 2007). This multidimensionality is often bewildering, creating numerous challenges for policy-makers in designing policy, legislation and programmes for these products, as well as for their development and sustainable management. It also makes it tremendously difficult to touch on all aspects of these products in any substantial way in one book chapter, particularly given the scope of countries and forest and woodland types involved.

Superimposed on this complexity related to the biological and physical characteristics of the resource and product, are a whole range of social, institutional and, for traded products, market factors (Alexiades and Shanley, 2004). As already mentioned, NWFPs are not only used to meet subsistence needs, but are also economic resources that may be traded between different kinds of actors in different types and scales of markets. This trade may be locally driven, as in the majority of situations, or externally facilitated, and may involve government, non-government and private sector stakeholders working in partnership with local communities. Sometimes competition between uses and different markets may arise, with possible deleterious impacts on the resource base and on local social systems. Non-wood forest products are also embedded in the political and cultural life of the people involved in their collection and consump-

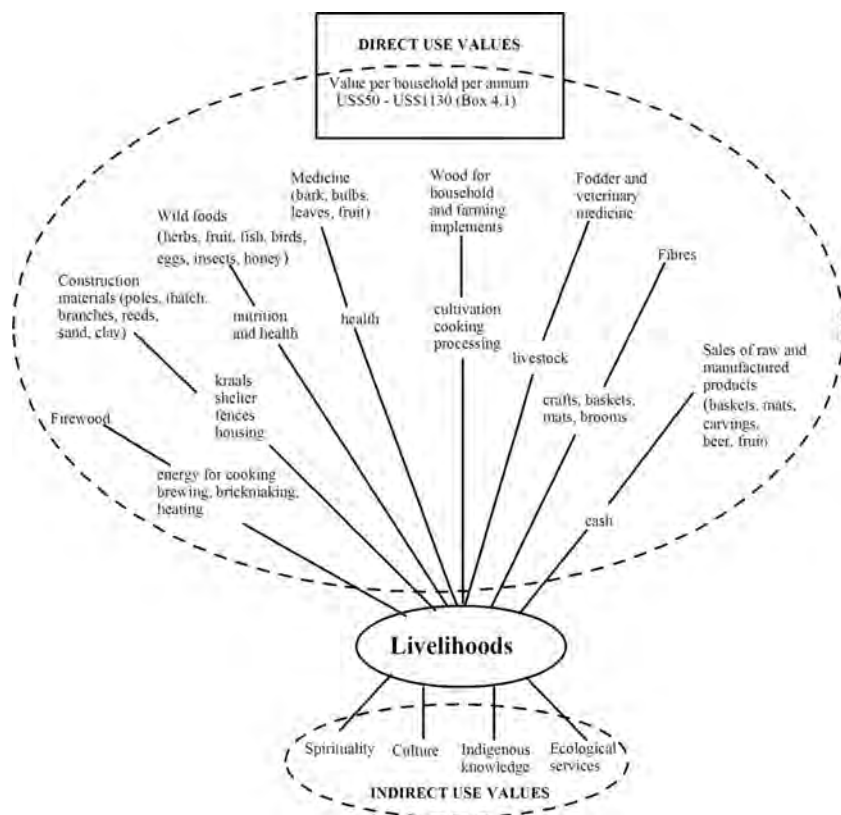


Figure 4.1 Diversity of products and services that contribute to livelihoods in sub-Saharan dry forests and woodlands

Source: Chapter authors

tion, with their ‘multidimensionality evident in the myriad of processes, actors and factors that shape their access, management and commercialisation’ (Alexiades and Shanley, 2004). The fact that NWFPs may be sourced from land under different types of ownership and management, including communal, private and state protected areas, is just one important institutional dimension affecting access and management. Furthermore, the way in which NWFPs are integrated into users’ livelihoods, and their significance for the household economy, varies amongst different social actors and groupings, and according to the types of assets households have.

Despite this, and the fact that many millions of poor people benefit daily from NWFPs, their crucial importance for livelihood security and significant economic contribution, primarily in the informal sector, is generally poorly recognized and appreciated and sometimes even ignored in terms of national policy and forest management (Bird and Dickson, 2005; Petheram et al, 2006). Such neglect may undermine the potential of these products to deliver benefits

### BOX 4.1 TAPPING NEW MARKETS: PHYTO TRADE AFRICA'S APPROACH TO NATURAL PRODUCT COMMERCIALIZATION

*Lucy Welford, PhytoTrade Africa*

PhytoTrade Africa ([www.phytotradeafrica.com](http://www.phytotradeafrica.com)) is the Southern African Natural Products Trade Association. Since its inception in 2001, PhytoTrade Africa has been committed to its objective of improving rural livelihoods through developing a sustainable natural products sector in southern Africa. PhytoTrade works with over 50 members in southern Africa (Botswana, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe), who in turn work with tens of thousands of natural products producers in the region.

PhytoTrade Africa has developed environmentally sustainable and ethical supply chains for natural cosmetic and food ingredients that are wild harvested from indigenous plant species found predominantly in woodlands from across southern Africa. The association is currently researching over 300 species of useful plants, but focal species include manketti/mongongo (*Schinziophyton rautanenii*), baobab (*Adansonia digitata*), sausage tree (*Kigelia africana*), kalahari melon (*Citrullus lanatus*), marula (*Sclerocarya birrea*), mobola plum (*Parinari* spp) and sour plum (*Ximenia* spp). Categories of products produced include herbal teas, essential oils, gums and resins, lipid oils, fruit pulps and a variety of botanical raw materials and extracts.

With training and capacity building from PhytoTrade Africa, and utilizing both internal audit measures and external Fair Trade and environmental and organic certification schemes, association members are able to assure industry of reliable supply chain management and adherence to strict quality control measures. PhytoTrade's members supply industry with products for the nutraceutical, phyto-medicinal, botanical, flavour and fragrance, herbal remedy, dietary supplement, functional food, cosmeceutical and personal care industries. In order to do this, the association develops commercial opportunities on behalf of its members based on partnerships with commercial companies in key natural products markets. This involves not only developing long-term trusting partnerships with international commercial companies, but also ensuring that strong legal and technical agreements are in place. Commercial partnerships are based on a sound approach to both market and product development that demonstrates meaningful financial and technical commitment by both parties.

PhytoTrade Africa works in four key areas:

#### 1. Institutional development

PhytoTrade Africa acts as a service provider to the natural products industry and a stakeholder within the industry and realizes that:

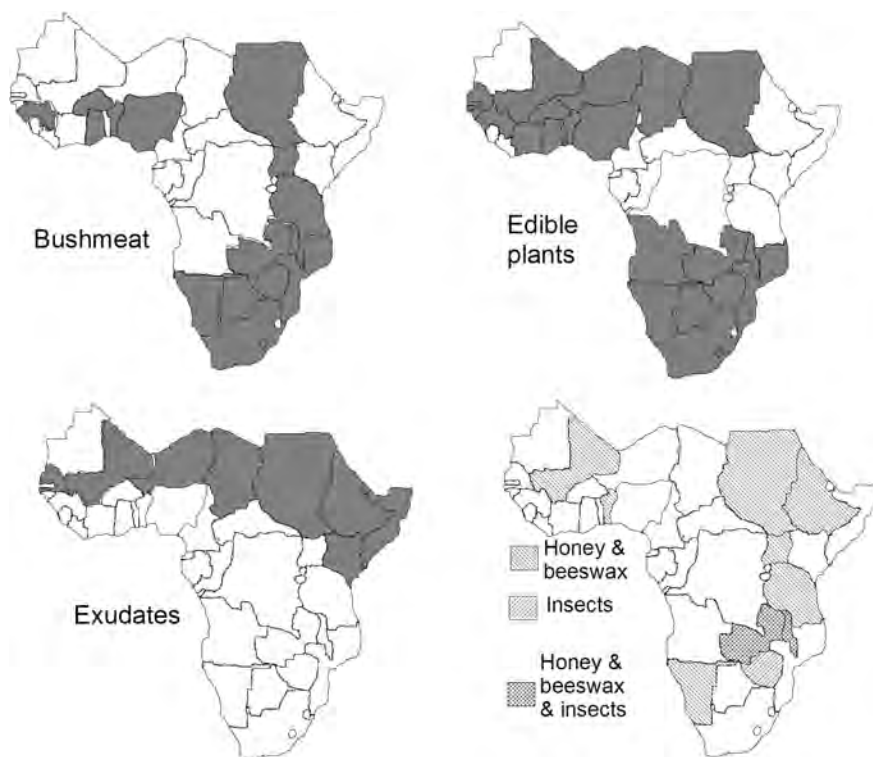
- industry will always be driven by private sector;
- for primary producers to make money, all actors in the market chain must also make money;
- intervention points for industry tend to be higher up the chain.

2. Product development
  - PhytoTrade Africa's strategy is to pass the responsibility and cost for product development to commercial partners;
  - this maximizes the association's R&D funding;
  - and ensures that products are developed that the market wants.
3. Market development: negotiating commercial partnerships
  - market development is closely linked with PhytoTrade Africa's R&D approach;
  - there is recognition that it is better to develop a relationship with one reliable client than many one-off buyers;
  - ensures that strong legal agreements are in place;
  - the Association has a marketing office in its primary export market and maintains a presence at key trade fairs and industry events;
  - the Association maintains a strong corporate identity.
4. Supply chain development
  - PhytoTrade is not part of the supply chain;
  - PhytoTrade ensures quality standards are maintained through a 'pre-qualified supplier' audit;
  - the Association provides guidance on production and processing technologies and quality standards;
  - ensures volumes of production meet demand;
  - provides assistance with certification;
  - provides assistance with logistics and paperwork.

in the future, erode vital safety nets, and exacerbate the already persistent poverty situation so endemic in Africa.

Daily, millions of men, women and children across the dry forest and woodland countries of sub-Saharan Africa enter the forests and woodlands surrounding their villages to procure an array of wild natural resources, or NWFPs, for home consumption and sale. Non-wood forest products have long formed a vital component of people's everyday livelihood needs, providing energy, food, medicines and raw materials for building, crafts, tools and implements (Campbell and Luckert, 2002; see Figure 4.1). In addition to subsistence use, NWFPs are also sold, in raw or processed form, in local and regional markets, offering an important means for poor individuals and households to generate cash income. In other instances, these products may form the basis of commercial enterprises, with some commodities reaching high-value international markets. In the last 10–15 years, facilitated projects aimed at the dual goals of biodiversity conservation and rural development have further stimulated and developed the trade in NWFPs, often in new external markets (Neumann and Hirsch, 2000; Box 4.1).

There is a distinct geographical variation in the importance of NWFPs across sub-Saharan Africa (Figure 4.2). Exudates (gum Arabic, olibanum, myrrh, tannins, opopanax, gum karaya) are more important in the Sudanian woodlands while edible plant foods are equally important in both the Sudanian and Zambeian woodlands. The importance of insect foods appears to be restricted



**Figure 4.2** *Important non-wood forest products across sub-Saharan Africa*

Source: Walter (2001)

to Zambezian woodlands in Malawi, Zambia and Zimbabwe while the importance of honey and beeswax is widespread in the Kalahari, Zambezian and Somali-Masai phytoregions, although it is also important in a few countries in the Sudanian phytoregion. Unlike plant-based NWFPs, bushmeat is important in most countries across all the dry forest and woodland regions of sub-Saharan Africa. Some of these NWFPs, such as exudates are discussed in Chapter 9.

It is within this context that this chapter seeks to document the uses, livelihood significance, value and key challenges for a number of important categories of NWFPs, drawing from across the dry forest and woodlands of Africa. The chapter is structured as follows. Firstly, a definition of the term NWFP is provided (see above) and some of the intricacies and complexities of the sector highlighted. This is followed by synopses of livelihood, poverty and safety net roles of dry forests and woodlands. Additional synopses cover NWFPs' value and importance for subsistence, culture and commercial trade. This is followed by a section that summarizes some of the main challenges.



## POVERTY IN DRY FOREST AND WOODLAND COUNTRIES: THE PLACE OF NWFPs

Africa has the redoubtable reputation of being home to some of the poorest countries in the world. Poverty in Africa is rife; almost 60 per cent of rural Africans live on less than US\$1 per day (Kaimowitz, 2003; World Bank, 2005). In many of the continent's rural areas, poverty appears entrenched and intractable with few opportunities for relief, especially in the context of the huge and devastating impacts of HIV/AIDs (Bryceson and Fonseca, 2006; Shackleton, 2006; Wiegiers et al, 2006). Moreover, within the dry forest and woodland regions, low and erratic rainfall, frequent droughts, and generally poor soils render farming activities, particularly those based on arable agriculture, exceptionally risky, contributing further to the hardships rural people face (Frost and Mandondo, 1999; Mortimore, 1998). All of this is aggravated by socio-economic conditions typical of underdeveloped areas, including inadequate infrastructure and services, poor exposure and access to markets, weak political power, low human capacity due to poor education and health, and often struggling local institutions (Belcher, 2005; Hedge, 2007).

It therefore comes as no surprise that some 320 million people depend on Africa's dry forests and woodlands to meet many of their basic needs (Petheram et al, 2006). The collection, and in some cases the sale, of NWFPs provides one of the most widely accessible livelihood opportunities available to poor rural people in these regions. Most NWFPs can be accessed 'freely' by households, and low barriers to entry mean people can trade in these products with little capital investment. In Zimbabwe, up to a third of household income has been estimated to come from NWFPs, with the proportion consistently higher in poorer households (Cavendish, 2000; Campbell et al, 2002). Mutamba (2007) established a similar pattern in Zambia. Such households typically engage in low return activities but often fail to accumulate capital from such activities (Kamanga et al, 2009). As will be shown later poor households focus on using forests and woodlands for consumption and as safety nets (Angelsen and Wunder, 2003). Further, some activities (e.g. bushmeat hunting) are predominantly carried out by males, while the increased marketing of plant materials is carried out by women, thereby increasing their opportunities to earn incomes. Notwithstanding all this, the rational extraction of NWFP contributes towards poverty reduction in the dry forests and woodlands of sub-Saharan Africa.

Valuation studies undertaken in a number of dry forest and woodland countries, mainly within southern Africa, have demonstrated the significant economic value of NWFPs for rural households, with the income share from these products reaching as much as one third of total household income (Table 4.1). In most cases, the largest proportion of this value can be attributed to firewood consumption, followed by wild foods and construction materials.

**Table 4.1** *Value of dry forest and woodland NWFPs to rural households*

<i>Region/Country</i>	<i>Value (US\$ per household per year)</i>	<i>Percentage contribution to total household income</i>	<i>Source</i>
Botswana	335	20.1	Zitzmann (2000) in Chipeta and Kowera (2004)
Zimbabwe	436	28.4	Cavendish (2000)
Zimbabwe	50–85	–	Campbell et al (1996)
Zimbabwe	120	–	Clarke et al (1996)
Zimbabwe	578	–	Campbell et al (1997)
Zimbabwe	320	–	FAO (1999)
Zimbabwe, Chivi	99	15.0	Campbell et al (2002)
South Africa, Bushbuckridge, Limpopo Province	572	19.4	Dovie (2004)
South Africa, Mogano, Limpopo Province	1130	–	Shackleton et al (2002)
South Africa, Ha-Gondo, Limpopo Province	565	–	Shackleton et al (2002)
South Africa, Mameja, Limpopo Province	620	–	Twine et al (2003)
Eritrea, Dighe, Gash-Barka Administrative Zone	386	–	Araia (2005)

*Note:* Values are not directly comparable as different studies have varying criteria regarding what to include/exclude from the analysis, for example the Cavendish study includes livestock browse while the others do not. Local currencies have been converted to US\$ at the exchange rate for the year that fieldwork was completed.

## SUBSISTENCE AND CULTURAL USES

In terms of subsistence use, NWFPs are critical for health, food, nutrition, shelter and energy. Considering food security and nutrition alone, poor people depend on NWFPs for many regularly utilized foods, for crisis or famine foods, for firewood to cook, for nutrients and vitamins, for grazing, for genetic resources, for inputs into agricultural production, such as implement handles and ploughs, and for the raw material for manufacturing such items as canoes for fishing (Bass et al, 2001). Non-wood forest products make significant contributions to livelihoods for the poor and more so for remote area dwellers. These are areas that are physically or frictionally distant from locations of strong economic activity and may lie behind ecological barriers such as mountains or disease prone areas (McCall, 1985; Smith, 1992; Barrett et al, 2005).

Recent work to place an economic value on this auto-consumption of wild products has shown it to be worth several hundreds of dollars per annum to user households (Clarke et al, 1996; Cavendish, 2000; Campbell et al, 2002; Chipeta and Kowero, 2004; Shackleton and Shackleton, 2004a, 2004b; Vedeld et al, 2004; Box 4.1). Moreover, this daily subsistence use of 'free' NWFPs allows households to enjoy a significant saving of scarce cash resources that can be redirected to meet other needs (Shackleton and Shackleton, 2004b). Non-wood forest products are also frequently used to barter for other goods or as a

source of exchange for labour. For example, female-headed or elderly-headed households needing the help of a strong man to assist with, for instance, building repairs often brew traditional beers (Shackleton and Shackleton, 2005) or collect wild fruits as 'payment'.

In addition to the practical uses described, many NWFPs also have important social and cultural functions providing indirect livelihood benefits. Non-wood forest products such as medicinal plants can be symbolically and culturally important, providing livelihood benefits through social significance (Coad et al, 2008). Medicinal plants may be held in special religious, nationalistic or ideological esteem, thus providing a culturally based support for the value of flora and fauna (Hamilton, 2004) in the dry forests and woodlands of sub-Saharan Africa. Further, the sharing of marula (*Sclerocarya birrea*) beer (a widespread woodland product) plays a key role in building and maintaining vital social support systems, allowing people to draw on these networks in times of need (Shackleton and Shackleton, 2005). Marula beer could, thus, be viewed as having an indirect safety net or risk insurance function. Many NWFPs are collected and purchased for their spiritual and cultural significance and value (Cocks, 2006). These products may be used as traditional gifts, as cultural symbols in rituals, as charms and talismans against external agents like witches, as 'protectors' against events such as lightning strikes, and to build friendships and reciprocity. Often the process of gathering and processing NWFPs results in important social benefits as groups of people cooperate in these activities and can be a basis for community-based systems for conservation (den Adel, 2002). Furthermore, local knowledge of traditional practices centred on NWFPs, e.g. medicinal plants can be a source of employment opportunities and local identity (Coad et al, 2008). In this way, customs, taboos and superstitions associated with the use of NWFPs can assist in their sustainable management. These important traditional and cultural values of NWFPs are often forgotten in the pursuit of demonstrating economic value and in maximizing financial outcomes.

Non-wood forest products are a key resource for many poor communities (Sunderlin et al, 2005; Mutamba, 2007; Vedeld et al, 2007). In western Africa, for example, bushmeat provides 25 per cent of protein requirements, and can be the principal source for some indigenous groups (Bennett and Robinson, 2000; Fusari and Carpaneto, 2006). While there is some truth in the above statement, increased poverty and food insecurity are leading many people to turn to wildlife as a source of food. De Merode et al (2003) noted that bushmeat is more important for income than food and hunters often sell their catch to buy cheaper alternative foods (Juste et al, 1995). In addition, poor households may not benefit as often they may not even have males to carry out the hunting. In eastern and southern Africa, where the sale of wildlife products is commonly outside the formal economy the contribution of bushmeat goes unnoticed (de Merode et al, 2003; Fusari and Carpaneto, 2006).

## SAFETY NET ROLE

Non-wood forest products derived from dry forest and woodlands of Africa play different roles in the livelihood strategies of different types of users ranging from being a source of food for subsistence, materials, medicines and equipment to safety nets (Belcher and Kusters, 2004). Depending on circumstances, dry forest and woodland products can be treated as 'daily net' and a 'safety net'. The 'daily net' describes everyday use, with products meeting current household needs, offering a reliable source of income to purchase agricultural inputs (Shackleton and Shackleton, 2004b), or fodder for livestock herds. A 'safety net' comes into play when other sources of household income (e.g. agriculture) fail to meet dietary shortfalls, or whenever a quick cash option is required (McSweeney, 2003). Studies have shown that NWFPs provide a 'safety-net' function in terms of quick, easy access to goods for household consumption or sale to earn cash in unpredictable misfortunes such as illness, death or natural disasters. In addition, Africa's dry forest and woodland countries experience frequent crop failure often resulting in poor nutrition of local people. In such cases, particular forest or woodland products will act as a form of 'natural insurance' (Arnold and Ruiz-Pérez, 2001; McSweeney, 2004; Takasaki et al, 2004), at critical times of the year to bridge income gaps, and/or to meet specific needs such as school fees or the costs of a celebration (Wunder, 2001; Belcher and Kusters, 2004). This safety net, buffering, and gap filling role of NWFPs also extends to the use of goods for own consumption during droughts, floods or other lean times, and as substitutes for purchased products during cash flow crises (Byron and Arnold, 1999; Kaimowitz, 2003). It is noted that certain livelihood activities (e.g. the sale of NWFPs) that may have originated as a response to misfortune, can also be upgraded to a permanent strategy (Angelsen and Wunder, 2003). 'Income smoothing' is another widely mentioned benefit of NWFP trading, especially at times when on-farm labour is in low demand (Fereday et al, 1997). In all of these situations, NWFPs serve the function of reducing household risk and vulnerability (Arnold, 2002), often helping to prevent households, particularly the poorest (Takasaki et al, 2004), from sinking lower into poverty during difficult times.

## TRADE AND CASH INCOME

Millions of people in sub-Saharan dry forest and woodland countries trade in a diverse range of NWFPs and this trade appears to be growing worldwide, with numerous examples of supportive evidence from Africa (Campbell et al, 2002; Lowore, 2003; Clarke and Grundy, 2004; Box 4.2). Increasingly, rural dwellers are selling products previously used only for subsistence and cultural purposes. This growth is driven, at the local level, by a greater need for cash income as people become more integrated into the market economy, and by economic hardship and shock due to, amongst other factors, unemployment, retrench-

ment, withdrawal of agricultural subsidies and HIV/AIDS (Devereux, 1999; Monela et al, 1999; Rogerson and Sithole, 2001; Campbell et al, 2002; Kepe, 2002). In sub-Saharan Africa alone, it is estimated that several million people earn their primary cash income from the sale of NWFPs (Kaimowitz, 2003). In South Africa, some 3–14 per cent of rural households within the savanna biome are trading in at least one natural resource product, albeit often on an irregular basis. Some products such as medicinal plants form part of a multi-million dollar industry in South Africa, providing income-earning opportunities for many gatherers and traders, mainly poor rural and peri-urban women, and some 300,000 traditional healers (Mander, 1998, also see Box 4.2). Others, such as everyday items like traditional brooms and mats, provide more localized benefits, but are nonetheless still critical for the households involved (Shackleton, 2005).

Generally the returns from the sales of NWFPs are modest for the majority of participants, although extremely variable both within and across products and between households. Cash incomes earned may range from a few hundred to thousands of dollars per annum, even amongst those producing and selling the same product (Shackleton, 2005), and may contribute all or only a small proportion of total household income, with the average being between 10 and 25 per cent (Ndoye et al, 1997; Cavendish, 2000; Vedeld et al, 2007). For individuals and households specializing in niche markets, incomes may be more significant, but, on the whole, returns are limited by the conditions characteristic of rural sub-Saharan Africa mentioned above, as well as isolation, poor roads, high transport costs, a lack of markets or limited markets, insecure property rights and poor education and levels of organization amongst small-scale entrepreneurs (Sunderland and Ndoye, 2004).

Participation in forest product commercialization represents different types of livelihood strategy for different categories of poor households (Ruiz-Pérez et al, 2004; Shackleton, 2005; Marshall et al, 2006; Wiersum and Ros-Tonen, 2006). The sale of NWFPs may form part of an income diversification or risk reduction strategy, as households or individuals seek ways to supplement other sources of income or smooth their earnings throughout the year. For example, the NWFP trade often complements agricultural production in many regions of the world and in large parts of Africa (Byron and Arnold, 1999; Campbell et al, 2002). Alternatively, the trade may be the primary source of income for households, resulting in high levels of specialization (Ruiz-Pérez et al, 2004). Such a scenario is most likely for high value-added products, often with external markets; in situations that are conducive to trading such as close proximity to a major urban centre; and where intensified production is taking place. In these cases, if the value of the product increases significantly then the danger exists that the trade and benefits may be captured by the better off (Dove, 1993; see above). At the other end of the spectrum, it is not uncommon to find that individuals and households turn to trading in NWFPs in the absence of any alternative income-earning opportunities, particularly after experiencing hardship or shock (e.g. Shackleton et al, 2000; Rogerson and Sithole, 2001). The opportunity to sell NWFPs thus provides a safety net for people desperately looking for

### BOX 4.2 REGIONAL, NATIONAL AND EXPORT VALUE OF TRADE IN SELECTED DRY FOREST AND WOODLAND NWFPS

The value of the commercial trade in NWFPS to regional and national economies can be substantial, although in general data are extremely scarce or unreliable. Often, where statistics are available, these only capture the value of formally traded export goods. Thus the considerable worth of domestic markets and the extensive informal trade is generally underreported and underestimated. The following provides some illustration of the potential economic value of a range of dry forest and woodland products.

- The mopane worm industry in Botswana was valued at £4.42 million (then US\$7 million) in 1995 and employed as many as 10,000 local people (Styles, 1995).
- The informal trade in medicinal plants in southern Africa is valued at US\$75–150 million per annum with some 35,000–70,000 tonnes of plant material traded each year (Mander and Le Breton, 2006).
- The value of gum and resin exports from Ethiopia from 2001–2003 amounted to US\$2.8 million, 3.3 million and 4.1 million respectively. Natural gum tapping and collection activities create seasonal employment opportunities for 20,000–30,000 people.
- In 2005, some 256 tonnes of beeswax worth US\$1 million were exported from Ethiopia, while the corresponding figures for Tanzania were 277 tonnes and US\$1.3 million, respectively (ITC, 2006).
- The woodcarving industry in Kenya is worth over US\$20 million annually in export products and employs some 60,000–80,000 carvers supporting over 400,000 dependants (Choge, 2004).
- Zambia and Tanzania are the two woodland countries exporting the largest volumes of honey. In Zambia in 2005, 219 tonnes of honey were exported with a value of US\$491,000 while Tanzania exported 466 tonnes with a value of US\$674,000. In both countries, volumes exported have risen by 20–30% since 2001 (ITC, 2006).
- Shea butter is the third most important crop in Burkina Faso and provides income to about 300,000–400,000 women (Schreckenber, 2004; Harsch, 2001). Imports of shea butter to Europe from Sahelian countries were estimated at US\$13 million in 1999 (Schreckenber, 2004).

some source of income. Unlike the short-term safety net functions described earlier, this may evolve into a long-term or permanent source of livelihood or coping strategy if the conditions that initially forced the individual into the trade prevail, or if the producer subsequently chooses to make their living from the trade. It is not unusual to find all these livelihood strategies represented for the same product, but in different types of households (Lowore, 2003; Stack et al, 2003; Shackleton, 2005). Furthermore, in many instances, households sell more than one NWFPS, depending on a portfolio of different products to ensure a more reliable income and reduce risk. These subtleties are often missed in studies that are product rather than livelihood focused.

## IMPORTANCE FOR THE MARGINALIZED AND VULNERABLE

Most work to date suggests that it is the poorest members of society who are most dependent on NWFPs (Fereday et al, 1997; Cavendish, 2000; Neumann and Hirsch, 2000; Beck and Nesmith, 2001; Fisher, 2004; Shackleton and Shackleton, 2006), although recent findings from the humid regions of Cameroon reveal that NWFPs in that country contribute most significantly to middle-income households (Ambrose-Oji, 2003). The collection of NWFPs is an activity that is generally available to all households, but that is more likely to be exploited by poorer groups with limited land resources and other assets, minimal education and skills, and few other income sources, contributing a greater proportion of total income to these households (Arnold, 2002; Fisher, 2004). In addition, households living in remote areas are also likely to be vulnerable. Wild foods are extremely important for the nutrition and food security of children, especially those from poor and HIV/AIDS affected households (Kaschula in Shackleton, 2006, also see Chapter 5). The low barriers to entry to the trade in many NWFPs means that this activity provides an important option for poor and marginalized households who would have difficulty accessing other employment opportunities, or who are less able to cope with or insure against risk than better-off households (Fisher, 2004).

It is noted that vulnerability affects both the rich and poor households (Devereux et al, 2006) as this is a dynamic concept that is constantly changing and forward looking. They further argue that poverty is a static concept that measures proxies for well-being at a point in time. For the poor, however, it can be noted that resilience and the ability to cope with risk will be subject to the extent to which their asset base is 'degraded'. Poor and risk-prone households are likely to prevent neighbouring households from coming out of poverty and thus remain vulnerable (Corcoran, 1995).

Women in particular benefit widely from the use and sale of these products, as do older and less educated people who cannot compete effectively in the formal job market (Falconer, 1996; Terry, 1999; Kaimowitz, 2003). Non-wood forest products are often of particular importance to women, but the context can lead to radically different situations for them. In situations where women are the traditional harvesters/producers of NWFPs as is the case in much of sub-Saharan Africa they may be able to use their skills and knowledge to improve their status and increase their contribution to decision-making processes. In some cases returns may be too low to such an extent that the earnings realized may not help in any way to contribute to their economic and political emancipation. Conversely, the returns may be very high and they will be edged out by the men. In the worst cases, women may even become excluded from their traditional role in NWFPs because rights and/or benefits are captured by men in case of increasingly attractive benefits.

## ROLE IN POVERTY ALLEVIATION

Non-wood forest products are essentially a niche for the poor (Arnold and Ruiz-Pérez, 1998). That is the reason why any effort aimed at developing the sector will be very important for poverty reduction. There has been considerable debate recently regarding the ability of NWFPs to contribute significantly to the Millennium Development Goal of poverty alleviation. Much depends on how the notion of poverty is defined and understood (Angelsen and Wunder, 2003). Poverty has over time been an outcome-based measure of livelihood performance (Sunderlin et al, 2005). In this respect, poverty has often been measured in terms of absolute income, with a common indicator defining the 'poor' as those who earn less than US\$1 per day (Anglesen and Wunder, 2003). Lately, the concept of a Human Development Index (HDI) was developed by the United Nations Development Programme (UNDP) and this concept includes health and education parameters. Thus, poverty assessment frameworks now no longer view poverty as a matter of income alone. They tend to incorporate natural, human, social and physical capital, using indicators ranging from income, access to resources and basic infrastructure, to the vulnerability of populations to shock, and level of community organization (Dubouis, 2002).

Thus in accepting to combat poverty, it is necessary to consider, *inter alia*, aspects of income, income distribution, access to assets, human capital, empowerment and rights, vulnerability and risk, food security, alternatives and choice, health and well-being, and the ability of the poor to devise appropriate coping strategies when faced with shocks and crises (Sen, 2003; Ashley and Maxwell, 2001), then NWFPs clearly have a vital role to play. As outlined above, extensive evidence exists to support their importance in reducing vulnerability, in ensuring food security, in providing cash income to some of the poorest sectors of society, and in contributing more generally to improved rural welfare, livelihood security and diversification (e.g. Alexiades and Shanley, 2004; Kusters and Belcher, 2004; Sunderland and Ndoye, 2004). However, the picture is somewhat less unambiguous regarding how these products may assist poor people to accumulate assets, improve their standards of living and move out of poverty, certainly in any enduring way. Non-wood forest products, thus, tend to be more central to poverty mitigation, that is, preventing the deepening of poverty, than to poverty reduction or elimination, or lifting people out of poverty (FAO, 2003). Further, existing policy frameworks sometimes prevent this essential contribution of NWFPs being realized (Michon, 2005). With respect to the former, the essential poverty prevention role of NWFPs assumes magnified significance in the context of increased exposure of the poor to risk due to, amongst other factors, climate change (a significant concern in the dry forest and woodland regions), HIV/AIDS, changes in trade, globalization, and increasing violence and crime (Aliber, 2003; World Bank, 2000).

In summary, it is important to note that poverty reduction refers to a successful improvement of livelihoods (Sunderlin et al, 2003). When discussing forest-based poverty alleviation, it must be recognized that commercialization



**Table 4.1** *Interactions between well-being factors and social organization levels with regards to poverty*

	<i>Individual</i>	<i>Community</i>	<i>National</i>	<i>International</i>
Income and growth	<ul style="list-style-type: none"> <li>• Labour/non labour income</li> <li>• Enhanced land rights</li> <li>• Access to subsistence products</li> <li>• Small enterprise development</li> <li>• Skills and knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure improvements</li> <li>• Local spending</li> <li>• Improved public services</li> <li>• Skills and knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure improvements</li> <li>• Skills and knowledge</li> <li>• MDGs attained</li> <li>• Small and medium enterprise development</li> </ul>	<ul style="list-style-type: none"> <li>• Development and biodiversity conservation targets addressed</li> </ul>
Equity	<ul style="list-style-type: none"> <li>• Level and distribution of income and resource access from NWFP within households</li> </ul>	<ul style="list-style-type: none"> <li>• Level and distribution of income and resource access from NWFP within community</li> </ul>	<ul style="list-style-type: none"> <li>• Level and distribution of income and resource access from NWFP across regions</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanism for international trade in NWFP</li> </ul>
Voice and choice	<ul style="list-style-type: none"> <li>• Effective participation in community discussions of NWFP</li> </ul>	<ul style="list-style-type: none"> <li>• Effective participation in decision making over NWFPs</li> <li>• More viable representative local level institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Effective participation in national discussions over NWFP</li> </ul>	<ul style="list-style-type: none"> <li>• Effective participation in global discussions over NWFP</li> </ul>

*Note:* Millennium Development Goals (MDGs) are internationally agreed time-bound goals that provide concrete, numerical benchmarks for addressing extreme poverty in the world. They are eight in number and include targets on income poverty, hunger, maternal and child mortality, disease, inadequate shelter, gender inequality, environmental degradation and a Global Partnership for Development.

*Source:* Authors

and increased market access to forest resources does not necessarily provide opportunities for the poor, and may shift access and use towards the richer sections of a community (Arnold and Ruiz-Pérez, 2001). In Table 4.1 the potential benefits and risks of these systems for the poor are looked at with respect to dimensions of poverty, including income and growth, equity, and voice and choice; as well as the dimensions of scale: from individual, through community and national, to international scales.

While there are greater benefits that may accrue to an individual, issues pertaining to equity and extent of participation (voice) will limit this potential (Table 4.1). These issues are better addressed under the community level and it is not surprising that there have been calls for collective action and group marketing of products (see Box 4.3). At national level the potential is fully realized but will be subject to national policies (see section below). Surprisingly, the contributions made by NWFPs often go unnoticed and undervalued (Angelsen and Wunder, 2003). Dry forest and woodland dependent people, and especially the poor, extract a variety of NWFPs from these zones (Sunderlin et al, 2005; Vedeld et al, 2007; Kamanga et al, 2008). More systematic and comparative research on the linkages within and between poverty, the poor, NWFP use, commercialization, resource trends and ownership rights, is needed that can lead to a greater appreciation of NWFPs.

## KEY CHALLENGES

With regards to the role of NWFPs role in livelihoods and their potential for poverty reduction, a number of challenges are recognized as described below.

### **Climatic conditions**

The diversity and availability of NWFPs in the dry forests and woodlands of Africa are threatened by changing ecological conditions which will invariably affect the development, utilization, domestication, sustainability and commercialization of these products. It is worth noting that most dry forest and woodland countries have been hit by successive droughts from the 1970s, through 1990s. Consequently, natural resources have undergone serious deterioration and depletion and no respite is expected under climate change (Hulme et al, 2005).

### **Poor management of natural resources**

The status of natural resource management in general, and dry forests and woodlands in particular, in the zones covered under this book is poor. The poor management of dry forests and woodlands which constitute the resources base of NWFPs could be attributed to the fact that policymakers are unaware of:

- the extent of the uses or the values of these resources;
- the economic importance and the contribution of NWFPs to the informal sector and national economy;
- the magnitude of dependence of the rural poor on the resource for food security and income.

If values were recognized, the sustainability of the dry forests and woodlands through state sponsored management plans might be better implemented (Alden-Wily and Mbaya, 2001).

## **Non-wood forest products and regulatory frameworks**

Forest policies and regulations do affect the social and economic success of NWFPs management at the local and national levels. They define who has access to which kind of resources and in which kind of forests. They also further determine how benefits of forest management, collection and trade are shared among stakeholders. Forest policies and regulations are therefore essential in the determination of the social and economic attributes of forest management, including NWFPs collection and use. In most forest and woodland areas, NWFPs collectors are often people belonging to local forest and woodland-dependent communities. Subsistence products are collected by various social categories, including children, women and elders, whereas the collection of commercial products is usually dominated by young men.

Access regulations to NWFPs are generally more clearly embedded in the customary rights than in specific 'modern legal frameworks' and are thus often not regulated statutory by instruments and state control mechanisms (Michon, 2005). This may not be true for some of the important NWFPs e.g. mopane worms and the grapple plant in Botswana where the state has a keen interest. In most dry forest and woodland countries, competition for different land uses is leading to a poor consideration of NWFPs' production potential. Despite the safety net role of NWFPs, forests and woodlands are often perceived as a land reserve or available resource, even or especially for poor farmers.

Non-wood forest product policies should therefore pay particular attention to all kinds of local initiatives for NWFPs intensified management. They should particularly consider the relevance and legitimacy of management rules underlying cultivation, including:

- Access and property rules, including a blend of individual and collective rights and obligations, including rules concerning lands, but also on specific portions of space, or on trees or other resources.
- Customary management rules and practices.
- Local economic, but also social attributes of forests and woodlands: role in livelihood strategies, role in social cohesion and/or stratification of families and village communities. This implies the acknowledgement of local management as a specific domain of productive activity, independent of the legal domain in which it takes place.

## Regulations at local level: Are they compatible with national policies?

The first level for non-wood forest products regulation concerns customary rights and institutions. Although these systems can, by essence, be quite variable from one place to another, they generally show the following characteristics:

- They do not emphasize uniform rights, but bundles of specific rights tailored according to resources, users, or uses.
- They involve rights and obligations.
- They are quite flexible and adaptive, and easily evolve as the context or the needs change.
- They are recognized and acknowledged by all people concerned in the community.
- They are usually neither understood nor recognized by national constitutions/legislations.

It is important to state that these local regulatory systems do not necessarily target or guarantee sustainability, unless there is a feeling of threat on the possibilities to continue the economic activity.

The main problems arise when national dry forest and woodland regulation systems ignore these customary systems. Conflicts between national laws and local systems entail, among others, unsustainable management or mining of forest and woodland resources, abuse of power and grabbing of economic benefits by local elites, and social disintegration. Therefore, policies targeting sustainable NWFP management have to assess the relevance of local management systems, and to find theoretical and practical ways to accommodate local rights in national systems.

## Non-wood forest product harvesting and resource conservation

The analysis of the environmental benefits of promoting NWFPs has also advanced with regard to earlier optimistic assessments by Peters (1994). It is generally accepted that the harvesting of NWFPs tends to maintain forest cover, particularly when compared with other alternative land uses (Ruiz-Pérez et al, 2004). The effects on biodiversity are variable; NWFP based activities generally maintain a substantial amount of the species naturally occurring, although it certainly affects them, especially those most sensitive to human presence or those which are also collected in parallel with the commercial gathering of the main NWFPs (Peters, 1994; Freese, 1997; Bennett and Robinson, 2000; Tickin, 2004). This extraction can also seriously affect the populations being exploited, particularly in the context of wild gathering and market expansion. The promotion of commercial uses of NWFPs can then be viewed as a double-edged sword, with potential and risks (Redford, 1992).

## Marketing of non-wood forest products

It has been observed that the gathering and sale of NWFPs rarely generates enough income to sustain households. This has been presented as a conservation and development strategy but for such a strategy to work NWFP commercialization must be transparent, equitable and sustainable. There must be a positive impact on poverty reduction, gendered equality, resource access and tenure management. For this to work, local, regional and external markets must be accessed and to do this frameworks that enable closer collaboration within and among producers, processors and traders must be developed. New markets must be sought while the processing of locally gathered NWFPs should be encouraged for the purpose of adding value.

That said, the situation is not all bleak regarding the potential of NWFPs as a means to help people move out of poverty, and there are examples of successful NWFP commercialization. Moreover, a number of recent trends and new market opportunities hold fresh promise for the development and growth of the NWFP trade and for enhancing its livelihood benefits, particularly within an enabling policy environment and with government and other stakeholder recognition and support. Some of these trends include:

- A burgeoning demand for low-cost forest products such as wood-based fuels, foods (bushmeat, fruits, alcoholic beverages) and medicines, amongst the urban poor as African populations urbanize (Williams et al, 2000; UNEP, 2002; Scherr, 2004).
- A growing domestic market for products with traditional and cultural significance, particularly those that cannot be readily substituted (Cocks, 2006).
- The emergence of new niche markets for certified organic and fair-traded natural product-based health, food and cosmetic commodities. Enhanced consumer demand for such products is resulting in growing interest by private sector industrial companies in some of the more high value forest products and the possibility of working directly, or through intermediary partners, with local groups of producers (e.g. PhytoTrade Africa, 2006; Box 4.1).
- Widespread changes in forest governance that favour strengthened local rights over forest resources and more secure land tenure with positive impacts for access, sustainable resource use, and management and intensification of production (Scherr, 2004; Belcher, 2005).
- Greater interest by development agencies (NGOs, donors) in NWFPs and small-scale forest enterprises as an attractive option for reaching some of the poorest people with limited livelihood options (e.g. women, HIV/AIDS affected households), while many conservation agencies continue to view forest and woodland-based enterprise development as an important route to achieving both conservation and livelihood objectives (Box 4.2). Consequently, there is a significant degree of interest in facilitating forest product commercialization and trade.

### BOX 4.3 SHEA (*VITELLARIA PARADOXA*) PRODUCTS IN BURKINA FASO

*Ousseynou Ndoye, CIFOR*

Shea products (nuts and butter) are very important NTFPs in Burkina Faso. The value of their exports in 2000 was estimated at US\$7 million and they provide employment to 300,000–400,000 rural women (Harsch, 2001). A study of 102 women who collect, process and market shea showed that they receive, on average, a monthly income of US\$5–40, which is higher than the estimates obtained from Benin (Schreckenber, 2004) and other provinces of Burkina Faso (Crelerot, 1995, cited by Boffa, 1999). Women use about 36 per cent of their shea revenues to buy food and medicines, which is clearly indicative of the importance of shea to household economies. Thus food security is a major goal for households involved in shea production, processing and trade. Children's education is the third most important item on which the revenue received from shea sale is spent (13 per cent).

In Burkina Faso, farmers protect old and young shea trees when they clear the woodland for cultivation. The tree can live up to 300 years and produces fruits from year 15 (Kanguembega, 2003). In a few areas of Burkina Faso, shea trees are harvested for charcoal production, which is very destructive and requires urgent action from the government to stop this practice. This trend is a result of increasing population pressure to satisfy both food and energy needs. In addition, the productivity of shea is low due to the aging of trees which reduces the level of supply and the benefits for households involved in shea collection, processing and marketing.

There is an urgent need to accelerate the domestication and mass planting of shea trees to increase productivity and to enable Burkina Faso to play a more important role in the world market and further improve the livelihoods of rural dwellers. The availability of improved varieties of shea trees will enable farmers to replace aging ones and reduce the pressure on the wild population of trees in the woodlands. This will enable Burkina Faso to respond better to the decision of chocolate companies to use more shea butter rather than cocoa to make chocolate.

Market opportunities need to be enhanced and returns to primary producers increased by value addition, particularly through quality improvement and initiatives such as certification and fair trade labelling (Masters et al, 2004). Forest products, particularly NTFPs, are in general overlooked in national statistics. They also do not feature in poverty reduction strategies defined by many African governments. There is a need to engage a dialogue with policy-makers and to sensitize them on the need to recognize the contribution of NTFPs like shea to rural livelihoods and to include them in their poverty reduction programmes.

- Considerable advances in communication technology (e.g. cellular phones) are providing new opportunities for improved flow of information and better linkages between small-scale entrepreneurs and the markets – a major hurdle in the past. For example, in Africa, the mobile telecommunications sector has grown by an average of 78 per cent per annum over the

last ten years. The positive benefits of this technology for small-scale entrepreneurs have been well demonstrated by a study from Ghana in which it was concluded that access to cellular phones had decreased informal traders' transaction and transport costs, created a higher profit margin for them, increased their efficiency, and enhanced trust building within trade networks (Overa, 2006).

Where some of these opportunities have been harnessed, there is evidence to indicate that livelihood and financial benefits can be both raised and extended to much larger numbers of people, although it is often only in combination with other sources of income that they can provide a pathway out of poverty. This is well illustrated by the shea butter trade in West Africa (Box 4.3), PhytoTrade's initiatives in southern Africa (Box 4.2), and honey in Zambia (Box 5.3). However, scaling-up commercial production can be fraught with difficulties.

## CONCLUSIONS

The above sections have highlighted the importance of a number of categories of NWFPs for livelihood security, in particular for food security and alleviating dietary deficiencies, and for assisting households to cope with, if not escape, poverty. In particular, these products have been shown to be important for women and children, both extremely vulnerable groups. The use of NWFPs by urban, in addition to rural households, has also been pointed out, with this likely to grow with the increasing urbanization of Africa's population (UNEP, 2002). In fact, urban demand helps to create sustainable markets for NWFPs, contributing to their potential as a means to earn cash income. Furthermore, in all sections the role of NTFPs in mitigating some of the devastating impacts of HIV/AIDS has been stressed. Both plant and insect wild foods are highly nutritious and could assist in meeting some of the nutrition requirements of HIV/AIDS sufferers. The demand for traditional medicines has also risen as a result of the AIDS pandemic, with potentially negative feedbacks on the forest and medicinal plant stocks. The significant links of many NWFPs to culture and identity, and their role in building social capital, have also been indicated, with this sometimes forming an important dimension of the rural-urban link. For all NWFP groups, reference has been made to the importance of traditional knowledge, passed orally from parent to child, in the use, processing and management of a range of species. However, particularly with respect to the latter, it has been mentioned that this is under threat due to escalating pressures on resources and the drive to commoditization.

A key issue across the dry forest and woodland region is that most NWFPs, and the greatest quantities of these products, are collected from communal lands, which, due to the breakdown of traditional management systems, effectively function as open access regimes. For a number of products, there is an increasing fear that local controls and customary rules have decreased in effectiveness. However, in other instances these have formed the basis for the

establishment of new resource management systems. Generally, though, there is little evidence, with the exception of honey, of any formal government policies, strategies, legislation or regulations specifically geared towards the NWFPs discussed in this book (Chapter 5), except perhaps where the products may be harvested from protected species. In general, many of these products are still invisible to policy-makers and implementers.

In terms of scaling-up the poverty alleviation potential of resources by increasing market demand and trade, a number of cautions were stated. Firstly, this should not be at the expense of the subsistence use of these products for basic household needs (Wynberg et al, 2003). Secondly, it should not impact negatively on local markets which often involve the poorest participants who may be prevented from participating in more high paying markets by local elites (Shackleton et al, 2007). Thirdly, it should not increase pressure on the resource base and result in unsustainable harvesting. The model provided by PhytoTrade provides good examples of how new opportunities may be exploited for both the benefit of poor people and the management of forests. It is being increasingly shown, including in the honey projects mentioned in Chapter 5, that commercialization models that involve the private sector, local communities and development NGOs usually result in greater equitability, sustainability and benefits for the poorest groups than other arrangements. However, government needs to be more actively involved in overseeing these partnerships and developing policy that is pro-poor, equitable and that recognizes local knowledge and rights (Wynberg, 2006).

In summary, the social contributions of NWFPs and their potential for the poor need to be better integrated in crucial policies at national level. The elements to consider as priority at the policy level are:

- Equitable access to resources and to benefits.
- Regulation modalities, local accountability and transparency of markets (no 'informal taxes'):
  - simplification of procedures (administrative, legal, financial);
  - differentiation of the existing forest and woodland types and managed landscapes and analysis of the specific resource/product potential according to the various expected functions to be ensured by forests and trees;
  - focus on adaptive local governance processes based on the usually flexible customary rules and on collaborative networks rather than on 'perfect' state or market regulations;
  - ensure capacity building, facilitate trade associations and links to known/transparent market chain.



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