



# Forestry and sustainable livelihoods<sup>1</sup>

*K. Warner*

*What part can forests and forestry play in reducing poverty?*

*People living in forest environments, such as these women carrying eucalyptus leaves for use as fuel in Ethiopia, draw heavily on forest products for their livelihood*



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The adoption of the International Development Target of halving global poverty by the year 2015 has served to reaffirm the mandates of multilateral and bilateral agencies and international centres. There is general agreement that this should be the major global development goal. Certainly one cannot ask for a more noble goal, or a more ambitious one.

For those working in forestry, the question raised is a critical one: what part can forests (and forestry) play in reducing poverty?<sup>2</sup> This question requires a new perspective on forests and their use, in which success is measured not only by

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**Development of the concept of livelihoods, particularly in relation to people who depend on the forest for food, employment, income or subsistence. The implications for sustainable forest management are critical.**

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the amount of forest products harvested, export figures or revenue generated, but also by the contribution of forests in alleviating poverty. It requires more attention to identifying the overall contribution of forests, and of the goods and services they provide, to the livelihoods of the poor, and then the development of strategies for maintaining or enhancing this contribution.

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<sup>1</sup>This paper owes a great deal to several recent papers focusing on this topic: Shepherd, Arnold and Bass, 1999; Byron and Arnold, 1999; Arnold, 1998.

<sup>2</sup>The following section owes a great deal to Shepherd, Arnold and Bass, 1999.

### THE CONCEPT OF SUSTAINABLE LIVELIHOODS

Poverty is commonly determined based on thresholds of income or consumption. These criteria, while useful for national and international statistics, fail to capture the local complexity and dynamism of poverty. They also fail to take account of current and potential resources.

Another commonly used measure of poverty is food security – or lack of it. Food insecurity exists when people lack access to sufficient amounts of food and are therefore not consuming the food required for normal growth and development. This may be because of lack of access to food – because of unavailability, insufficient purchasing power, inappropriate distribution or inadequate utilization at the household level. Further analysis can be used to determine what factors place people at risk of becoming food insecure, as well as those factors that affect their ability to cope.

But poverty is not only based on income and/or food availability. A current approach that attempts to go beyond these factors and to include multidimensional characteristics and causes is that of sustainable livelihoods. A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Carney, 1998).<sup>3</sup>

The assets that are the building blocks of livelihoods are not only natural, physical and financial capital, but also social and human capital (kinship and networks, and nutrition and health). A range of assets

*Production and sale of forest products can be an important source of livelihood, as in this small-scale rural basket industry in Malawi*



is needed to achieve positive livelihood outcomes: no single category of assets sufficiently provides all the many and varied livelihood outcomes that people seek. The access of poor people to any of the categories of assets tends to be limited. Those with more assets have a greater range of options and an ability to shift emphasis in their livelihood strategies. The ability to move out of poverty is critically dependent on access to assets.

### CONTRIBUTIONS OF FORESTS TO SUSTAINABLE LIVELIHOODS

Arnold (1998), in examining the contribution of forests to sustainable livelihoods, defines forests “to include all resources that can produce forest products. These can comprise woodland, scrubland, bush fallow and farm bush, and trees on farm, as well as forests”. Arnold’s definition focuses not on tenure or tree cover as the basis for defining a forest, but on the potential for producing products. Moreover, the contribution of forests is measured not only by the products they provide, but also by the non-tangible services they offer.

Forests are important natural capital. Past development efforts have primarily focused on building natural capital, without paying equal attention to how these assets, such as forests, combine with other assets to sustain livelihoods, especially among the poor. This oversight

has resulted in gaps in understanding the contribution of forest products to sustainable livelihoods (DFID, 1999).

The total contribution of forests and trees to livelihoods is difficult to quantify. A significant proportion of forest products are consumed by those who collect them, with the amount collected varying according to seasonality, access and options (alternatives). Most of the available information is descriptive, and often extremely situation specific (although Arnold [1998] cites some exceptions, e.g. Townson, 1995; Arnold *et al.*, 1994). Few studies quantify the part of household inputs, labour allocation, incomes and costs attributable to forest product activities. While studies on fuelwood or specific forest products have been conducted, censuses and surveys do not usually include information on household-level use or activities for a more complete range of forest products (Byron and Arnold, 1999).

Nonetheless, the general contributions of forests to livelihood outcomes can be identified (Arnold, 1998).

#### Increased income

Although income alone is insufficient as a criterion of poverty, increased income is clearly relevant to the economic sustainability of the household.

Earnings from forest products are often important as a complement to other

<sup>3</sup> While the Department for International Development (DFID) definition is being used in this paper, it should be noted that similar approaches are being used by a number of agencies including CARE, the United Nations Development Programme (UNDP), Oxfam and FAO.

income. Very large numbers of households generate some of their income from selling forest products, often on a part-time basis when farm production is not enough to provide food self-sufficiency all the year round. Much forest-based income-generating activity is seasonal: some products can only be gathered at certain times of year, demand or labour availability may fluctuate seasonally and income from forest products may contribute to the purchase of farm inputs or food between harvests. Income from forest products is often used to obtain inputs for other activities that contribute to livelihoods: to purchase seeds, hire labour for cultivation or generate working capital for trading activities (e.g. Leach and Fairhead, 1994, cited in Byron and Arnold, 1999).

The rural poor often produce, process and sell forest products (e.g. making mats and baskets and selling fuelwood) in the absence of other employment opportunities, often as a part-time activity within farming households.

### Improved food security

Food security is a key element of livelihood. Forests are the source of a variety of foods that supplement and complement what is obtained from agriculture, woodfuels with which to cook food and boil water, and a wide range of traditional medicines and other hygiene products. Probably the majority of rural households in developing countries, and a large proportion of urban households, depend on plant and animal products of forests to meet some part of their nutritional, cooking and/or health needs (Byron and Arnold, 1999).

Where fuelwood is the only source of fuel for cooking, it is essential to nutrition and disease prevention, as cooking is necessary to make many

foods digestible, to kill pathogenic microorganisms and to remove parasites.

Forests also contribute to livelihoods by providing materials for construction, baskets, storage structures, agricultural implements, boats and hunting and fishing gear. They provide inputs for farm systems such as fodder and mulch, contribute to soil nutrient cycling, help conserve soil and water and provide shelter and shade for crops and animals.

### Reduced vulnerability

Poor people often live precariously, with no cushion against adversity. Forest and tree stocks have an important role as a reserve or safety net, providing

*Cooking over a wood fire in Panama – where fuelwood is the only source of fuel for cooking, it is essential to nutrition and disease prevention*



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*In the Sundarbans mangrove forest, Bangladesh, boats built from local mangrove wood are used for fishing and for transport of food and forest products*



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both subsistence and income in times of crop failure, shortfall, unemployment or other emergency or hardship, or to meet exceptional needs. Forest foods are most extensively used to help meet dietary shortfalls during particular seasons in the year. Energy-rich forest foods such as roots, tubers, rhizomes and nuts are especially important in emergencies such as floods, famines, droughts and wars.

#### **More sustainable use of the natural resource base**

Sustainable use of natural resources is critical for sustainable livelihoods. More sustainable use of natural resources has a direct impact on the improvement of natural capital. All people affect the environment, but the poor tend to be the most vulnerable to the effects of environmental degradation (Watson *et al.*, 1998).

It is a myth that poverty prevents people from investing in the environment. Numerous experiences now demonstrate that when incentives are favourable, even poorer groups can mobilize enormous resources, particularly labour. Another myth is that poor people lack the technical knowledge for resource management. There is a growing awareness that poorer groups have an enormous store of what is termed indigenous or local technical knowledge (Ambler, 1999, cited in DFID, 2000).

#### **Increased well-being**

In addition to income and what money can buy, forests provide non-material goods that contribute to livelihoods by enhancing social and human capital. Sense of well-being is affected by numerous factors including self-esteem, sense of control and inclusion, health status, access to services and political enfranchisement. Forestry initiatives that support access to resources, participatory decision-making and equity assist in increasing well-being, especially that of the poor.

#### **ROLE OF FOREST-PEOPLE RELATIONSHIPS**

It has recently been estimated that one quarter of the world's poor depend directly or indirectly on forests for their livelihood (World Bank, 2000). The nature of the dependence varies (Shepherd, Arnold and Bass, 1999), as is shown by the following examples.

**Main source of livelihood.** People living in forest environments and practising hunting, collecting and swidden agriculture (shifting cultivation) draw heavily on forest products, not only for subsistence but also for income from forest products. Forest-related income also includes that obtained by selling crops or livestock for which forest nutrients or fodder were essential (Shepherd, Arnold and Bass, 1999).

While some hunter-collector populations have retained a self-reliant and subsistence way of life (Grenand and Grenand, 1996, cited in Byron and Arnold, 1999), most are increasingly becoming involved with outside markets and goods. However, the level of forest dependency among these peoples remains high, as does the cultural significance of the forest to them.

Swiddeners who practise a sustainable long-term fallow system are a much larger group of the forest dependent. However, the encroachment of migrant settlers into the forest, commercial logging concessions and government pressure to settle are forcing a shift to shorter fallow, settlement and less direct dependency on forests.

Herders of the African Sahel, although often overlooked in this category, are likewise forest dependent, as their animals – camels, cattle, sheep and goats – browse trees rather than grazing for much of the year, particularly during the dry season (Shepherd, Arnold and Bass, 1999).

**Filling the gaps.** Communities draw on off-farm forest or woodland for inputs

that cannot be produced on-farm or that can be more efficiently supplied from off-farm resources. Foods from the forest provide for those who do not produce sufficient food from fields and gardens and cannot afford to buy food from the market. Reliance on forest products to fill gaps and complement other sources of subsistence inputs and income is likely to increase, as has already been noted, when crop yields have been poor and other sources of income are not available.

Where access to forests has been relatively unrestricted, forest foods and income from forest products are often particularly important for poorer groups within the community. Although the wealthier in a community, with more resources to devote to forest product gathering and production, are often the heaviest users, the poor usually derive a greater share of their overall needs from forest products and activities.

Ease of entry and proximity to widely dispersed rural markets enable very large numbers of people to generate some income from forest products. Forest products can therefore be very important to those who are unable to obtain sufficient (or any) income from agriculture or wage employment, and to those who lack other options.

Because of the accessibility of the resource, women are often more reliant than men on forest products, obtaining from them income needed to feed and clothe the family, as well as fuel for cooking (e.g. Hopkins, Scherr and Gruhn, 1994, cited in Byron and Arnold, 1999). In cultures where women and girls suffer from intrahousehold discrimination in food distribution, the contribution of forest foods can be very important (Shepherd, Arnold and Bass, 1999).

**Commercial forest products.** In much of the world, most employment in forest industries is in very small enterprises, often composed only of a few family members, rather than in the formal sector. For instance, a survey in Zimbabwe

estimated that in 1991, 237 000 persons were employed in small woodworking, carving, fuelwood and cane and grass product enterprises, compared with a reported 16 000 employed in forestry and forest industries (Arnold *et al.*, 1994, cited in Byron and Arnold, 1999).

Where larger, modern forest industries have become established, they can provide wage employment for local people who can thus become less reliant on more arduous and less rewarding forest product and shifting cultivation activities. Many forest industry jobs, however, tend to go to outsiders because of the skills required. In addition, employment in logging and primary processing can often be relatively short term. The temporary employment and income these industries provide needs to be set against their possible disruption of existing livelihood systems in forest areas. Moreover, in communities dependent on forest industries, closure of the industry can lead to a sharp decline in local livelihoods.

#### LOOKING TOWARDS 2015<sup>4</sup>

*"Take care of the poor, and the rich will take of themselves."*

Shepherd, Arnold and Bass, 1999

Forest reliance is dynamic: it is likely to change over time, in particular environmental, economic, cultural and political contexts. Some populations or households are likely to move away from their present levels of use of forests or forest products. Others will have a continuing need to draw on forests. Yet others are likely to depend on them even more in the future.

#### For some, movement away from forest use

The trend is for those who are wholly dependent on forests to become less so;

the forest will increasingly complement other livelihood activities. Those who currently depend on forests to complement agriculture, livestock, trading and wages will continue to do so, although the level of dependency and the dependency on specific products may change in response to availability of other resources and opportunities.

#### For others, a need to be able to continue drawing on forests

Reliance on access to nearby forests or woodland is likely to continue, and in some situations even to increase, when smaller farm size or declining farm productivity reduces food self-sufficiency, sometimes to the point where people have to sell products that they previously collected for their own use.

It is the poor who benefit most from being able to continue to have access to forest products, but they may be faced with a diminishing resource (because of factors such as population growth or restrictions on access to resources) and a declining capacity to exploit it. The current pattern of forest product activities by people unable to obtain any or sufficient income from agriculture or wage employment is likely to continue. At the same time, increasing pressures to seek wage employment to meet income needs are likely to leave them less time to exploit labour-intensive forest product opportunities. However, the poor will still need to look to off-farm resources to help supplement what they can produce on-farm. The role of the forest as a buffer in times of hardship is particularly important.

The poor are likely to find it more difficult than other people to benefit from potential opportunities related to the increasing commercialization of forest products. Often when products become commercially attractive, the poor lose access as products come under the control of the more powerful who are able to take advantage of the new market opportunities.

#### From forest to farm

In many places, the focus of supply of some forest products is shifting from the forest to the farm. Those who have access to land and sufficient resources to work it are becoming increasingly reliant on on-farm cultivation of trees (Arnold and Dewees, 1995, cited in Byron and Arnold, 1999).

Because trees require lower inputs of labour to establish and maintain than most other crops, tree crops are often adopted as a response to increasing shortages of farm labour. (Consequently, an improvement in the functioning of labour and other factors could reverse the trend.) In other situations poor farmers favour trees as a low-cost means of enhancing site productivity (e.g. through home gardens, shade and shelterbelts). Sometimes such resources can be created from a forest rather than planted trees, e.g. rubber and fruit gardens in Indonesia (Michon and de Foresta, 1995).

However, farm trees can provide only some of the products and services that people previously obtained from forests. Moreover, on-farm tree growing is not an option for landless households and others among the poor. These groups suffer greater impacts of reduced access to forest products.

#### WHAT IS NEEDED TO INCREASE THE CONTRIBUTION OF FORESTS TO THE POOR?

*"The more we understand the risk-reducing, security-increasing quality of forests, and their complementarity to a very wide range of rural livelihoods, the more we understand the fundamental nature of the need of the poor for them."*

Shepherd, Arnold and Bass, 1999

The implication of what is currently known about forests' contribution to the poor is that if forests are to have a greater role in the future, the following interventions or approaches should be supported.

<sup>4</sup>This section owes a great deal to Byron and Arnold, 1999.

### People-centred approach

Where forests continue to be central to livelihood systems, local people are or should be the main stakeholders. Meeting their needs on a sustainable basis should be the principal objective of forest management, and this should be reflected in control and tenure arrangements (Peluso and Padoch, 1996). A detailed assessment needs to be prepared by, or at least with, the people concerned, to identify the complete range of relationships between the people and the forests that they use and/or manage, the current limitations to their livelihoods and the potentials and desire for change (Byron and Arnold, 1999). Participatory forest management experiences in Nepal, the Gambia and India, for example, demonstrate that this approach is practicable and effective.

In many situations the greatest need may be for a policy and legal framework that legitimizes the participation by poor user groups in comanagement of the resource and provides mechanisms to put this into practice. Where local control and management capabilities are weak or have become eroded or broken down, external assistance is likely to be needed to strengthen and monitor resource sharing and management mechanisms. Interventions should pay attention to equity considerations both between and within stakeholder groups, to rebuilding social capital and minimizing sources of conflict and to minimizing the transaction costs to user groups.

### Secure access to forest resources

Where forest products have an important supplementary and safety net role, users need security of access to the resources (Byron and Arnold, 1999).

Where communal practices and systems of forest management and control continue to function viably, policies are needed that recognize these local rights, and legal and regulatory support is needed to protect them (Byron and Arnold, 1999). Common property

regimes are not the same as open access. A properly managed common property resource may be viewed as shared private property, confined to members of a defined user group. Frequently, factors that cause the breakdown of a common property regime would also result in degradation of the resource if it were managed by the State (Shepherd, Arnold and Bass, 1999).

Because they are unable to monitor effectively what happens in forest areas, many governments have set in place forest and environmental policies and regulations designed to limit rather than encourage production and sale of forest products. These can include restrictions on private harvesting and trade of wood products and requirements to sell other forest products to State marketing boards (e.g. in parts of India). Unless such constraints are removed, there is little incentive for people to involve themselves in sustainable forest management (see above) (Deweese and Scherr, 1996, cited in Arnold, 1998).

### Tree planting and management incentives

Where forest products have an important role but are more effectively supplied from non-forest sources, forest management and policy may need to be geared towards supporting agroforestry. Although providing incentives for tree planting has been the main form of intervention in the past, income from tree growing is more likely to be increased by providing producers with better access to markets. Priority often needs to be given to changing the policies and practices that create market restrictions and that depress market prices for forest or tree products.

These constraints commonly include lack of market information, poorly functioning trading systems for small producers, fuelwood prices that are depressed by subsidies to alternative fuels and competition from subsidized supplies from State forests and planta-

tions. There is a danger that, by hindering farmer access to tree product markets, governments may be interfering with the shift from a subsistence to a market economy (Deweese and Scherr, 1996, cited in Arnold, 1998).

### Improving opportunities

Small enterprise surveys consistently show that forest product activities rank among the three largest sources of employment in rural manufacturing and trading (Fisseha, 1987). The rural poor, particularly the landless who depend on common property regimes, will need help in exploiting opportunities in these areas. Producers and prospective producers may require improved access to credit, skills, marketing services, etc. However, the needs and opportunities differ depending on the target group. New entrants driven by supply side forces – that is people searching for activities that can sustain their livelihoods – do not have the same needs as those responding to market opportunities (Arnold, 1998).

Some products have large, diversified and stable markets, while others face highly volatile markets or demand that is seasonal and subject to sharp price fluctuations. Some products for industrial markets, such as babassu oilseed from the Amazon, are susceptible to major changes in market requirements and shifts to domesticated or synthetic sources of supply (e.g. May *et al.*, 1985, cited in Byron and Arnold, 1999).

Product expansion without attention to management, which will lead to depletion of the raw material resource, as happened for example with baskets in Botswana (Terry, 1984, cited in Arnold, 1998), should not be encouraged. Sustainable livelihoods are dependent on a sustainably managed resource base. Support for the development of participatory assessment, monitoring and evaluation of forest resources is needed.

Domestic markets for forest products may provide more stable avenues for



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**Domestic markets for forest products – such as those in this market in Ouagadougou, Burkina Faso – may provide relatively stable avenues for development**

development. The large component of forest product activities in the rural sector reflects the size of rural markets for these products. Where transport infrastructures are relatively poor, these products are more effectively supplied locally (FAO, 1987). Many products that were not previously sold in rural areas, such as fuelwood and forest fruits, have become increasingly commercialized. Most growth, however, is usually associated with expansion of urban demand.

Some forest products used domestically, however, are considered inferior and are consumed less as incomes rise. For example, forest foods may be displaced by purchased foods, and competition from factory-made alternatives may increase as improved transport infrastructure opens up rural areas to outside supplies.

### New options

Forestry resources can contribute to achieving sustainable livelihoods and reducing poverty. However, it is essential to be realistic about what can be achieved. In the short term, there may be no alternative to minimal-return forest product activities for many. New options, which are quite likely to be outside forestry, need to be developed to help people move out of forest product activities of declining importance and those that can offer no more than marginal, unsustainable livelihoods. Pro-

viding support to such activities once higher-return or less arduous alternatives emerge could impede the emergence of better livelihood systems. The challenge will be to help people move into more rewarding fields of endeavour rather than seeking to raise their productivity in forest activities of low potential. Care needs to be taken, however, to ensure that alternative activities indeed offer better future growth prospects.

*“Some of those who are moving away from stagnant minimal levels of livelihood, as better alternatives emerge and their incomes rise, will continue to need the forest as a buffer to fall back on temporarily in times of hardship. An important challenge is likely to be learning how to manage forests both for growth, and also as a safety net.”*

Byron and Arnold, 1999 ♦



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