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4 | The local value of forests



The theme 'Forests for People' will guide discussion and debate throughout the International Year of Forests during 2011. The theme aims to encompass the role of people in the management, conservation and sustainable development of the world's forests. A number of subjects relate to this theme including: traditional forest-related knowledge; community-based forest management (CBFM); and small and medium forest enterprises (SMFEs). This chapter explores these subjects in anticipation of debates during the Ninth Session of the UN Forum on Forests and other global activities that will be held in celebration of the International Year of Forests.

The chapter discusses the local value of forests through four interlinked sections. The first presents a brief review of some of the ways in which traditional knowledge (TK) contributes to local livelihoods and traditional forest-related practices. The second provides an update on CBFM and SMFEs, as well as the integral part played by non-wood forest products (NWFPs) in both. In contrast to the cash values of forests highlighted by the example of SMFEs that market NWFPs, the third section takes as its special focus "the non-cash values of forests". The final section provides an overview of future needs and policy

recommendations to protect and strengthen the local values of forests highlighted in these three topics. Taken together, the chapter sections provide a 'thought starter' to explore the theme of local-level forest and forestry issues, and highlight the importance of recognizing the complexity of 'local value' in all approaches to development.

Traditional knowledge

Traditional knowledge is a term that combines the knowledge, innovations and practices of indigenous peoples and local communities (Box 19). It provides the basis for forest livelihoods, and contributes to traditional cultural and economic practices, subsistence use and local trade, forest management practices and the development of commercial products.

Traditional forest-related knowledge falls under the larger umbrella of traditional knowledge, and includes knowledge associated with the use and management of forest species, and the broader understanding and management of forest ecosystems. This is a brief review of some of the ways in which traditional knowledge is used, first commercially and then as part of traditional management practices, and its links to biological and cultural diversity. The section concludes with an overview of current policy processes that seek to protect and respect the role of traditional knowledge.

Box 19: What is traditional knowledge?

"Traditional knowledge refers to the knowledge, innovation and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals,

community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry."

Source: The Convention on Biological Diversity Traditional Knowledge Information Portal (www.cbd.int/tk)

The use of traditional knowledge

Historically, traditional knowledge has played a central role in the development of commercial products, including those from the pharmaceutical, seed, herbal medicine, cosmetic and horticultural industries. In some industries, the role of traditional knowledge in research and development programmes has declined in recent decades, but in others it remains strong; in all sectors, products derived from traditional knowledge continue to be marketed (Laird and Wynberg, 2008; Petersen and Kuhn, 2007).

Despite the economic downturn, sales continue to grow around the world of herbal medicines, nutraceutical, functional food and beverage, personal care and cosmetic products with a traditional knowledge component (Gruenwald, 2008; Cavaliere *et al.*, 2010). Virtually all herbal products derive from traditional knowledge, including perennial top sellers such as saw palmetto, milk thistle, ginkgo, goji, ginseng, devil's claw, acai, elderberry and echinacea. In 2008 in the United States of America alone, goji and echinacea generated revenues of more than US\$170 million and US\$120 million, respectively (Moloughney, 2009). Many top-selling products are derived from forests, and the collection and trade of raw materials continues to significantly affect forest economies.

Valuable forest tree species include yohimbe and pygeum in Africa, muira puama and pau d'arco in South America. The commercial use of these and other forest species grew directly from traditional forest-related knowledge. Indeed, 'ethnic botanicals' and 'exotic ingredients' with traditional uses are increasingly in demand in Europe and North America, driving companies to seek out herbal remedies and flavours based on traditional knowledge (Gruenwald, 2010). Long histories of traditional use also benefit products and ingredients 'new' to the market, which tend to receive more rapid regulatory approval given their proven safety over generations of use (Gruenwald, 2010).

Recent developments in science and technology provide new opportunities to research and explore applications of traditional knowledge within industries such as healthcare, agriculture and biotechnology. Traditional knowledge is increasingly consulted as part of efforts to address broader challenges such as climate change adaptation, water management, and sustainable agricultural and forest management. For example, traditional knowledge of fire management has been used to reduce greenhouse gas

emissions in Western Arnhem Land, Australia (Galloway McLean, 2009). The IPCC identified traditional and local knowledge as important missing elements in its previous assessments, and these will form a focus of work for its next scientific assessment reports.

Most importantly, traditional knowledge contributes to the lives of its holders. For example, traditional medicine provides primary healthcare for much of the world's population. It is estimated that in some countries in Africa and Asia at least 80 percent of the population depend upon traditional medicine for their primary healthcare (World Health Organization, 2008). Traditional forest management, including the manipulation of forests to favour desirable species and maximize the range of products and services provided, has sustained communities in complex and often inhospitable environments for thousands of years (e.g. Gómez-Pompa, 1991; Posey and Balée, 1989; Padoch and De Jong, 1992). These indigenous silvicultural systems are usually low input yet effective, the product of hundreds of years of trial and error, and they employ a range of techniques in the same way that foresters use selective thinning, weeding and enrichment planting (Peters, 2000).

Traditional forest management has shaped the structure and composition of forests around the world, and in many cases has enhanced biodiversity beyond "that of so-called pristine conditions with no human presence" (Balée, 1994). These systems can yield important lessons for forest managers, loggers, migrant farmers, conservationists and others seeking to understand complex, biologically diverse ecosystems, and the relationships between people and their environment. FAO's National Forest Programme Facility (NFP Facility) has been working to highlight the importance of traditional knowledge and integrate it into national forest programmes (Box 20).

Traditional management of forested environments affects the composition of flora and fauna, and the biological diversity of these areas. Awareness of the link between cultural practices and biological diversity has grown over the last few decades into a widespread acceptance of the concept of 'biocultural diversity' (Box 21). This concept was the result of numerous local-level studies, as well as broader analyses that identified correlations worldwide between linguistic, ethnic and biological diversity (Maffi, 2005).

Until recently cultural and biological diversity were seen as separate disciplines and were the subjects of

Box 20: The National Forest Programme Facility

The NFP supports the development and implementation of national forest programmes in its 70 partner countries in three main strategic directions: i) integrating sustainable forest management into broader intersectoral processes at the national level; ii) building consensus at the national level on how to address issues relevant to forests and trees, in the overall context of sustainable development; and iii) integrating commitments made at the international level (e.g. the CBD, UNFCCC and the UN Convention to Combat Desertification (UNCCD)) into national forest policy and planning. The NFP Facility focuses in particular on knowledge sharing and capacity development in the forestry sector to ensure the informed participation of a broad range of stakeholders for continuous national forest planning and its effective implementation and monitoring.

Since 2002, around 30 activities directly related to indigenous knowledge were implemented by local NGOs selected by the National Multi-Stakeholder Steering Committees of the partner countries to document, disseminate, build capacity and strengthen traditional knowledge on forest management. In a number of partner countries, the NFP Facility, together with FAO and other partners, has also provided support to develop National Forest Financing Strategies (NFFS), and to train community groups in developing and accessing markets.

Lessons learned from the activities supported by the NFP Facility can be found on the NFP Facility website: www.nfp-facility.org/60680/en/.

different studies and expertise (Pretty *et al.*, 2010). The concept of ‘biocultural diversity’ has allowed a broader movement to coalesce in order to understand the dynamic relationships between nature and culture, and to protect biocultural diversity in the face of globalization, nationalism and unsustainable development (Christensen Fund, 2010). Increasingly, the protection of cultures is seen as an integral part of the conservation of biodiversity (Maffi and Woodley, 2010; Pretty *et al.*, 2010).

Policy measures to protect and respect traditional knowledge

In the last few decades, there has been a broader trend to recognize the land, resource, cultural and other rights of indigenous peoples. As part of this process, policy-makers’ attention has been drawn to the value of traditional knowledge and the need to receive consent for its use from knowledge holders. It should be noted that the terms ‘traditional knowledge’ or ‘traditional forest-related knowledge’ have yet to be fully integrated into global forest policies and sustainable forest management practices, but has recently been the subject of much discussion. However, a suite of global instruments and institutions, negotiated texts and processes have evolved to address these concerns, primarily through the Convention on Biological Diversity (CBD), the United Nations Permanent Forum on Indigenous Issues and the World Intellectual Property Organization (WIPO).

Article 8(j) of the CBD requires member parties to “respect, preserve and maintain” the biodiversity-related

knowledge, innovations and practices of indigenous peoples and local communities. It also establishes that the “wider application” of this knowledge should be promoted with the “approval and involvement of the holders of such knowledge”. The CBD also encourages the equitable sharing of benefits derived from the use of knowledge, innovations and practices related to the conservation or sustainable use of biodiversity. Article 10(c) requires that customary uses of biological resources in accordance with traditional cultural practices should be protected and encouraged; information concerning traditional knowledge and technologies should be included among the information to be exchanged, and where feasible, repatriated (Article 17(2)), while technological cooperation between Contracting Parties should also include cooperation on indigenous and traditional technologies (Article 18(4)) (CBD, 1997).

These principles are taken further in the 2002 Bonn Guidelines, which aim “to contribute to the development by Parties of mechanisms and access and benefit-sharing regimes that recognize the protection of traditional knowledge, innovations and practices of indigenous and local communities, in accordance with domestic laws and relevant international instruments” (Secretariat of the Convention on Biological Diversity, 2002, par. 11(j)). An Ad Hoc Open-ended Working Group on Article 8(j) and Related Provisions provides advice on the protection of traditional knowledge by legal and other means, and is undertaking work to identify priority elements of *sui generis* systems for traditional

Box 21: What is biocultural diversity?

Biocultural diversity is “the weave of humankind and nature, cultural pluralism and ecological integrity. Biocultural diversity arises from the continuing co-evolution and adaptation between the natural landscape, ways of life and cultural endeavours, producing a richness and variety that are indivisible.” The Christensen Fund, Vision Statement, 2010 (www.thechristensenfund.org)

“Biocultural diversity is the interlinked diversity of nature and culture: the millions of species of plants and animals that have evolved on earth, and the thousands of different cultures and languages that humans have developed by interacting closely with one another and with the natural environment.” Terralingua, Biocultural Diversity Conservation, A Community of Practice (www.terralingua.org)

knowledge protection, fair benefit-sharing and prior informed consent.

The 2007 United Nations Declaration on the Rights of indigenous peoples provides a further important instrument in support of indigenous peoples’ rights over their biodiversity-related traditional knowledge, stating that: “indigenous peoples have the right to maintain, control, protect and develop their ... traditional knowledge and ... the manifestations of their sciences, technologies and cultures, including genetic resources, seeds, medicines ... [and] knowledge of the properties of fauna and flora. ... They also have right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions” (Article 31.1).

Traditional knowledge is increasingly also under consideration in relation to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization. A proposed amendment to TRIPS – adding a requirement for disclosure of origin in patent applications and possibly requiring benefit-sharing with communities to deter biopiracy – would bring it in line with obligations on traditional knowledge under the CBD. Intellectual property rights issues in genetic resources also figure prominently in the mandate of WIPO, which has set up an Intergovernmental Committee on Traditional Knowledge, Genetic Resources and Folklore (IGC). The IGC gives countries guidance, based on research and the work of fact-finding missions, on strategies for the protection of traditional knowledge and genetic resources (including those in forests).

Some of the measures being adopted to implement these agreements and guidelines include the development of biodiversity registers or databases that record biodiversity

use and knowledge in particular regions. These defensive methods of traditional knowledge protection may be complemented by the legal recognition of collective ownership of resources and knowledge, co-ownership of patents and products, and certificates of prior informed consent, benefit-sharing and/or origin of the resource or knowledge in patent applications.

In practice, however, many of these tools and approaches are still in their early stages and present significant challenges. Many companies have therefore adopted a hands-off approach to the use of traditional knowledge, while others have little awareness of the need to enter into access and benefit-sharing arrangements when using traditional knowledge. The diverse ways in which companies use and interpret traditional knowledge adds a further layer of complexity. In cases where traditional knowledge is used, companies typically rely heavily on intermediary institutions such as research institutions, NGOs or governments to resolve difficult issues such as who represents local groups, and how owners of traditional knowledge are identified, particularly when knowledge is shared by many communities. The intractable nature of these and other issues means that projects involving traditional knowledge are often inherently controversial.

Community-based forest management and small and medium forest enterprises

Traditional knowledge can form the basis on which communities manage forests. At least one-quarter of the forested land in developing countries is under some form of community control, and that proportion is likely to increase (CIFOR, 2008b). Small and medium forest enterprises (SMFEs) often build on community-based forest management (CBFM) approaches and contribute to sustainable livelihoods. Many SMFEs are based upon materials provided by forests and trees, and such

enterprises play an important part in the harvesting, processing, transport and marketing of wood and non-wood products. As discussed below, the establishment of CBFM often stimulates SMFEs.

Some key drivers for community-based forest management

Many forms of CBFM exist, responding to particular political, social, economic and institutional contexts. In some countries CBFM arrangements have grown out of the need for governments to cut the costs of protecting forest resources. International and local NGOs have promoted CBFM widely in rural development projects.

The demand for more efficiency in service delivery and more accountability in the way governments manage natural resources, coupled with global trends towards economic liberalization and decentralization, have led to significant policy shifts in a number of countries. Several countries have developed enabling policy frameworks, which support community rights and participatory initiatives, and have thereby given a greater incentive for better management and protection of forest resources.

Decentralization

A number of governments have recently launched public sector reform programmes that divest central government departments, including forestry, of some authority. Forestry administrations have been decentralized, in a bid to increase efficiency and accountability in service delivery. Some governments have abandoned the more protectionist approach to forest management, and have shifted responsibility for forest use and management to lower-level local government, traditional institutions and local communities.

However, decentralization often happens on a piecemeal basis. Many times, central government retains substantial control, and imposes conditions for the local management of forest resources. There is limited devolution of power, rights and finance to local government and communities. Often the responsibility of traditional cultural institutions is poorly outlined in guiding instruments, creating a clash of mandates. All these factors stifle the realization of the full potential of CBFM.

Enabling policy frameworks

Changes in the political landscape at the country level may lead to policy and institutional reforms in forest governance systems to support decentralized forest management. However, forest tenure – so important for ensuring equity and rights for forest dependent communities – has rarely so far been fully reformed.

More frequently, a partial modification is seen. For instance in Nepal, the current basis of community forestry was formalized under the Forest Act, 1993. Forests remain formally government-owned but permanent use rights are allocated to communities, subject to agreements over management arrangements. Under the community forestry programme approximately 30 percent of total national forest has been handed over to forest user groups for management and utilization (FAO, 2011). This has produced significant gains to the local communities (Box 22).

In Liberia, the new forest law of 2006 and the law on communities' rights (currently undergoing the approval process) grant grassroots communities the possibility of owning forests and participating in their management through Community Forestry

Box 22: Importance of an enabling policy framework in achieving the objectives of tenure reform

One of the by-products of forest tenure reform has been the substantial increase in trees on private farm land in Nepal (in addition to improvements in community forests). In 1987, regulations that were intended to conserve trees on private land, were approved and required farmers to obtain permits to harvest and/or transport trees from their private land. These regulations had the perverse effect of acting as a disincentive for private tree planting or protection. In fact, the announcement of the regulations before they came into effect encouraged much tree cutting while it still remained acceptable. When these regulations

were removed to create a more enabling regulatory framework for community forestry, farmers responded by allowing naturally occurring tree seedlings to survive and by planting commercially desirable seedlings. Many parts of the middle hill region in Nepal are now covered by a mosaic of community forests and trees on private land. The increase in commercial timber from communal and private lands has spawned a network of private sawmills processing the timber purchased from forest user groups and private farmers.

Adapted from FAO, 2011

Development Committees (CFDC). The Committees will be mandated to negotiate with logging companies. Communities are entitled to 30 percent of the income generated by the lease of forests under license, and loggers will also have to pay US\$1/m³ directly to the relevant community (Bodian, 2009).

Forest tenure studies reviewed by FAO (2011), emphasize that while security of tenure may be necessary to achieve sustainable forest management and improved livelihoods, it is not in itself sufficient. Other factors, including better governance and appropriate regulatory frameworks, are equally critical.

National poverty reduction agendas

A number of developing countries have in place national development plans and strategies with poverty reduction as the overarching objective, as part of Poverty Reduction Strategy Processes initiated by the World Bank. Some countries – including Bhutan, the Gambia, Turkey and Uganda among others – have identified forestry as one of the key drivers of socio-economic growth, and have integrated forest management into the national poverty reduction strategies. Key national forest policy and planning instruments in these countries recognize a diversity of stakeholders in the forest sector, and have moved towards a more people-centred approach and adopted CBFM as one of the major options for stimulating development in rural areas.

Emerging grassroots and global networks

In recent years, there has been an increased level of organization of local forest dependent communities into groups, associations, alliances and federations. In many countries, community forest user groups have progressively transformed into associations and forest user cooperatives. These associations have further created alliances at regional level and international federations. Their goal has been to address the powerlessness and low bargaining power which makes it difficult to use forests productively.

With facilitation of national, regional and international NGOs, and initiatives such as the Growing Forest Partnership (GFP), these associations have created stronger regional chapters and are active internationally. For example, the International Alliance for Indigenous and Tribal Peoples of Tropical Forests (IAITPTF) and the Global Alliance for Community Forests (GACF), in partnership with the International Family Forest Alliance (IFFA) have consistently demanded better community forest rights in

international fora. They are also mobilizing local people's efforts to engage in commercial enterprise development and marketing, an area that will take CBFM to another level.

Impact of community-based forest management on local communities

A number of benefits from CBFM can be seen over the long term. These include improved forest conservation and management benefits, growth of community institutions and social capital, and contributions to poverty reduction.

Conservation benefits may take a long while to be realized. In the case of Nepal, CBFM took a long time to transform the rehabilitated landscapes (FAO, 2011). In the Gambia, decentralization has led to the re-establishment of customary forest resource management laws, which have enabled the protection of forest species. In the Bonga forest in Ethiopia, illegal timber-harvesting, firewood marketing and charcoal production have been contained over the years through regulated access and forest development work by the communities (Farm Africa, 2002). Studies in the United Republic of Tanzania (e.g. Kajembe, Nduwamungu and Luoga, 2005) show a remarkable increase in the density of saplings and trees following the launch of community-based management regimes. In India, studies also indicate an increase in productivity and diversity of vegetation following the introduction of CBFM (Prasad, 1999).

For CBFM to play a significant role in poverty reduction, several factors need to be favourable, including the policy context, the nature and diversity of forestry products accessible to them, community management capacity and the availability of infrastructure to support production, processing and marketing. In countries where CBFM has been developing for a long time – for instance the Gambia, India, Nepal and the United Republic of Tanzania – tangible benefits are being realized. Over time, as forests become more productive, SMFEs begin to emerge in the form of small saw mills, carpentry and joinery workshops, craft making, honey processing and herbal medicine processing. This has created employment for women and young men and allowed poor households to generate additional cash income.

Small and medium forest enterprise development

Small and medium forest enterprises consist of individual, household, and community entrepreneurs as

well as associations of actors along the supply chain. For these enterprises, forests and trees are important sources of cash income and employment.

There are numerous examples of successful SMFEs producing timber and processed timber products. In the Petén, Guatemala, a multidonor funded project assisted the local community enterprise FORESCOM (Empresa Comunitaria de Servicios del Bosque) to generate a 48 percent increase in revenue after one year. The purpose of the project, which was overseen by the ITTO, was to promote the commercialization of lesser-known species in national and international markets and to achieve certification of these products. FORESCOM's revenue increased largely because of improved outreach and marketing internationally, and resulted in its products entering Hong Kong SAR, the Netherlands and the United States of America. The 11 communities working with FORESCOM were able to improve their social and economic conditions while contributing to the conservation of tropical forests in the area.

SMFEs are also important suppliers of many NWFPs such as rattan and bamboo, medicinal plants, forest insects, fruits, nuts and game meat. These products are sold in raw, semi-processed and processed forms. The provision of environmental services, such as recreation, is another area in which SMFEs are gradually becoming more

involved. In fact, SMFEs often make up 80–90 percent of enterprise numbers and more than 50 percent of forest-related jobs (MacQueen, 2008).

Sustainable SMFEs can bring positive economic, social and environmental impacts, and make a significant contribution to economic development. A number of local case studies in Latin America, Asia and Africa (see Box 23) show the major contribution of cooperatives and SMFEs to economic development.

Small-scale enterprises have certain micro-economic characteristics that are known to generate a 'multiplier effect' of increased economic benefits in rural economies, resulting in higher incomes, higher consumption and improved terms of trade (Elson, 2010). The UK Department for International Development-funded Livelihoods and Forestry Programme (LFP) in Nepal (Livelihoods and Forestry Programme, 2009) suggested this effect²⁴ in the country was approximately 10:1, while analyses in other locations estimate this multiplier effect to be as high as 20:1 (GEF, 2009). It is estimated, albeit roughly, that forest communities produce US\$75 billion to 100 billion per year in goods and services (Elson, 2010).

Rural economic growth involving local people brings about many consequent social improvements. Additional income is commonly invested in education and health

Box 23: Importance of apiculture in Cameroon

Apiculture products include honey (*Apis mellifera*), wax and propolis, all of which are NWFPs. Apiculture products have many medicinal and cosmetic uses and are traded at the local, national and international levels, making them an important contribution for livelihoods in both rural and urban areas in Cameroon.

Despite incomplete data about the sector, it is estimated that 3.3 million litres of honey are produced in Cameroon annually, valued at around 2 000 million FCFA (about US\$3.7 million). Approximately 10 percent is consumed by the beekeepers. With an estimated value of 530 million Central African CFA Francs (FCFA), about 235 tonnes of wax are produced annually,

primarily for regional export. Other apiculture products add about 1.5 million FCFA to total revenues from the sector annually. It is estimated that there were at least 20 000 beekeepers in Cameroon in 2009. More than 8 600 beekeepers were known to be members of 639 groups (Common Initiative Groups, cooperatives or NGOs) in 2008. In the northwest of the country, a major apiculture dependent region, beekeeping is an important secondary source of income, contributing from 10 percent to 70 percent of total annual income (average of 30 percent), with over 80 percent of beekeepers deriving 30–60 percent of their annual cash income from apiculture.

Source: CIFOR, 2010

²⁴ One dollar introduced into a system (e.g. a rural village) should generate much more than a dollar in economic benefits, in terms of cash and jobs created. The dollar changes hands a few times before it is eventually spent outside the community. In the case of the LFP project in Nepal, if one accounts for the money spent by the donor (an upfront cash injection into the community), and the rise in average and median incomes, the multiplier effect is at least a factor of ten. The nature of the stimulus is more important than the amount. For instance, natural resource extraction generates very few multiplier effects at source but agricultural extension or community-based forestry tends to raise skill levels, and creates more value addition, higher retention of surplus and greater multiplier effects (Elson, 2010).

Box 24: Key factors for an enabling environment and sustainability for SMFEs

Key factors for an enabling environment

National and local institutions that recognize the value of forest products including NWFPs for resource dependent people, as well as the importance of local people's roles in sustainable resource management;

National and local policies, rules and regulations that level the playing field for the development of enterprises of all sizes (such as tax incentives), and that provide additional support mechanisms such as tailored services provision and basic commercial infrastructure (roads, market infrastructure, etc.);

Access to affordable (micro) finance and promising markets through accurate information and innovative communication technologies;

Access/tenure rights should be clearly spelled out and allow for the sustainable extraction of forest products for commercial purposes.

Key factors for sustainability

Capacity development at the local level, with the facilitation of private and/or public service providers, in key areas including: formation of producer associations, business planning, marketing, basic finance principles, value adding, natural resource management planning and sustainable harvesting techniques, domestication, etc.

Added value to the products, whether through:

- linking producers, their cooperatives, and associations along the supply chain to strengthen market access and market information;
- investment into research and development by private and public sectors, to expand product uses in both raw and processed forms;
- exploration of new opportunities in labelling (fair trade, organic, etc.), certification and other niche markets.

services. Many rural people who develop enterprises may also eventually use surplus income to transition from agriculturalists to food purchasers, allowing more time to participate in local social and political activities. Communities that grow economically tend to be more active in political decision-making (Elson, 2010).

Widespread evidence demonstrates that private property holders, including those with communally-held property rights, can and do protect public goods if the appropriate incentive structure is in place (Elson, 2010). Rural communities are estimated to own, or administrate under license, no less than one quarter of forests in developing countries, and annually invest US\$2.6 billion globally in conservation, an amount that surpasses public sector funding and all forms of international conservation expenditure combined (Scherr, White and Kaimowitz, 2003).

Creating an enabling environment for and encouraging investments in SMFEs

Enabling, maintaining and improving forest-based economic initiatives at the local-level requires a combination of several elements. An enabling environment consists of supportive policies, access to finance, tailored services and markets, and secure forest access and tenure – all crucial for the initial steps in local forest enterprise development (Box 24). Actions

to add further value will in many cases increase income, while capacity development improves the sustainability of the enterprises (Box 25).

Similar to the preconditions for community-based forest management, SMFEs require stable policy frameworks, coordination in decision-making among stakeholders, and access to land and tenure rights. However, SMFEs also require continued access to finance and markets, up-to-date technology and means by which to improve the quality of their products in order to be successful. Moreover, as SMFEs increasingly depend on the production of NWFPs as the source of their products, improved NWFP management, appropriate policies and adequate legislation are required to ensure these enterprises continue to have a sound resource base.

Non-wood forest product law and policy²⁵

As noted earlier, non-wood forest products play a critical role in community forestry and SMFEs. Non-wood forest products are used as medicines, foods, spices and for a multitude of other purposes. They provide critical subsistence and trade goods for forest and other communities, and in many areas are the main source of cash to pay school fees, buy medicines, purchase equipment and supplies, and to buy food that cannot

²⁵ This section is drawn from Laird, McLain and Wynberg, 2010.

Box 25: Case Study on NWFPs and SMFEs – Strengthening policies and institutions in Burkina Faso

Between 1995 and 2005, various government and NGO projects in Burkina Faso targeted NWFP development. Some impact was achieved, but the sum of these initiatives was insufficient to highlight the real potential of the NWFP sector as vital to food security and rural incomes. The lack of recognition was probably the result of poor analysis of demand, and limited data on the economic value of NWFPs and SMFEs. There was also poor coordination between organizations. Moreover, the 1997 Code Forestier contained no specific clauses relating to NWFP development although it upheld the rights of indigenous communities to manage and use their traditional resources, including NWFPs.

After a workshop in 2004 hosted by the NGO TREE AID, Burkina Faso's Ministry of Environment (MECV) accepted an invitation by FAO and TREE AID to work in partnership to pilot the FAO Market Analysis and Development (MA&D) approach through a project entitled 'Promoting micro and small community-based enterprises of non-wood forest products (2005–2006)'. As a result, in 2007 the government asked FAO to support the elaboration of a national strategy on the promotion and valorization of NWFPs.

Using local solutions, policies were amended to suit conditions in the area, build capacity and develop other support mechanisms. In this case study, the most significant demonstration of national importance for this sector was the creation by the government, in 2008, of the Agence de Promotion des Produits Forestiers Non Ligneux (APFNL). The APFNL is now a national institution under the Ministry of Environment, concerned with the support, coordination and monitoring of operations and marketing of NWFPs. It pilots, implements and monitors policies and strategies to promote NWFPs in collaboration with all other actors in the field, and links the actors in the NWFP distribution chain. APFNL has attracted the interest of various international donors and NWFP development has become a priority for government to diversify rural livelihoods and generate economic growth. The recently approved 'Projet d'Amélioration de la Gestion et de l'Exploitation Durable des PFNL' (funded by the Government of Luxemburg through FAO and implemented by the APFNL) includes support for techniques to improve production and add value, and for the establishment of NWFP-specific producer organizations.

be grown. However, throughout the world NWFPs have been both overlooked and poorly regulated by governments. Inappropriate policies have not only led to overexploitation of species in the wild, but have reduced benefits for producers and generated new forms of inequity.

In part, problems with NWFP law and policy result from a narrowing of the meaning of 'forest products' over the past century to the point where it primarily only includes timber and wood fibres harvested on an industrial scale for use in the manufacture of lumber, paper, cardboard and particle board. This has occurred even in regions where NWFPs are far more valuable than so-called 'forest products'. The resulting legal and policy frameworks ignore the majority of NWFPs present in forests.

Existing NWFP legislation and policies are usually a complex and confusing mix of measures developed over time, with poor coherence or coordination. They rarely resemble an overall policy framework. Many policy instruments have been enacted as ad hoc responses to a crisis (e.g. perceived overexploitation of a species) or an overly optimistic view of potential tax revenue should informal activities be made more formal. Rarely has

regulatory activity followed from a careful and systematic assessment of the range of opportunities and threats associated with species, ecosystems and livelihoods, and a strategic approach to regulating the NWFP sector as a whole is uncommon.

This situation remains unchanged in many countries today, but in some a shift began to occur in the late 1980s as scientists, natural resource managers and policy-makers increasingly recognized the non-wood values of forests, including the socio-economic and cultural importance of NWFPs. This shift resulted from a range of factors, including a change in the focus of some conservation agencies away from a purely protectionist approach to one that also incorporates sustainable use, and views equity and social justice as integral to conservation. Originally articulated by the Brundtland Commission in 1987, this view culminated in the various agreements that emerged from the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, including the legally binding CBD. Conservation and development groups experimented with NWFP-based projects as a means of supporting ecologically benign and socially just income-generating activities. The commercial use of a handful of NWFPs was promoted as a way of

Box 26: The inclusion of NWFPs in the forestry laws of the 1990s

In most countries, forestry laws historically focused almost exclusively on timber resources and paid limited or no attention to NWFPs. Moreover, the subsistence and commercial value of NWFPs was disregarded when timber management plans were designed and logging operations undertaken. In recent decades, however, NWFPs have been incorporated into forest laws as a response to changing international policy trends. In many cases, this resulted from the direct pressure of international agencies, such as large conservation organizations and finance institutions to diversify forest management and make it more sustainable. As a result, in the 1980s and 1990s, many countries integrated a wider range of objectives into forest policies, including forest health and biodiversity conservation, ecosystem functions and long-term sustainability, as well as broader economic values such as tourism, recreation and NWFPs.

However, initial efforts to address NWFPs in these new forest laws were poorly formulated and rarely implemented. The scope and definition of the products covered remained unclear, and few specific actions were stipulated. When actions were prescribed, they usually focused on permits, quotas (often set arbitrarily), management plans and royalties or taxes – an approach lifted directly from the timber sector, and one that proved entirely inappropriate for the diverse, complex and often less lucrative NWFP sector.

More usefully, some forest laws of this time included NWFPs in timber norms, requiring their consideration in management plans and logging operations in order to minimize negative impacts on locally valuable products. In some countries, the logging of high-value NWFP species for timber has proved their greatest threat. In Brazil in recent years, national and state governments have passed laws prohibiting the logging of high-value NWFP species, and in Bolivia, prohibitions on felling Brazil nut trees were established in 2004 as part of a decree addressing property conflicts, but the track record for implementing such policies is often poor.

In the past 10–15 years, a number of countries have begun to fine-tune well-intentioned forest policies passed in the 1990s to reflect the socio-economic, ecological and cultural realities of NWFP use. This has resulted in a number of specific improvements to the ways in which these products are regulated, including re-thinking the use of costly and complex inventories and management plans for NWFPs, and revising quota and permitting systems. There is still a long way to go, and NWFPs continue to have low priority in most forestry departments and curricula, but the trend in several countries is towards greater understanding and better-elaborated regulatory frameworks for these products.

Source: Laird, McLain and Wynberg, 2010

helping people live well with minimal damage to the environment.

As a result of these trends, small-scale producers and NWFPs have emerged from 'invisibility' in recent decades. Unfortunately, with a few exceptions, the NWFP policies that resulted were often opportunistic and inadequate resources were allocated for oversight and implementation. Many were tagged onto timber-centric forest laws. Regulations rarely followed from careful analysis of the complex factors involved in NWFP management, use and trade, or from consultations with producers, who are often on the political and economic margins. In many cases policy interventions also criminalized NWFP extraction, further marginalizing harvesters, and customary law and local institutions better suited to regulating many species were often undermined by efforts to establish statutory control over NWFPs.

A number of laws and policies directly address NWFPs, often to conserve or sustainably manage resources, and in some cases to improve rural livelihoods or promote broader economic growth in a region (Box 26). These

measures tend to focus on species in commercial trade, or form part of national efforts to protect endangered or indigenous species or regulate international trade under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The majority of measures directly addressing NWFPs are found in natural resource law, in particular forest laws. However, a range of other measures explicitly regulate aspects of NWFP trade and use, including those governing quality control, safety and efficacy standards, transportation, taxation and trade.

Policies and laws that indirectly impact non-wood forest products

In addition to laws that explicitly address NWFPs, there are a myriad of measures that do not mention the term and yet affect their use, management and trade as much as, or more than, those that do. The high impact of these measures is largely because forest management and livelihoods involve a complex and interconnected suite of activities, and regulating one aspect has immediate knock-on effects on others. Laws and policies with an indirect impact on NWFPs include agricultural policies,

land tenure and resource rights, intellectual property, land management planning and labour law. In addition, a range of natural resource laws have a significant impact on NWFPs, including the forest laws discussed above, mining and protected area and conservation laws that discourage or forbid NWFP harvesting.

The important role of customary law

Where land tenure and resource rights are secure, customary laws are still strong, and local capacity exists to manage the resource base and deal with commercial pressures, customary laws often provide a more nuanced approach to regulation of NWFP harvest and trade than statutory laws. This is because customary laws integrate unique local cultural, ecological and economic conditions in ways that better suit this diverse and broad category of products. In cases where customary law has broken down to a significant degree, however, or outside commercial pressure has intensified well beyond the carrying capacity of traditional institutions, governments can offer important and necessary complementary levels of regulation, something often requested by local groups. But these interventions should be crafted to include local-level institutions and management systems, where these are effective (Wynberg and Laird, 2007).

Non-cash values of forests

The commercial value of forests is well recognized both in timber terms and, in a more minor way, in terms of NWFPs which are sold in great quantities all over the world. This section looks at a third, and equally vital, value for forests: the non-cash value of forests for local people. The focus here is not on religious or cultural values but on the daily support provided by forests to households living in or near forests. Researchers are informally aware of the importance of non-cash forest value (consumption value), but it is not as yet recorded in government statistics, and so remains invisible, with its value set effectively at zero.

Income in typical household budget surveys and living standards surveys, conducted according to models established originally by the World Bank or the International Labour Organization, includes:

- cash income from employment;
- cash income from sales of farm crops;
- cash income from sales of wood and non-wood forest products; and
- ‘non-cash’ income from household consumption of farm crops.

However, it does not factor in ‘non-cash’ (consumption) income from forests. This income may be literally gathered and consumed, in the case of forest fruits, nuts, vegetables, meat and medicinals, but consumption also refers to the use of wood and non-wood products in the household, such as fuelwood. As noted in Chapter 1, findings from FRA 2010 show that fuelwood data were often difficult to collect, but made up to more than 70 percent of wood removals in the Asia and the Pacific and 90 percent in Africa.

If the total annual income of a developing country rural household is calculated, factoring in not only cash income but also non-cash income, it immediately becomes apparent that this officially completely invisible income source is actually extremely important in many cases.

Table 42 shows that in Tenkodogo, a Sahelian farming village about three hours from Ouagadougou, non-cash income makes a larger contribution annually to total income than does cash income. For wealthy and average men non-cash income contributes 58 percent of total income while for the poorest category – poor women – non-cash income contributes over two-thirds of total income at 68 percent.

Forest income (cash and non-cash) averages 44 percent of total income, and it is clear for each of the wealth and gender categories that the value of the non-cash contribution of forests to household income is a great deal higher than the value of cash income from forests. The same kinds of findings are now being recorded in other parts of the world, such as Africa and Asia where 60–70 percent of inhabitants still live in rural areas.

Implications for the cash value of non-wood forest products

We have known for many years (Byron and Arnold, 1997; Angelsen and Wunder, 2003) that the *cash* contribution of forest products to household income may not be enormous. In the case of Tenkodogo, it averages 9 percent of all income. But these realities put the cash value of NWFPs into context. Cash sales of forest products are a poor indicator of the total use people are making of forests and represent only a small portion of total contributions. The recorded total value of NWFPs in 2005 was US\$18.5 billion, or 15 percent of the total global value of forest product removals (FAO, 2010a). One-fifth of forest income comes from cash sales of forest products, while *four-fifths* of that income is composed of products that never enter the market.

Table 42: Forest use in the village of Tenkodogo, Burkina Faso (percent)

| Category of forest user | Cash income | Non-cash income | Total | Forest income as a percentage of all income |
|--|-------------|-----------------|-------|---|
| Wealthy and average men | 42 | 58 | 100 | |
| Of which forest | 7 | 31 | | 38 |
| Wealthy and average women | 36 | 64 | 100 | |
| Of which forest | 10 | 34 | | 44 |
| Poor and very poor men | 38 | 62 | 100 | |
| Of which forest | 9 | 36 | | 45 |
| Poor and very poor women | 32 | 68 | 100 | |
| Of which forest | 12 | 38 | | 50 |
| Average contribution of cash and non-cash income to total income | 37 | 63 | 100 | |
| Average contribution of forest income to total income | 9 | 35 | | 44 |

Source: IUCN, 2009a

Not only do sales of forest products represent only a small fraction of total income from forests, they also represent a much narrower range of products than that used for consumption, as shown by the contrasting charts (Figures 31 and 32) from the Comoros.

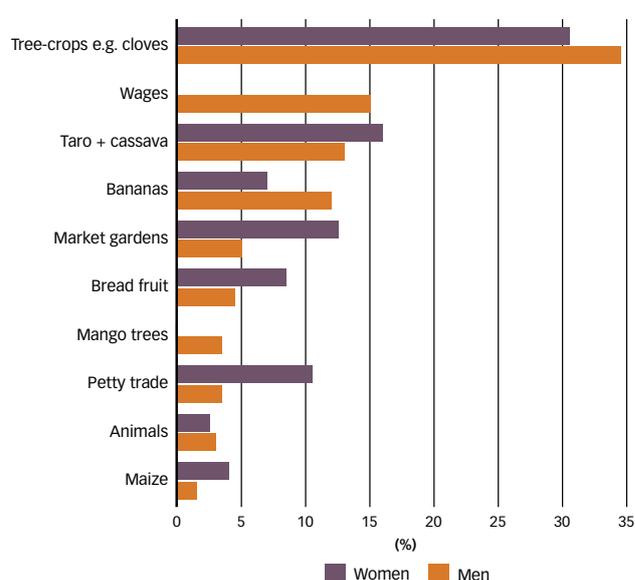
This is particularly evident if a comparison is made of the numbers of products which enter the market, and those which are gathered for consumption, as shown above. These facts are extremely relevant to the debates that have taken place in recent years about the capacity of forests to reduce poverty (e.g. Arnold, 2001; Cavendish, 2003). As many have suggested, straightforward poverty reduction based on the kinds of cash incomes that can be generated from sales of NWFPs can be limited, even though small sums may be crucial for certain purposes.

On the other hand these smallish sums are not negligible, as the section in this chapter on SMFEs shows, in the context of the income-earning opportunities available. In Table 42, forest cash income may represent only 9 percent of total income, but it does contribute 35 percent of all non-cash income. It is therefore critical to improve assessments of the true value of both NWFPs to cash and non-cash income, as both make important contributions to poverty alleviation particularly in rural environments.

Dimensions of forest dependence

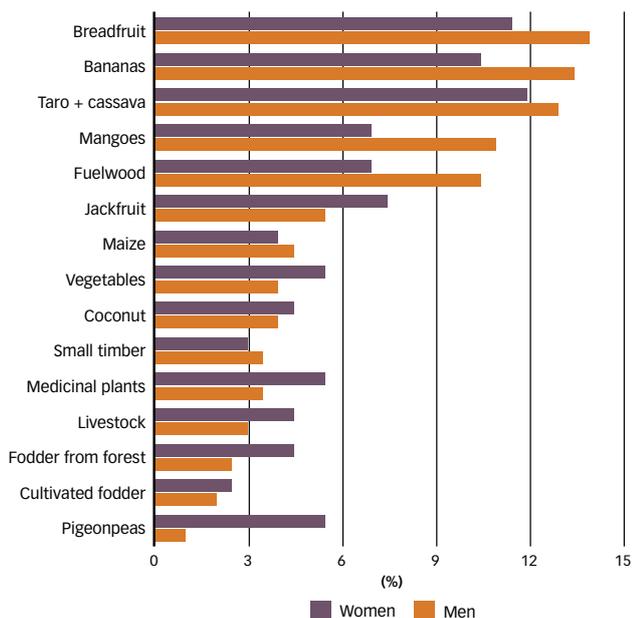
All household income in rural areas comes partly from what can be grown on farms and partly from non-farm income, which will consist of a mix of cash income earned as wages and income drawn from off-farm natural resources such as forests, rivers and the sea. The more remote the location, the smaller the cash income from wages, and the greater the dependence on farm

Figure 31: Sources of cash income for men and women in the village of Nindri, Anjouan



Source: Shepherd, 2010

Figure 32: Sources of non-cash income for men and women in the village of Nindri, Anjouan



Source: Shepherd, 2010

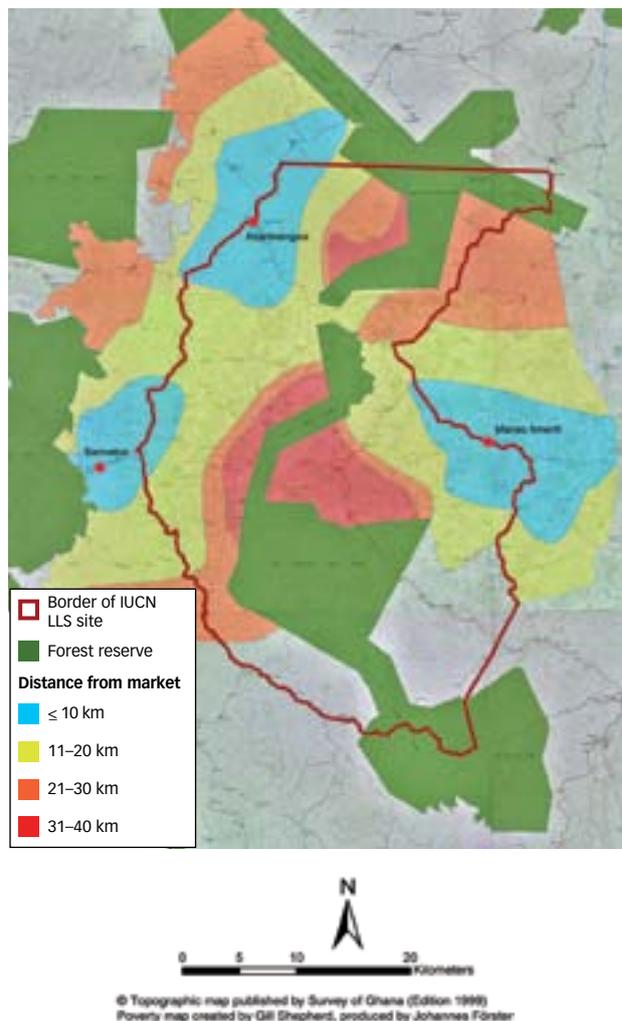
produce and off-farm natural resources. In all cases, the importance of forest co-varies with the importance of agriculture, and the two need to be understood together from the point of view of local people. There are three dimensions – spatial, gender and wealth – to the nature of forest dependence, which are discussed below.

Forest dependence in spatial terms

Forest dependence varies in predictable ways over space – increasing in remoter areas where markets are far away and only sales of very high value forest products are of interest (e.g. spices such as nutmeg) and decreasing where there are roads and markets and where sales of agricultural crops are easy to organize, and wage labouring opportunities may present themselves. Sunderlin *et al.* (2008) have shown how closely poverty levels and forests can correlate at the level of national analysis. These differences are seen over quite short distances, as well, linked to what constitutes a walkable distance to market and back. Dercon and Hoddinott (2005) have shown that those in Ethiopia within 8 km of a market centre buy and sell more, have better health and have more access to education than those further away.

In another example, the International Union for Conservation of Nature (IUCN) coded the landscape in Western Ghana (Figure 33) by time taken to get to market (a combination of distance, road quality and availability of public transport). Villages in blue

Figure 33: Coding the Wassa Amenfi West landscape by remoteness



areas (Category 1) lie on an all-weather road within 10 km of a market town. Villages in a yellow area (Category 2) lie 11–20 weighted km from a market town, on mixed roads. Villages in an orange area (Category 3) lie 21–30 weighted kilometres from a market town, on mixed roads, and those in a dark red area (Category 4) lie 31–40 weighted km away, in part over poor roads or tracks. The red line is the landscape boundary; forest reserves and protected areas are indicated in dark green. Most amenities are clustered in the blue and yellow areas, while remoter orange and dark red areas are all found close to forests.

IUCN Ghana used the Forests–Poverty Toolkit to analyse the cash and non-cash income sources of the population of Pensanom village in a blue area and Kamaso village in an orange area. The results, in the case of women, are shown in Figures 34 and 35.

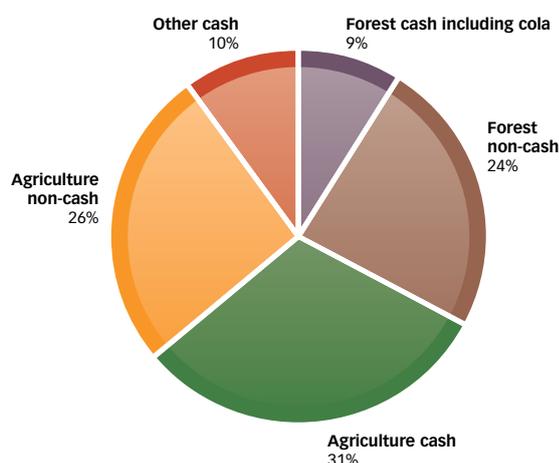
Women's trading, very important in Ghana, is much easier for the women of Pensanom, who can easily transport both agricultural and forest products to market to sell, than for those of Kamaso. They sell more household agricultural produce than they consume, and also earn 10 percent of all their income from other cash sources. In Kamaso, women sell less of the household's agricultural produce than is consumed and are more dependent on forests for non-cash income. They have few opportunities to earn other cash.

Forest dependence and gender

Women in many societies turn to forests both to diversify and add flavour to the range of subsistence foods they

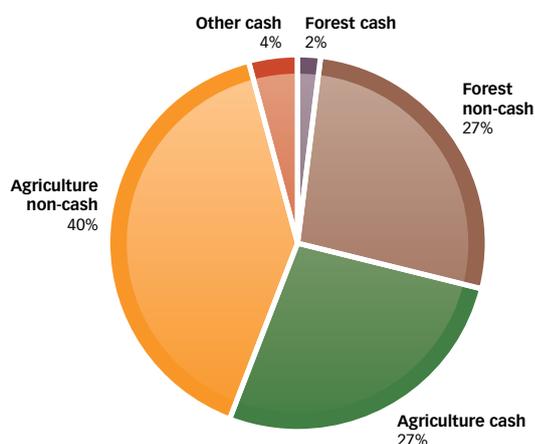
offer their families, as well as for cash. It is normal to find that women depend on forests more than men for off-farm income, while men may depend more on wage-labouring. For instance, among the Akan in southern Ghana, while the profits from any on-farm activities go to the (male) household head, women may wish to generate income which they control themselves, to safeguard their future. Wives may choose to make remittances to their natal families, for instance, as security in case of divorce (Milton, 1998). In Benin and Cameroon, women increase their collection and sale of NWFPs right before children's school-fees are due, at times of year when ill-health is more common, and during the hungry pre-harvest period (Schreckenber *et al.*, 2002). The pattern of income sources seen in Table 42, which is typical of many parts of Africa, shows around a third of women's total annual income from cash, a third from subsistence from the farm, and a third from forests.

Figure 34: Sources of income for the women of Pensanom, Wassa Amenfi West, Ghana with easy access to market



Source: IUCN, 2009b

Figure 35: Sources of income for the women of Kamaso, Wassa Amenfi West, Ghana with difficult access to market



Source: IUCN, 2009b

Forest dependence and wealth levels

Not only women, but poorer people in general are more dependent on forests for cash and non-cash incomes. This may be because they lack land or labour resources to undertake more substantial farming activities or migrant labour. Although wealthier households may collect more forest products by volume, what is collected forms a far higher percentage of the total income of poor households (Abbott, 1997). Chronic poverty (profound, hard-to-get-out-of and intergenerationally inherited) is more common in remote forested areas than in less remote areas (Bird *et al.*, 2002).

Types of forest dependence

Types of non-cash forest dependence vary in different parts of the world, in synergy with types of agriculture. While farm production is almost always primary, the forest is relied on by the farming household both directly (through inputs to diet, for instance) and indirectly (through inputs to the sustainability of the farming enterprise more broadly).

Pastoralism, agriculture and forests

In many parts of the Africa, animals feed on forest browse for a considerable proportion of the year. The main non-cash value of forests for those with cattle is that it keeps their chief household asset alive and in good health throughout the year when there is no grass.

Forests, cattle and soil fertility on terraces

In the upland hill-farming systems of Nepal, cattle are fed in forests or on cut browse from forests, and kept

on terraces, so that their manure can supply crops with nutrients. The farming system demonstrates how close the symbiosis with forests can be.

Forests, water and irrigated terraces

Forests in upper watersheds protect and support the streams, which are an essential part of irrigated rice terrace agriculture in much of South and Southeast Asia and in Madagascar.

Rotational fallowing

In almost every part of the world, before the advent of purchased fertilizer, farmers made use of forest soil fertility in shifting cultivation systems. Poor soils, where accumulating weeds and soil toxicity begin to make farming all but impossible after two or three years, drove farmers to move on around their cycle of plots. In many systems, from West Africa to Indonesia, farmers enrich the plots they temporarily abandon with desirable tree species, so that when they return in a few years' time, they will have a more valuable forest than the one they left behind. The farmed parklands of the Sudanic zone in Africa, and the slow transition into the multistorey agroforests found in Indonesia, Viet Nam and elsewhere, are both examples of this.

Forests and protein

In the rainforests of the Congo Basin, it is all but impossible to raise domestic livestock. Farming consists of the growing of carbohydrates and root vegetables, but protein, green leaves, vitamins and minerals must all come from the forest.

Challenges and emerging issues

Forestry and forests have gained new attention in international debates because of their potential role in mitigating climate change. These discussions make it urgent for governments to put in place pro-poor reforms in the forest sector to protect and enhance the livelihood benefits that forests provide to the poor. If this is to be realized, local communities will need more secure rights if they are to be involved in managing and protecting large areas of forests globally.

The sustainability of CBFM is closely linked to enabling arrangements that facilitate the generation and equitable sharing of benefits from forests. Without legal recognition of rights over forest products, however, local people have neither the interest nor the courage to protect and develop forests (Gobeze *et al.*, 2009). SMFEs will also require continued investment and capacity building in order to

contribute to local livelihoods. Other aspects of local livelihoods, such as trees in areas outside forests, also need to be further integrated into policies and actions.

Long-term access rights to forest resources and equitable benefit sharing

The *Global Forest Resources Assessment 2010 – Main Report* indicates that 80 percent of the world's forests are publicly owned (FAO, 2010a) but ownership and management of forests by communities is on the rise. However, in many countries, regulatory frameworks are not clearly defined or do not provide adequate security of tenure for forest dependent communities.

The benefits accruing to communities are more minor in countries where CBFM is a relatively young concept. Here tenure issues have perhaps not yet been addressed, the low-value forests passed on to communities have not had time to show the benefits of protection, and infrastructure to valorize community forestry products is not yet in place. In the early stages, the time costs of managing forests (and the transaction costs of engaging with public forest institutions), are generally underestimated. In these situations, it is easy for middle men and local elites to become the main beneficiaries.

The essence of cost and benefit sharing is to achieve SFM and to reduce poverty levels. Local communities expect incremental benefits from timber, woodfuel and NWFPs as an incentive and motivation to pursue sustainable forest management objectives in partnership with government. Lack of transparency about the amount of income generated and how it is to be used can be a potential source of conflict and a threat to the very existence of CBFM arrangements. Additionally, the procedure of designating forests for community use or for co-management with government forest agencies, the registration of forest management groups, the development of forest management plans and approval processes, all considerably limit the capacity of communities to get involved in forest management without external support.

The formats for community forest management plans in many countries are still based on conventional large-scale timber and production-oriented forest management. They are applied to small-scale operations without fundamental adaptation, so that high transaction costs and time delays ensue. The focus on benefits for forest dependent communities is rapidly lost in this situation (FAO, 2004). Nevertheless, countries are taking positive steps to improve collaborative forest management.

For instance, in Uganda a policy of benefit-sharing under collaborative forest management is currently being developed. The policy hinges on engaging the private sector to support forest-based enterprise development in marketing, processing, upscaling production and developing the organization of community groups.

The ability of local communities to organize, negotiate and lobby governments has proved vital in holding decision-makers accountable to key principles of good governance. There are efforts in several countries led by environmental NGOs to strengthen local communities and to lobby governments on a number of issues, including simplification of guidelines and procedures. In Ghana, for example, Community Resource Management Committees have been established by the Forestry Commission and to date over one thousand such bodies exist within forestry fringe communities across the country. Nevertheless, further work still is needed where community participation in decision-making is lacking, due to inadequate political support and economic drivers favouring small beneficiaries instead of equitable benefit sharing and income distribution (Hodgdon, 2010).

In response to the World Bank and International Monetary Fund's Poverty Reduction Strategy process, a number of countries are integrating forest management objectives (and hence CBFM) into development planning, wider landscape and catchment management approaches as cornerstones for their poverty reduction and rural development strategies. Additionally, with increasing rural populations and multiple demands on forests, local communities may find that there is now more incentive than in the past to diversify income by greater forest product commercialization. Such activities take their place, as always alongside agriculture and off-farm employment (Mirjam, Ros-Tonen and Freerk Wiersum, 2005).

Forests still take time to mature, however, and a much degraded forest will take time to yield the community income that is usually urgently needed. It is time that communities were trusted with less degraded forests in many areas or were given bridging finance to help them to restore degraded ones more rapidly.

Strengthening small and medium forest enterprises

Governments can play a critical role in strengthening SMFEs to reduce poverty. They can grant and enforce legal access to forest resources. They can simplify bureaucratic procedures for obtaining natural resource

quotas and SMFE registration. Financial incentives, including tax breaks for start-up SMFEs and local or green purchasing policies are additional positive steps (Donovan *et al.*, 2000).

Global level actors can also contribute to an enabling environment for SMFEs by providing steady demand or capital investment, as in the case of the private sector. For example, a growing number of international health and beauty companies are choosing to source products that have been produced sustainably and under certain internationally recognized standards such as 'fair trade', ensuring fair pay to NWFP harvesters and local processors. The private forest processing industry is increasingly sourcing from small and medium tree growers, particularly in places where land restrictions prohibit large-scale concessions for plantations, and is occasionally also providing capital to local growers for initial processing.

International donor agencies and organizations can provide financial and technical resources for capacity building, and collaborate with local partners to advance land tenure, policy and market reforms that are pro-poor. There are positive developments at the global level that are helping to strengthen enabling environments (see Box 27).

Investment in locally controlled forestry requires certain preconditions. Initial 'soft' investment can significantly help empower communities and local entrepreneurs as well as moderating other economic and political risks, in preparation for subsequent 'hard' investments, such as access to business knowledge and credit (Elson, 2010).

One initiative supported by 'soft' investors to tackle the multiple challenges facing SMFEs, is Forest Connect (FC). This is a collaborative effort between FAO, the International Institute for Environment and Development (IIED), the NFP Facility and the Program on Forests of the World Bank (PROFOR), with country partners. It is in the interest of SMFEs to work together in associations to reduce transaction costs, adapt to new market opportunities, and shape the policy environment in their favour. However, in many developing countries, support structures for such forest associations do not exist, or fail to reach those who need help most. Forest Connect is an international alliance with national FC hubs, dedicated to avoiding deforestation and reducing poverty by linking SMFEs to each other, to markets, to service providers and to policy processes (Box 28).

Box 27: Growing recognition of the value of forest producer organizations – the Smallholders Forest Producer Associations Development Fund

Governments are gradually recognizing that smallholder forestry producers' active cooperation is required in policy-making for sustainable forestry management. To capitalize on this and assist governments to create an enabling environment for SMFEs, international initiatives such as the Smallholders Forest Producer Associations (SFPA) Development Fund have been created to support the establishment and functioning of forest producer organizations in developing countries.

Supported by Agricord, the Finnish Central Union of Agricultural Producers and Forest Owners (MTK), Farmers Fighting Poverty, Forest Connect, and FAO/NFP Facility, the SFPA Development Fund programme has started up activities in 2010 in Ethiopia and Viet Nam.

Source: FAO, 2010g (For more information visit: www.fao.org/forestry/enterprises/60778/en/)

As highlighted in Box 25, a critical part of Burkina Faso's success with SMFEs and the use of NWFPs was a result of the application of MA&D, a tool developed by FAO in 2000. The MA&D approach is a participatory training methodology that aims to assist people in developing forest-based income-generating enterprises while conserving natural resources. The MA&D tool sets are adapted to the specific context of each country and for many different purposes and products. It offers a preliminary planning phase, and three successive main phases: the identification of target groups and potential products; the screening of promising products and identification of markets; and the preparation of strategies and business plans, and pilot implementation. Since 2000, the FAO Forestry Department has supported projects on tree and forest product enterprises around 20 countries using the MA&D approach (FAO, 2010f).

More effective non-wood forest product law and policy²⁶

With greater information, effective consultations with stakeholders and strategic approaches to policy-making, NWFP laws and policies can promote ecological sustainability, equity in trade, and improved rural livelihoods. The following suggestions aim to help governments and others working today to build more effective and equitable NWFP policy frameworks.

The extent of commercialization and the heterogeneity of NWFP resources, markets and stakeholders should be reflected in policies and laws. A 'one-size-fits-all' approach to regulating this diverse category of products is not possible. Laws need to reflect the different

types of NWFP use, including subsistence, local trade, commercial trade and recreation. Experience has also indicated that NWFP law and policy are most effective when:

- subsistence use of NWFPs is not regulated, except in clear cases of overharvesting;
- governments focus law and policy on internationally and intensively traded industrial scale NWFPs, particularly when they have limited resources;
- appropriate attention is given to the damage to NWFPs caused by forest degradation from logging, mining and clearing for commercial agriculture and other land uses;
- policies avoid criminalizing harvesting activities and further marginalizing producers;
- support and information are given to producer and harvester groups, trade associations and NGOs to strengthen stakeholder consultations;
- the negative impacts of unrelated laws are mitigated;
- there is collaboration between countries trading NWFPs;
- the burden of permits and procedures is minimized for small-scale producers; and
- governments integrate and coordinate customary and statutory law and governance systems.

NWFP policies work best when incentives and supportive legal frameworks are promoted, including government support for producer, trade and processing groups; market access and premium prices through certification; tax breaks; and outreach and education on new policies and laws. In some cases, particularly when there is sudden and high commercial demand, a more involved regulatory framework is also necessary, including permits, quotas, taxes and restrictions on trade. Governments will need to approach NWFP regulation in ways that reflect the financial, ecological and social costs and benefits of

²⁶ This section is drawn from Laird, McLain and Wynberg, 2010.

Box 28: Forest Connect – a practical networking tool

Forest Connect (FC) currently connects and strengthens small forest enterprises in Burkina Faso, China, Ethiopia, Guatemala, Guyana, Lao People's Democratic Republic, Liberia, Mali, Mozambique and Nepal. In-country FC activities start with an evaluation of the SMFE context, which informs follow-up activities leading to face-to-face networking across the value chain and up to the policy level. SMFEs are provided with information and opportunities to connect to other local producers, value chain actors and service providers (e.g. business and financial services). Each FC national hub develops and manages its own website based on its own defined priorities, to link all these stakeholders.

In the Lao People's Democratic Republic, FC works in association with FAO, the World Wide Fund For Nature (WWF),

and the Netherlands Development (Organization) SNV, and is implemented by a Lao private human resource development organization. It has focused on small rattan and bamboo enterprises, and promoted collaboration among NGOs and the Lao Government. The marketing capacity of these SMFEs has been increased by making them more aware of international market requirements, and through development of bamboo and rattan production groups. National institutions have learned the importance of helping the SMFEs to gain better access to national, regional and international markets, and this in turn has stimulated both the Lao Government and the SMFEs to give more attention to the sustainable management of rattan and bamboo.

Source: Forest Connect, 2010. (For more information on Forest Connect Lao People's Democratic Republic, visit <http://edclaos.com/lfc/>)

such actions, government implementation capacity and the likelihood of compliance.

Traditional knowledge, indigenous peoples and REDD

Perhaps the most dynamic and important new development regarding forests, traditional knowledge and indigenous peoples within the United Nations, is the work within the climate change regime. In particular, indigenous peoples will have a crucial role to play in REDD and REDD+, particularly given recent decisions on REDD+ in Cancún, Mexico. Forest loss and degradation contribute 17 percent of global GHG emissions, and indigenous peoples live in all the forests being targeted by REDD activities.

Recent debates about livelihood resilience are only just beginning to factor in the enormous contribution made by forests to those livelihoods, especially in remoter areas. Yet some believe the protective effects of forests for livelihood resilience could be threatened by aspects of REDD almost before they are recognized. Although similar threats to livelihoods exist in many aspects of natural resource management (Honadle, 1999), there is a series of specific linked concerns about REDD.

There have been concerns that REDD could disadvantage people living in and around forests (on the basis, for instance, of experience with palm oil). If REDD is intended to contribute to poverty reduction or at least not to negatively impact upon use rights, then tenure clarification will be essential in many cases. At the same time, many forest

authorities now see an opportunity to generate income from REDD, and this might provide a strong disincentive to decentralize control of forests to communities.

Communities could bear the costs of REDD in terms of forest use forgone. If, as we have seen, up to four-fifths of that use is invisible to governments, then there could be an underestimation of what forest dependent people might lose through REDD. Furthermore, there is a serious risk that informal forest use rights possessed by many forest peoples could be lost as forests become more valuable (Angelsen *et al.*, 2009).

The potential contribution that a multifunctional, multiple-value forest resource might make to climate change cannot be realized unless REDD arrangements are better aligned with broader forest governance reform. REDD and carbon capture could reduce multiple functions to a single function – to the great disadvantage of local users. At the root of potential emissions reductions, and the finance mechanisms and monitoring protocols intended to deliver them, lie fundamental decisions about pro-poor forest governance which are only starting to be addressed.

Especially since the Conference of the Parties to the UNFCCC in Bali in 2007, indigenous peoples have participated actively in policy development processes and have influenced their outcomes. As a result of these efforts, references to the role of indigenous peoples and traditional knowledge can be found in UNFCCC draft texts and, notably, in the December 2010 UNFCCC decision on REDD+, which requests developing countries

to ensure the full participation of indigenous people and local communities in REDD+ national strategies and action plans. These references provide a basis on which to build and ensure that indigenous peoples and local communities have an adequate role in the UNFCCC regime, their interests and rights are protected (see UNFCCC, 2010), and they can benefit from REDD+ activities. The cases mentioned in Chapter 3 provide clear examples of how this involvement has started to positively change laws and policies. More work on REDD+ is being undertaken to ensure these activities benefit local and indigenous communities.

Urban forests and local economy for jobs and income

More than half of the world's population now lives in urban areas. The proximity of urban and peri-urban forests, and other tree-based systems to these centres of population, makes them highly valuable in sustaining employment and income generation. However, urban areas are largely overlooked when examining local forests and forestry issues. Different considerations must be taken into account when assessing the productivity of urban forests, in comparison with the rural context. Three areas are particularly important in this consideration.

First, in 'core' built-up areas with high grey infrastructure (roads and buildings), urban trees and forests form line plantations and gardens, the maintenance of which provides sustainable jobs, and residues that supply raw material for local electricity generation, heating and cooking (Lohrberg, 2007). Second, the urbanizing areas around cities face major land-use changes and ingenious mosaics of trees and forest resources are needed that combine recreational, health, environmental and productive functions. Today's practices aim to increase the cost-efficiency of green infrastructure, and move towards more eco-friendly grey infrastructure, while providing employment in the construction and management of roads, parks, industrial areas and neighbourhoods that bring together small and medium enterprises and community involvement (Lohrberg, 2007). Third, a sustainable city must fit within its overall ecosystem, respecting urban watershed management and the landscape. Balanced productivity of forests and agroforestry systems around cities provides urban areas with traditional forest products, as well as water supplies and agroforestry products (Spathelf and Nutto, 2004). However, despite their value for and connectedness

to CBFM and SMFEs, these three areas are rarely considered in studies of the local 'value' of forests and forestry. Urban and peri-urban forests need special attention if they are to be measured and integrated into local ('urban') and regional ('peri-urban linking urban to rural') planning efforts.

Urban and peri-urban forestry has been defined as the art, science and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic and aesthetic benefits that they provide (Grey and Deneke, 1986). Urban forestry has received limited attention in many poor countries as it is often perceived to be associated with beautification and recreation. Although these functions are important for all societies, they are not a top priority for cities where the restoration of the forest base and the search for productive occupations for vulnerable and poor populations are the primary concerns.

Extensive research and experience demonstrate that towns that have taken steps to invest in a green vision have subsequently enjoyed many benefits. For instance, where an efficient green infrastructure is in place, the impacts of extreme weather events (e.g. winds, floods, landslides and sand encroachment) are mitigated. Moreover, a well managed watershed produces and supplies good quality water and reduces the need for costly engineering works. The high and recurrent cost of rebuilding roads, housing and commercial infrastructure is greatly reduced, creating savings, which generate green jobs and income through multiuse management and the maintenance of woodlands and trees. Finally, farming and landscape systems that incorporate agroforestry and high-yielding plantations can supply nearby markets at competitive prices (FAO, 2009b).

Research in peri-urban areas of developing countries reveals that poor urban migrant households maintain close links with their previous rural (agricultural and forestry) areas. This connection can contribute to their subsistence and alleviate food insecurity (laquinta and Drescher, 2000). In the urbanized society of the Bolivian Amazon, extraction and processing of NWFPs provide livelihood options for peri-urban dwellers. Some households, especially those of poorly educated migrants from the forest hinterland, rely on NWFP-related activities for their economic survival in town (Stoian, 2005). The role of NWFPs in supporting livelihoods in different regions of developing countries, which has informally taken place

for decades, was confirmed by Shackleton, Shanley and Ndoye (2007). In particular, their research illustrated the key role of NWFPs in providing an opportunity for hundreds of thousands of unemployed peri-urban and urban men and women to strengthen their livelihoods in several African countries.

In urban areas the principal sources of timber are plantations, street trees, shelterbelts or windbreaks and greenbelts, parks and gardens. In many cities timber harvesting is combined with intensive outdoor recreational activities. Systematic planting of street trees for timber production is widely practised in China, India and Malaysia (Carreiro, Song and Wu, 2008). Some cities in industrialized countries offset the costs of tree care through harvesting.

Urban trees also have the ability to maintain property values (e.g. Tyrväinen *et al.*, 2005), create attractive settings for businesses and attract consumers to established shopping districts in more urban areas. Studies have found that urban trees improve the economic stability of retail environments by attracting consumers, setting a positive mood, and sending messages of quality (Wolf, 2004). This has been well documented through action research in Europe, including that carried out by the European Forum on Urban Forestry led by the Danish Centre for Forest, Landscape and Planning of Copenhagen University (DCFLP/KVL) and IUFRO. Production, planting, and tending trees and landscapes represent a significant economic multiplier in developed countries. Landscape services, including equipment and nursery production and retail sales in the United States of America alone in 2004 were estimated to be valued at US\$147.8 billion in output, generating more than 1.9 million private sector jobs (Hall, Hodges and Haydu, 2005).

The necessary work to restore urban ecosystems, and plant and care for community trees and forests, supported by national and local governments and international donor agencies, could employ millions of people at a global scale with significant multiplier effects in local economies and around the world. Nevertheless, urban forests are still frequently an afterthought in the process of implementing comprehensive plan goals at the local and national scales. Often, there is a fundamental disconnect between the community's vision of environmental quality and the ecosystem services that are the cornerstone for achieving environmental quality and sustainable development (Schwab, 2009). Reliable data and inclusive dialogue across disciplines, sectors and institutions are necessary components of any successful planning process. Both are currently lacking in nearly all regions and nations (see Box 30). Indeed key stakeholders such as foresters, urban agriculture specialists, local authorities, emergency agencies and food security programmers do not meet to build green sustainable cities with and for citizens. However, many centres of excellence (for instance in Asia, the Chinese Academy of Forests (CAF), the Forest Resources Institute of Malaysia (FRIM), and Aravali Foundations in India) are compiling good data and instituting progressive practices to engage affected landowners and interest groups, and to develop a sustainable green vision for their communities within good governance conditions and long-term planning exercises.

Urban agriculture has already been recognized by citizens and their local authorities as a strategic way to combine a mosaic of green areas in and around cities, contributing to the stabilization of migrant societies from rural areas, establishing a natural ecosystem in the city and providing a highly competitive market in the vicinity of consumers.

Box 29: Valuation of ecological services – the example of Oakville's urban forest

Every year, trees within the town of Oakville (Ontario, Canada) provide ecological services to a value of US\$2.1 million. In addition, trees save local industry US\$1.1 million annually by avoiding expenditure on mechanical methods to remove the 172 tonnes (190 tons) of pollutants emitted at source. Trees save Oakville residents US\$812 000 annually in reduced energy bills. This proves the concept that the urban forest functions as a 'biogenetic utility,' saving energy and preventing the accumulation of greenhouse gases.

Oakville's Urban Forest Effect (UFORE) project helped established a baseline 'performance measure' for its Corporate Strategic Plan. In combination with the Urban Forest Strategic Management Plan 2008–2027, a solid policy foundation was built in the town's official plan to help meet its Corporate Vision: "To be the most liveable town in Canada." This demonstrates the influential role that the urban forest plays, and the potential partnerships that can be attained among planning, engineering and urban forest management professionals (McNeill, 2009).

Box 30: Assessing trees outside forests

The evolution of green areas in cities and regional planning processes for these areas is well known in developed countries. However, although methodologies for assessment exist, they are not commonly used in most parts of the world, are rarely compatible among users, and are not integrated, either at national or international level. As part of the

FRA 2010 process, a thematic study is being prepared on trees outside forests, which includes an analysis of methodologies and data availability. The study will provide guidance to countries when assessing urbanization, land use and land use change in and around cities in relation to forest policy and national forestry action plans (FAO, 2010e).

The existing stakeholder platforms around this discipline offer a sound basis through which to incorporate trees, agroforestry and forests in integrated land use, enabling urban and peri-urban forestry make a direct economic contribution in terms of jobs and income generation, as well as institutional savings.

Results of more comprehensive research on urban and peri-urban forests and other tree-based systems drive us toward new models of urban management and an urbanization dynamic where social inclusion, participatory processes of cultural integration, food security and well-being are adopted as core objectives.

Summary and conclusions

This chapter has shown how local forest resources are important in sustaining local livelihoods, but are often underestimated in value and underprotected in laws and policies. Local forest resources make key contributions to sustaining traditional knowledge practices, developing CBFM and SMFEs, supplying NWFPs and making 'non-cash' contributions to subsistence livelihoods. The examples in this chapter were a first attempt to shed light on these themes, all of which require further research and discussion in 2011 and beyond.

Community-based forest management builds on political goodwill and strong community institutions. It relies on long-term forest rights and tenure. When fostered in sound and appropriate enabling environments, CBFM can also help stimulate the creation of SMFEs.

It is increasingly understood in some countries and internationally that investment in SMFEs can greatly improve rural livelihood opportunities as well as strengthen natural resource management. SMFEs can be engines of development through employment, income and through these, the multiplier effect that occurs in

rural economies. Yet in some countries, development of SMFEs is still lacking because of an underappreciation of their value to national economies. Governments and international organizations could create a more positive environment for SMFEs by clarifying natural resource access and tenure rules; by simplifying business registration and export procedures; and by streamlining tax and financial incentive schemes. Availability of information and support for producer networks are also important components.

Non-wood forest products have also been shown to be a large contributor to cash and non-cash contributions of livelihoods, including via SMFEs. They are often the core product of many community-based SMFEs and help provide sustainable incomes. However, the non-cash contribution of NWFPs to household income is often much greater than cash income from the forest. In addition to conducting further research on the non-cash contribution of forests, further development of effective NWFP law and policy is required to ensure NWFPs are not overexploited and are well integrated into policy frameworks.

Finally, new challenges from climate change require urgent action to explore and protect the local value of forests for livelihoods even more. This is particularly true in the case of emerging activities undertaken as part of REDD+, given recent decisions taken in Cancún in December 2010. If REDD activities are aligned with broad forest governance reform and governments encourage participation of indigenous peoples and local communities in national REDD+ strategy and action plan formation, there is hope that REDD+ activities could ensure benefits for the people that depend on forests for their livelihoods. Without such attention given to local-level issues, there is a risk of eroding traditional ways of life and threatening some of the most biologically diverse and environmentally important forests in the world.