

# **PART I THE SITUATION AND RECENT DEVELOPMENTS IN THE FOREST SECTOR**

# Recent developments

This chapter discusses some of the main issues and emerging trends in the forest sector, focusing largely on the last two to three years. As it is impossible to cover all new developments, notable events and significant trends worldwide, selected issues receiving international attention during this period have been highlighted.

## THE STATUS OF FOREST RESOURCES

### Forest cover

The Global Forest Resources Assessment 2000 (FRA 2000) provides the most recent information on the state and change of forest cover, or area, globally. The results of the assessment are discussed in more detail in Part II.

Forests cover about 3 870 million ha, or 30 percent of the earth's land area. Tropical and subtropical forests comprise 56 percent of the world's forests, while temperate and boreal forests account for 44 percent. Forest plantations make up only about 5 percent of all forests; the rest is natural forest. FRA 2000 revealed that the estimated net annual change in forest area worldwide in the 1990s was -9.4 million ha, representing the difference between the estimated annual rate of deforestation of 14.6 million ha and the estimated annual rate of forest area increase of 5.2 million ha.

### Forest condition

Although global forest area and deforestation rates are often used to frame discussions about forests, perhaps of greater significance are the condition of forests and their ability to provide the range of goods and services demanded of them. The condition of forests is even more difficult to assess than area, however. In FRA 2000 (see Part II), an effort was made to report on forest damage from various causes and to assess wood supply and production. An indication of related trends is provided indirectly by recent efforts to assess the

effectiveness of forest management (see Management, conservation and sustainable development of forest resources, p. 6). A pilot assessment of the health of the world's ecosystems, including forests, was undertaken by the United Nations Environment Programme (UNEP), the World Bank and the World Resources Institute (WRI) (Rosen, 2000).

Concern about deforestation and forest degradation, which are evident in many places throughout the world, has given rise to a number of analyses of the causes and effects (e.g. UN, 1996; Kaimowitz and Angelsen, 1998; and Contreras-Hermosilla, 2000). The causes of forest degradation and loss are complex and vary widely from place to place. A distinction is made between direct and underlying causes. Major direct causes of forest degradation include insect pests and diseases; fire; overharvesting of industrial wood, fuelwood and other forest products; mismanagement of production forests, including poor harvesting practices; overgrazing; air pollution; and extreme climatic events such as storms. Habitat degradation caused by these factors and the overharvesting of wildlife are major factors contributing to local depletion of forest-based wildlife populations. Underlying causes include poverty, population growth, markets and trade in forest products, and macroeconomic policies.

This section will be limited to discussion of two noteworthy causes of forest damage during the 1999-2000 period: i) severe wildfires in many countries, with recently updated information on the wildfires of 1997 and 1998 – the worst years reported for wildfires and forest fires in recent times; and ii) the violent storms that hit Europe in December 1999. As disastrous as these events proved, however, they have had some positive outcomes and have produced useful lessons.

The spate of wildfires that occurred globally over the last four years catalysed national policy

responses and regional and international initiatives in the prevention, early warning, detection and control of fires. Countries demonstrated their ability to react quickly and effectively to the storms in Europe, which helped to minimize the negative environmental, economic and social impacts of the storms. Modifications in forest establishment and management measures are now being proposed to reduce the potential risk of storm damage in the future.

**Forest fires.**<sup>1</sup> Large areas of forest around the world caught fire in 1997 and 1998, when intense El Niño-related drought conditions prevailed. The extent of these fires and the damage attributed to them were so immense that one United States newspaper described 1998 as “the year the earth caught fire”. At times this seemed to be literally true, as millions of hectares burned and smoke blanketed large regions such as Central America and Southeast Asia, disrupting air and sea navigation and causing serious threats to public safety. Seventy people were killed by the fires in Mexico alone. Ecosystems that are not generally subject to fires, such as the Amazon rain forest in Brazil and the cloud forest of Chiapas in Mexico, sustained considerable damage. Estimates of forest cover burnt by the fires include:

- 9.7 million ha in Indonesia (including 6.5 million ha in East Kalimantan), where the economic costs incurred are estimated to have been between US\$4.5 and US\$10 billion and 75 million people were affected by the fires, smoke or haze in 1997-1998;
- 4.3 to 7.1 million ha in the Russian Federation in 1998;
- 2.7 million ha in Mongolia in 1997;
- nearly 4 million ha, or about 17.5 percent of the total area of the Brazilian state of Roraima, in the fire of 1998;

<sup>1</sup> The material for this section was provided by R. Mutch and J. Goldammer. It was collected for the *Special report on forest fires*, carried out under FAO's Global Forest Resources Assessment 2000. This ongoing global study has compiled fire statistics and narratives by country and will provide a basis for understanding the global fire situation in the 1990s.

- more than 800 000 ha in Mexico in 1998, said to have been the country's most difficult wildfire season in memory.

Although on a smaller scale than in 1997-1998, the global wildfire situation in 1999-2000 was again serious. Fires were widespread in Indonesia in 1999 and 2000, but not on a comparable scale with the 1997-1998 period. The major fires in 2000 occurred in Ethiopia, the eastern Mediterranean and the western United States:

- Ethiopia had an extreme wildfire season early in the year as a consequence of the delayed onset of the rainy season and increased land use pressure. Burning to clear agricultural land in the montane forests in the southern part of the country led to large-scale wildfires and, by the end of the dry season in April 2000, more than 100 000 ha of these forests had been severely affected or destroyed by fire.
- Wildfires burned about 2.8 million ha of forests and grasslands in the United States (as of September 2000). The situation was particularly serious in the western states, which suffered severe drought conditions. An enormous national firefighting effort was mobilized, supplemented by firefighting personnel from Australia, Canada, Mexico and New Zealand. This firefighting effort cost the United States about US\$1 billion.
- The prolonged drought in the eastern Mediterranean region in mid-2000 led to a bad fire year for several countries. By the end of September 2000, more than 150 000 ha had been burnt in Greece.<sup>2</sup> The Balkan region (particularly Bulgaria, Romania and Croatia) and Turkey also suffered serious wildfires.

The above-mentioned fires made “headline news”, yet frequently occurring and widespread fires in many areas of the world do not always receive coverage by the international press. Hundreds of thousands, and sometimes millions, of hectares burn annually in fire-adapted ecosystems, including in dry zones of West Africa, large areas of Africa south of the equator, Central Asia, southern Latin America and Australia. For

<sup>2</sup> Provisional data, not yet confirmed.

example, during the fire season in 2000, an estimated 200 million ha were burnt in Africa south of the equator.

The severe wildfires witnessed over the past few years have resulted in far greater public awareness of the causes and effects of forest fires, a focus on policy-related issues and the mobilization of efforts at the national, regional and international levels.

A current debate in the United States is focused on the extent to which tree thinning, timber harvesting and prescribed burning might reduce fire hazards in the future. Adherence to a policy of fire exclusion for many decades has led to an unnatural accumulation of fuels within fire-dependent ecosystems. Fires in forests of long-needled pines now burn at much higher intensities than they did before 1900, when fires occurred more frequently. Because they are larger and more intense, the fires today are more difficult to control and are more damaging.

While there is a common perception among the public that fires are bad for all forests, in fire-adapted forest ecosystems they are a form of natural disturbance that helps maintain and renew the ecosystem and can actually improve habitat quality in the long term. While the short-term effects of fire may be impressively destructive, the long-term ecological effects in these ecosystems may be beneficial.

A number of studies on the Indonesian fires of 1997-1998 have examined the underlying social and economic causes of these fires (e.g. Rowell and Moore, 2000; Barber and Schweithelm, 2000; and studies under way by the Center for International Forestry Research [CIFOR]). They draw a strong link between fires and land use policies and land management practices. The causes include small-scale agricultural fires that burned out of control, the use of fire to clear land for large-scale plantations (e.g. oil-palm) and conflicts between land users.

Fires occurring elsewhere in Southeast Asia and in parts of the Americas and Africa are often related to agricultural practices and land clearing, as fire is traditionally used as a land management tool. Evidence suggesting that burning occurs significantly less often in community-managed

forests has led to programmes involving local communities in efforts to reduce the risk of wildfire (e.g. Project Firefight of the World Conservation Union [IUCN] and the World Wide Fund for Nature [WWF]). Community-based fire management projects, most of them designed as Integrated Forest Fire Management projects, are under way in several countries, including Brazil,

#### BOX 1

#### Community forestry and fire prevention and suppression in the Gambia

The classic approach to fire prevention and fire suppression has been largely unsuccessful in many developing countries. This failure can mainly be explained by the lack of resources necessary to operate state-controlled fire monitoring systems. In addition, land and natural resources are state-owned in most countries, so local people are not inclined to invest in their management. Experience has shown, however, that people's attitudes can be changed if governments grant ownership or long-term user rights to the resources.

The Gambia introduced community forestry on a pilot basis in 1991 and began implementing it on a countrywide scale in 1994. With the enactment of forest legislation in 1998, the Government of the Gambia fully endorsed the transfer of forest ownership to rural communities. A recent case study on the management of forest fires through the involvement of local communities compares the attitudes of villagers who are involved in community forest management with those who are not involved (FAO, 2000a). The survey reveals that the population in general is very much aware of the damage caused by fire, and of its dependency on forest resources. It is not a lack of awareness that inhibits communities from participating in the fight against wildfires; it is a lack of incentive. The study shows that the occurrence of fires has declined considerably in the area of the country in which community forestry was started. In this area, only two fires have been reported since 1992 – and both were fought successfully by the local communities concerned. The study further indicates that community management contributes to the stronger enforcement of laws and by-laws related to fire prevention because the resources are subject to more effective control.

Indonesia, Mongolia and Namibia. These participatory projects involve farmers and villagers in efforts to improve their use of fire (in agricultural land clearing, for example) and in fire prevention and suppression tasks. The successful experience of the Gambia (see Box 1) suggests that community-based natural resources management may be a promising alternative to traditional fire control methods.

Many countries do not have policies or systematic fire management strategies that enable them to respond quickly or aggressively to outbreaks of fires, although the situation is starting to change. Increasingly, countries are developing policies and practices to improve their institutional capacities to prevent, prepare for and combat forest fires. Since the disastrous 1998 fire season, the Ministries of the Environment and of Agriculture in Mexico, for example, have collaborated to reduce the threat of agricultural burning to forests. In Brazil, measures have been taken to support fire prevention programmes with the public and to train farmers in improved agricultural burning practices. Early in 2000, in Indonesia a new Directorate of Forest and Estate Fire Operations was set up under the Ministry of Forestry and Estate Crops to strengthen the country's fire management capabilities.

Recent initiatives have also been launched to promote better regional cooperation in forest fire control. For example, a new pan-Baltic forest fire initiative was begun in 1998, involving the preparation of mechanisms for mutual assistance in large fire emergencies. The Association of Southeast Asian Nations (ASEAN) set up the Forest Fire Management Centre in Thailand in the wake of the 1997-1998 fires to provide fire management training and research for the ASEAN countries.

Several international initiatives related to wildland fire awareness, prevention, preparedness, management and response were initiated over the last two years.

Three notable examples are:

- The Global Fire Monitoring Center (GFMC), established in October 1998 in Freiburg, Germany as an activity of the UN International Strategy for Disaster Reduction

(ISDR). GFMC monitors, forecasts and archives information on vegetation fires at the global level; provides early warning and fire monitoring services; and offers advice to policy-makers around the world.

- The Fire Hazard Team, established in December 1999 by the Disaster Management Support Group of the Committee on Earth Observation Satellites (CEOS). Comprising major institutions around the world that are active in the field of remote sensing of vegetation fire occurrence and fire effects, the team will advance the use of remote sensing in wildland fire management.
- In 2000, ISDR conducted a global public awareness campaign on disaster reduction, the theme of which was "Disaster Prevention – Youth and Education: Wildfires".

Policy-makers are beginning to realize that a continued emphasis on emergency response will not prevent large and damaging fires in the future. The way out of the emergency response trap is to couple emergency preparedness and response programmes with more sustainable land use policies and practices. Actively working towards more sustainable forestry practices is an important part of the strategy for improving the conservation of natural resources and reducing the impacts of wildfires.

**Windstorms in Europe.**<sup>3</sup> Severe windstorms swept through Europe in December 1999. The first storm hit Denmark and Sweden on 3 and 4 December, and two subsequent storms struck further south between 26 and 28 December, centred on France, Germany and Switzerland. These five countries were the most severely affected, but many other countries sustained substantial damage. In these few days, the storms wreaked destruction on forest lands and uprooted thousands of trees outside forests, leaving a changed landscape in their wake. An estimated 193 million m<sup>3</sup> of material was felled, and windfalls in some countries equalled several years' harvests. In total,

<sup>3</sup> Much of the information in this discussion is based on UN-ECE/FAO, 2000a; and the UN-ECE Timber Section Web site, at: [www.unece.org/trade/timber/storm/storm.htm](http://www.unece.org/trade/timber/storm/storm.htm).



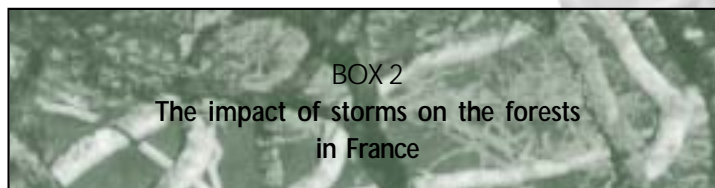
the damage represented six months of Europe's normal harvest. The consequences of the storms were far-reaching. They had a substantial impact on many people's livelihoods and severely affected forests, forest-based industries and current and future markets (see Production and consumption of forest products, p. 13).

In most places, the response to the storms was rapid and effective. Many governments provided assistance to their forest and forest industries sector (see Box 2 for a description of the situation in France). National responses included reduced fellings in undamaged forests; log storage programmes; subsidies and loans to sawmills to hold increased inventories; the diversion of material into wood energy markets; funding to replant, reopen forest roads, take necessary phytosanitary measures and mobilize forest workers and equipment; and support to transport services, including the transportation of logs to mills in distant areas. Tax relief was also provided to forest owners, and subsidies and low-interest loans were available for purchasing machinery and hiring emergency workers.

Storms are not unusual in Europe – windblows of over 20 million m<sup>3</sup> have occurred about ten times since the early 1950s – but those of December 1999 were the most destructive there had been for several decades. It is not possible to say whether storms are becoming more frequent or more severe in the region, but a report prepared for the French authorities (Y. Birot, personal communication) suggests that several factors have contributed to an increase over time in storm damage to forests in France, including:

- increased forest area;
- higher standing volume per hectare;
- the replacement of (relatively wind-stable) coppice, and coppice with standards, by high forest;
- stands with greater height;
- increased planting of conifers (Douglas fir and spruce, among others), which are more susceptible to wind than broad-leaved species in winter, when winds are strongest in Europe.

Following the storms, many countries examined ways to reduce the possibility of severe storm damage in the future. In France, for



### BOX 2 The impact of storms on the forests in France

On 26 December and again on 27 and 28 December 1999, two hurricanes crossed France from west to east. Winds reached speeds of 150 to 200 km per hour, which are unusually high velocities for Europe. Hurricanes of the same intensity had occurred in France over the last two decades – in Brittany and Normandy in 1987, in the central mountainous area in 1982 and in northeastern France in 1990 – but they had covered a much smaller area.

The resulting damage to France's forests exceeded that of any other storm in the last century. The equivalent of two annual harvests was uprooted, felled or broken. Windfalls amounted to more than one-third of the total growing stock in some counties. A significant proportion of the 3 million small- and medium-sized private forest owners, together with many communes that rely heavily on forest revenues, suffered major financial hardship. In mid-January, the Government of France launched the *Plan national chablis* (the National Windfall Plan) which, during the first year, concentrated on providing support – in the form of subsidies and soft loans, for example – for log harvesting, storage and transportation in order to remove as much of the wood as possible from the forests. The aim was to facilitate forest regeneration and to reduce the risks of fire, insect pests and diseases.

By the end of 2000, about half of the windfallen trees had been removed, mainly from the more accessible and valuable stands. The wood was sold at prices not exceeding 80 percent of the usual value, and often much less. State subsidies, amounting to some 90 million euros (US\$77 million) per year for the period 2000-2009, have been earmarked for assisting private owners and communes to clear and regenerate their forests.

example, recommendations have been developed on forest establishment and management measures that would reduce their susceptibility in the future. The silvicultural changes called for in France and other countries include increased reliance on natural regeneration and the use of a greater variety of species, including hardwoods.

It is worth noting that these measures could well have some long-term significance for the biological diversity of forests in parts of Europe.

## MANAGEMENT, CONSERVATION AND SUSTAINABLE DEVELOPMENT OF FOREST RESOURCES

Efforts around the world are focused on achieving sustainable forest management, an approach that balances social, economic and environmental objectives. This has resulted in changes in forest policy and legislation in many countries. On the ground, changes are occurring in management objectives and practices and in the range of people involved in planning and managing forests. Broader approaches to forest management, such as ecosystem and landscape management, are becoming more widely accepted and put into practice. These approaches recognize the dynamism of ecological and social systems, the necessity of adaptive management, and the importance of collaborative decision-making. Integrated strategies for forest conservation, in which the conservation of forest resources in general and of biological diversity in particular includes management both inside and outside protected forest areas, are increasingly being developed (see Part II, Forest biological diversity conservation: protected area management).

At the international level, efforts to encourage sustainable forest management include the development of tools and mechanisms to encourage the adoption of better management practices. Certification of forest products is a market-based mechanism, devised to encourage sustainable forest management (see Forest products certification – recent developments, p. 18); a number of other international efforts to support sustainable forest management are described in Part III, International dialogue and initiatives related to forests. Criteria and indicators have been developed as a way to measure progress towards achieving sustainable forest management, and model and demonstration forests have been established to demonstrate sustainable management in practice. The International Tropical Timber Organization's Year 2000 Objective promotes sustainable forest

management in countries that produce and consume tropical timber. Increased attention is being paid to combating illegal activities in the forest sector and, for the first time, the issue of forest corruption is being addressed openly in international fora (for a more detailed discussion, see Part II, Illegal activities and corruption in the forest sector).

The present discussion highlights two subjects related to forest resources development – biotechnology and forest plantation establishment – and two subjects related to forest management and conservation – the adoption of environmentally sound timber harvesting practices and restrictions on timber harvesting. In addition, an issue related to the management and conservation of forest-based wildlife resources is discussed: that of unsustainable hunting of bushmeat, which is an increasingly serious problem in some parts of the world. To complement this section, a full discussion of key issues is provided in Part II, Forest biological diversity conservation: protected area management.

### Biotechnology in the forest sector

Biotechnology encompasses a wide range of scientific techniques that use living organisms, or their parts, to make or modify products. Conventional plant biotechnology – plant breeding – has been used for thousands of years for the improvement of agricultural crops but its use for breeding and improvement of forest trees is more recent. Biotechnologies are now commonly used for tree breeding and propagation and also for processing applications, such as pollution control and raw material breakdown.

Modern plant biotechnology has recently become one of the most rapidly advancing fields of scientific research on plants, offering potential benefits – and risks – to forestry. Modern biotechnologies currently used in forestry fall into three broad categories: biotechnologies based on molecular markers; technologies that enhance vegetative propagation; and genetic modification of forest trees (see Box 3).

Although many traditional aspects of biotechnology and its application are uncontroversial, genetically modified organisms

(GMOs) have become the target of an intensive and, at times, emotionally charged debate. While this attention has mainly focused on the crop sector, the debate is now entering forestry.

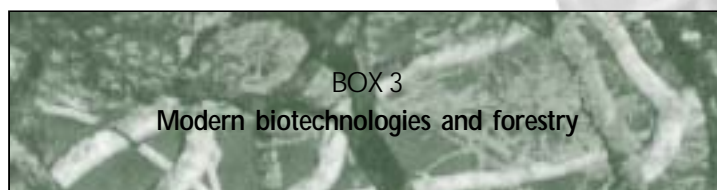
Genetic modification of forest tree species using recombinant DNA techniques has been contemplated for addressing traits such as virus resistance, insect resistance, lignin content and herbicide tolerance. Insertion of genes governing these traits into a new transgenic species is a substantial undertaking. The major limiting factor at present is the low level of knowledge regarding the molecular control of traits. This is particularly important for traits governed by an array of genes, as is the case for the characteristics of most interest for production forestry, for example growth rate, adaptability and stem and wood quality.

There has been no reported commercial production of transgenic forest trees, although 116 field trials, in 17 countries and involving 24 tree species, have been reported (Owusu, 1999). It is acknowledged that biosafety aspects of genetically modified trees need careful consideration, especially because of the long generation time of trees and the potential for the dispersal of pollen and seed over long distances.

While the application of new biotechnologies in the forest sector offers interesting opportunities, especially for genetic conservation and increased production of wood and other forest products, a cautious case-by-case approach is necessary when integrating these new tools into long-term conservation and breeding programmes. Many issues need to be evaluated more extensively, including their added value compared with that offered by existing conventional breeding methods; their cost; the level of capacity building and resources required to use and maintain them; their potential impact on human health and the environment; existing regulatory and legal considerations at both the national and international levels; and consumers' preferences.

### Establishment of forest plantations

Forest plantations can fulfil a number of functions. Plantations have been established for environmental rehabilitation and for soil and water



### BOX 3 Modern biotechnologies and forestry

Modern biotechnologies currently used in forestry fall into three broad categories:

- *Biotechnologies based on molecular markers* which can be used, *inter alia*, to: i) quantify genetic diversity among populations and individual trees; ii) identify genotypes in taxonomic studies, biological studies and "genetic fingerprinting"; and iii) locate genes affecting quantitative traits of economic importance.
- *Technologies that enhance vegetative propagation* and support large-scale production of uniform materials. Tissue culture of plants under laboratory conditions can also be used to select traits such as disease resistance and tolerance of herbicides, metals, salt and low temperatures. Micropropagation is already used in crop and horticultural species, and techniques exist for its application in a number of forest tree species. High costs are currently an impediment to the direct use of micropropagated material in forestry programmes.
- *Genetic modification of forest trees*. The term genetically modified organism (GMO) generally refers to an organism into which genetic material from other organisms has been introduced.

conservation in many locations. Elsewhere, wood production has been the overriding objective. The following discussion focuses on plantations for timber production. (See Part II, The status of forests: the Global Forests Resources Assessment 2000, for information on the area of forest plantations worldwide in 2000.) The role of forest plantations in sustainable forest management has been the subject of considerable attention.<sup>4</sup> One reason for this is that future increases in demand

<sup>4</sup> For example, at the International Experts Meeting on the Role of Planted Forests in Sustainable Forest Management, held in Santiago, Chile, 6-10 April 1999. Sponsored by the Governments of Chile, Denmark, India, New Zealand and Poland, this meeting provided input to the Intergovernmental Forum on Forests (IFF).



for wood are predicted to be met largely from plantations. They are considered to be an efficient means to produce forest products on a relatively limited land base, and they are therefore seen by many as helping to reduce deforestation and degradation of natural forests. However, if they are poorly planned and managed and if existing land uses are not taken into consideration, plantations can have negative environmental and social impacts. This concern is reflected in the opposition to plantations that is voiced by some groups, particularly environmental non-governmental organizations (NGOs) and civil society groups.

The global trend is towards increased establishment of plantations and reliance on them as a source of industrial wood (see Box 4). In tropical countries, for example, plantations will be a particularly important source of raw material for

the planned pulp and paper industry. In a few countries, plantations have superseded natural forests as a source of wood. In Chile, Indonesia, Myanmar and South Africa, for example, supplementing wood supplies from natural forests has been a primary objective of plantation establishment. In some Asian countries (China, Japan and the Republic of Korea) and a number of European countries, plantation establishment has served primarily as a means of increasing or replenishing forest estates. New Zealand, the Philippines and Thailand have withdrawn all, or most, of their natural forests from timber production as a conservation strategy. Many of the countries mentioned have substantial areas of available land and thus have the potential for further plantation establishment.

While plantations have a long history in some countries, the development of a globally significant plantation estate is a relatively new phenomenon. This is illustrated by the global age-class distribution of industrial forest plantations in 1995, as displayed in Figure 1. FAO estimates (Brown, in prep.) suggest that some 54 percent of the global area of industrial plantations in 1995 comprised trees less than 15 years of age, with 21 percent planted between 1990 and 1995. The plantations that are older than 50 years are located almost exclusively in temperate and boreal regions.

In most countries, rates of plantation establishment vary annually and are influenced by a range of factors, including government finances, general economic conditions, incentives offered to private sector interests, perceptions of the profitability of forest activities and levels of promotional activities. A notable feature of recent patterns of establishment has been the emergence of Asia as the dominant region for new plantings. Asian plantations constituted 40 percent of global industrial plantations in 1995 and 57 percent of the plantations established since 1985.

The development of forest plantations in some countries has already had a major impact on wood production. In Chile and New Zealand, for example, the establishment of extensive areas of plantations has enabled these countries to meet all their domestic wood needs and also to support a significant export

#### BOX 4

##### Countries seeking a rapid increase in forest plantation area

The Philippines, Mexico and China are three of several countries that have taken specific measures aimed at increasing their national forest plantation areas.

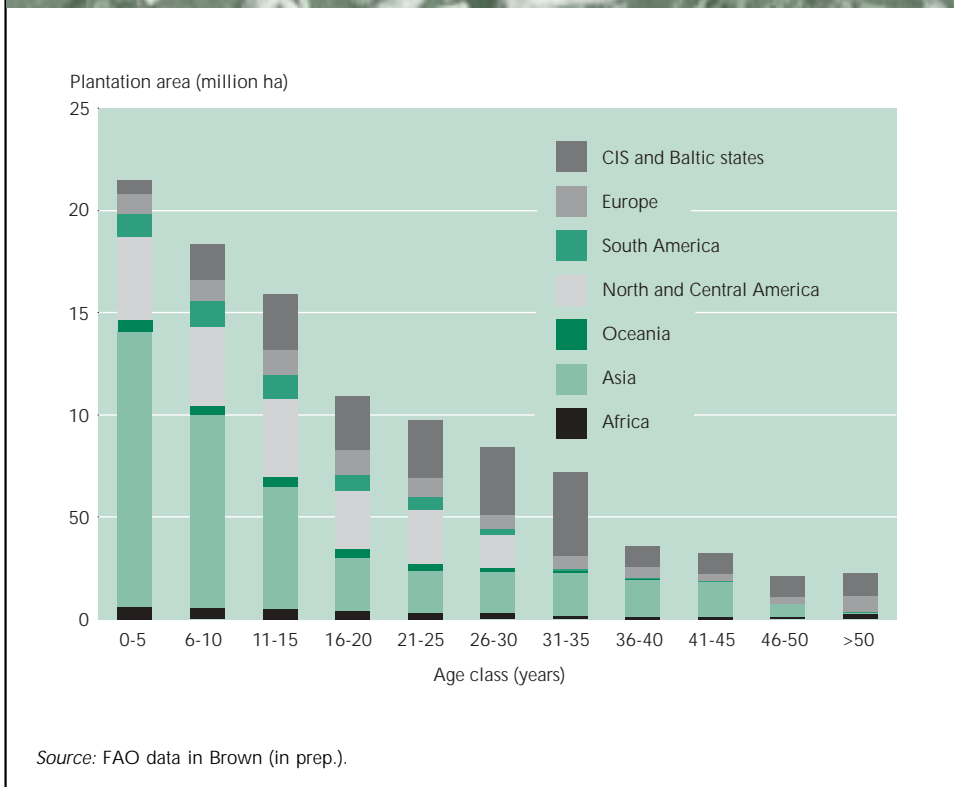
- In the 1930s, the Philippines had about 17 million ha of forest. By 1994, however, the conversion of forests to agriculture and other land uses had reduced the country's forest area to 5.7 million ha. In response, the government banned logging in undisturbed and ecologically sensitive forests, and it recently introduced fiscal incentives for the establishment of forest plantations. The Master Plan for Forestry sets a target of 2.5 million ha of forest plantations to be established over the period 1990-2015.
- In 1997, the Government of Mexico introduced a 25-year forest plantation programme, PRODEPLAN, which provides economic incentives for the establishment of forest plantations in degraded and abandoned lands.
- China plans to increase its forest cover to about 7 percent by 2010, mainly by establishing 9.7 million ha of forest plantations between 1996 and 2010.

industry with supplies from plantations. In most other countries where the domestic demand is high, however, plantation-grown timber supplies are inadequate to meet demand and must be supplemented by imported timber.

While the private sector has played a major role in plantation development in developed countries, most plantations in developing countries have been established by the government. For various reasons, government plantations have generally been managed according to low-investment, low-intensity regimes. In some developing countries, however, the private sector (including both individual landowners and industries, often in partnership) is becoming more involved in forest plantations. This development has been determined by a number of factors, including changes in land tenure and more liberal policies and legislation. Brazil, India, Indonesia, Malaysia and Thailand are some of the countries where the private sector is playing a lead role in plantation development. Financial questions, including profitability and accessibility of funds for investment, are of major importance. Economic viability and risk issues are particularly critical, both where large areas of plantations are already controlled by the private sector and where governments are offering to sell off their plantations under privatization schemes – as is the case in such diverse countries as Australia, Brazil, Chile, Indonesia, Malaysia, New Zealand and South Africa.

**Environmentally sound forest harvesting practices**  
The emphasis on sustainable forest management has resulted in greater attention to environmentally sound timber harvesting practices, often referred to as reduced impact logging (RIL).<sup>5</sup> Recently

FIGURE 1  
Industrial plantation age-class structure by region, 1995



developed codes of practice for forest harvesting<sup>6</sup> call for the use of environmentally sound timber harvesting practices or RIL, and substantial work has been done on testing and using RIL in the field.

Although many countries have initiated research, training and implementation of RIL, it has still not been widely accepted. The environmental benefits of improved harvesting methods over traditional methods are clear; RIL can reduce environmental damage associated with felling and skidding practices, extraordinarily large felling gaps or the excessive use of forest land for infrastructure. It can also reduce stand damage

<sup>5</sup> See the *State of the World's Forests 1999* for more details.

<sup>6</sup> Codes of practice for forest harvesting have been prepared for use at the global level (FAO, 1996) and at the regional level for Asia and the Pacific (FAO, 1999a). A regional code is being planned for Africa, and national codes have been prepared for Fiji (1990), Vanuatu (1997), Guyana (1998) and South Africa (1999); a code for China is currently in preparation.

significantly (Bach, 1999). The financial benefits, however, are perhaps less obvious. RIL entails additional investments in planning, training and the construction of road and skid trails (Ahmad, Brodie and Sessions, 1999). Some studies<sup>7</sup> claim that the higher costs of RIL methods are more than compensated for by the various benefits that would not otherwise materialize. One recent research report<sup>8</sup> makes the following suggestions.

- The higher costs required for implementing RIL are associated with increased planning and more developed management and information systems. The financial benefits relate to increased production, combined with less waste and reduced costs resulting from the more efficient use of machinery.
- The savings in machine costs marginally outweigh the resulting additional costs. When the value of the increased production (because of reduced harvesting waste) is added, the adoption of RIL techniques may significantly reduce the production costs per cubic metre of wood.
- Savings are also achieved at the operational level. With increased production per unit area, there can be a consequent reduction in the allocation of the fixed cost of road construction per cubic metre harvested.

Other recently published studies indicate that:

- total logging costs decrease slightly when RIL is applied (Bach, 1999);
- increased operational costs associated with RIL are offset by the financial gains from increased timber utilization (Ruslim *et al.*, 2000; Van der Hout, 2000).

Despite the promising findings, the economic and financial viability of RIL still needs to be demonstrated under a wide range of conditions. In addition, the higher costs of implementing RIL are likely to act as a deterrent unless the financial benefits, which may only become available in the longer term, can be captured. Both demonstrated financial viability and an assurance that the forest

owner or manager will be able to operate long enough to gain these benefits are essential preconditions. A lack of long-term security of resource use rights to forest land is likely to limit the use of RIL. When the right conditions are in place and operators are committed to environmentally sound timber harvesting practices, effective implementation will require considerable capacity building and field training efforts.

### Restrictions on timber harvesting

Many regions of the world continue to experience high rates of deforestation and forest degradation, despite efforts to ensure forest protection and conservation. Excessive commercial logging is commonly (although sometimes erroneously) blamed for the rapid decline of natural forest resources and for floods and landslides. This has led to political decisions in some countries to ban logging in natural forests, either totally or partially. Other countries are considering bans and restrictions on timber harvesting as a strategy for conserving their diminishing natural forests.

The effects of harvesting restrictions or bans may be wide-ranging. Among other things, they can shift harvesting pressure from one forest area to another; affect forest-dependent peoples; increase or decrease employment opportunities (both inside and outside the forest sector); change trade patterns and regional financial flows; and disrupt existing markets or encourage new markets – both domestic and international.

A number of questions therefore need to be answered: Do logging bans really help conserve forests? Can deforestation be halted or reduced by restricting timber harvests, particularly in natural forests? What are the key elements for implementing such bans successfully? What have been the experiences of countries that have implemented logging bans and what impacts have such measures had?

The effects of logging bans differ dramatically with the type of restriction, the exact details of the restriction, the products affected, the extent of other restrictions, the policies pursued by other countries, market conditions, etc. Some of the effects may be positive, others negative. The outcome is neither straightforward nor predictable.

<sup>7</sup> FAO, 1997a; FAO, 1997b; FAO, 1998a; FAO, 1998b.

<sup>8</sup> Edinburgh Centre for Tropical Forests. 2000. *Activities and outputs for the Barama Company Limited*. Report on reduced impact logging research. (unpublished)

## BOX 5

**Conserving natural forests in Asia and the Pacific: much more than simply banning logging**

Total or partial bans on logging in natural forests are being used by several countries in the Asia and Pacific region to protect or conserve forests or reduce floods, landslides and land degradation. To gain an insight into the impacts and effectiveness of harvesting restrictions as a means of achieving conservation objectives, the Asia-Pacific Forestry Commission (APFC) carried out a study of the efficacy of removing natural forests from timber production to achieve forest conservation.<sup>1</sup> Six country case studies were carried out (China, New Zealand, the Philippines, Sri Lanka, Thailand and Viet Nam) and a regional overview and a synthesis of issues, impacts and experiences were prepared.

The study revealed that experiences with logging bans across the region have been highly variable. New Zealand and Sri Lanka, for example, have achieved considerable success in conserving natural forests under state ownership, by shifting harvesting pressures to alternative sources – to plantations in the case of New Zealand, and to non-forest trees in home gardens as well as to imports in the case of Sri Lanka. In some other countries, the removal of natural forests from harvesting has had significant negative impacts on the forest products sector, local economies and communities. Logging bans have also often failed to bring about effective forest conservation, as even more destructive illegal harvesting activities have continued in the absence of strict monitoring and control or as harvesting has shifted to neighbouring countries with weaker environmental controls or monitoring capabilities. Perverse incentives, ineffective implementation of harvest restrictions and a lack of alternative land and timber resources have discouraged the development of alternative domestic timber supplies in some countries, such as Thailand and the Philippines. Both of these countries have experienced continued high rates of deforestation and illegal cutting, despite imposing total or partial logging

bans more than ten years ago. Meanwhile, both countries have become significant net importers of timber.

The country case studies identified the following preconditions and policy frameworks that may contribute to the success of logging bans and enhance natural forest conservation.

- Appropriate pre-existing land tenure instruments and market structures, which encourage private tree growing, can significantly mitigate the negative economic and social disruptions of logging bans.
- The provision of “safety nets” through temporary assistance and new employment and income opportunities for those disadvantaged by the timber harvesting bans is important.
- Effective monitoring and evaluation of implementation plans, and corrective actions, are fundamental to long-term success.

The study also suggests that temporary logging bans can provide a useful “time out” to allow for improved analysis and planning of harvest options, or to facilitate the restoration of forest health where forests have been severely degraded. China’s Natural Forest Protection Programme, initiated in 1998, is pursuing this approach.

<sup>1</sup> FAO. *Efficacy of removing natural forests from timber production as a strategy for conserving forests*. Bangkok, FAO Regional Office for Asia and the Pacific. (in prep.)



A recent study on harvesting bans in Asia and the Pacific, carried out by the Asia-Pacific Forestry Commission (APFC), concludes that any decision to use logging bans must be based on a thorough analysis of all the potential effects and must take into consideration alternative means of achieving the same results (see Box 5).

The APFC study concludes that harvesting bans are not a simple solution to the challenges of natural forest protection. Rather, bans and restrictions on harvesting are but one possible policy tool, to be applied only after due consideration of the potential implications and implementation requirements. The study revealed that logging bans have tended to be politically driven and impulsively imposed, often as a result of devastating natural calamities where prior forest misuse and degradation have been seen (with or without sound evidence) as significant contributing factors. Decisions to impose logging bans have generally been made at the highest political levels, often with very little time for relevant institutions to prepare for implementation.

The study also finds that logging bans *per se* have seldom addressed the basic underlying issues and causes of deforestation and forest degradation. Instead, they have tended to focus on the directly observable symptoms. To be successful, conservation strategies (including logging bans) require a clear understanding of the root causes of forest degradation. They must also reflect specific achievable goals, and they must consider site-specific conditions and challenges to sustainable forest management. Adequate policies and ongoing support are necessary prerequisites for effective implementation of logging bans and other conservation measures. The study notes the importance of clear objectives, adequate resources, a strong political will and the recognition of the costs that will need to be borne over the short and medium term.

In some cases, logging bans may be the most effective means available to address specific problems, above all because they have an immediate impact. However, there may be more effective or cheaper means of addressing problems, including sustainable forest management with balanced multiple use, the

introduction of RIL, and the more effective allocation and enforcement of forest use rights. The conclusion drawn from various experiences and analyses is that the decision to impose logging bans should be made in a very broad policy context because of their potentially wide-ranging and complex impacts. It must also be recognized that restrictions in one country can transfer or add to the problems of other countries.

The logging ban introduced by Thailand in 1989, for example, had significant impacts on both Thailand and other countries in the region. Thailand moved from being a timber exporter to an importer, putting severe harvesting pressure on neighbouring countries such as Cambodia, the Lao People's Democratic Republic and Myanmar.

Restrictions or bans on timber harvesting in the central, northeastern and southwestern regions of China, which were imposed in late 1998 for environmental reasons (i.e. severe flooding), have had social, economic and trade impacts. China imports and exports large quantities of wood but, overall, it is a significant and growing net importer.<sup>9</sup> The harvesting restrictions have reduced supply, while demand for wood products has grown in China. Some countries, both inside and outside the region, see this as an important opportunity to expand their sales. Neighbouring countries such as Cambodia, Mongolia, Myanmar, the Russian Federation and Viet Nam are under pressure to increase their harvests to export wood to China. Not all countries see this as an opportunity, however; concerns over the possible impact on local supplies and domestic processing industries are emerging in some countries. For example, Mongolia, which had already introduced log export bans in 1995, reacted to the increased Chinese demand by restricting exports of sawnwood in order to protect its own industry and its domestic consumers.

**Forest-based wildlife: the bushmeat crisis**  
Unsustainable hunting, especially commercial hunting, is the major cause of what is known as

<sup>9</sup> Projections of the extent of future imports range from 20 to 65 million m<sup>3</sup> per year by 2010, a substantial increase over current levels.

the “empty forest syndrome” – the elimination of most of the animal life by hunting (Bennett and Robinson, 2000). Meat from wild animals, widely known as bushmeat, has long been a staple of rural people in many parts of the world but, with urbanization, the demand for bushmeat is increasingly being met by commercial hunters and traders. There are questions about the sustainability of the bushmeat trade in South and Central America, the Caribbean, Asia and elsewhere, but it is in equatorial Africa that there is talk of a bushmeat crisis. One reason for this is that the forests of tropical Africa are rich in primate species, which are particularly vulnerable to overexploitation because they breed slowly and often have small populations. About 15 primate species are believed to be threatened by the bushmeat trade. The number of chimpanzees in Africa is believed to have declined by 85 percent during the twentieth century. Other species threatened by the bushmeat trade include the forest elephant (*Loxodonta africana cyclotis*), the water chevrotain (*Hyemoschus aquaticus*), six duiker species, the leopard (*Panthera pardus*) and the golden cat (*Profelis aurata*).

Concern about the implications of the bushmeat crisis in the forests of tropical Africa has led to the formation of NGO groups such as the Ape Alliance and the Bushmeat Crisis Task Force, which are seeking ways to address the issue. The bushmeat crisis was also on the agenda of the Eleventh Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), since considerable illegal cross-border trade in the meat of species listed in CITES Appendix 1 is occurring between countries in Central Africa (see Part III, p. 109, for information on CITES). The Parties to the Convention unanimously supported a proposal to establish an intersessional working group to find solutions to the bushmeat crisis in Central Africa.

## FOREST GOODS AND SERVICES

The list of forest goods and services is long and varied. They range from wood and non-wood forest products (NWFPs), to soil and water conservation, employment, mitigation of climate change, conservation of biological diversity,

tourism and recreation, and cultural and spiritual values, among others. Different forests vary in their ability to provide these goods and services, and the various stakeholders place different values on them.

Two of the environmental services provided by forests – the mitigation of climate change through carbon sequestration and the conservation of biological diversity – are discussed in considerable detail in the relevant chapters of Part II. The following section, therefore, concentrates on forest goods, in particular industrial wood, while touching briefly on woodfuel and NWFPs.

### Production and consumption of forest products<sup>10</sup>

Markets for forest products over the past two to three years were characterized by considerable variation, volatility and uncertainty. Many changes were driven by normal market factors, such as fluctuating supply and demand influenced by changing economic conditions. Others appeared to be more permanent changes influenced by globalization trends and environmental and social pressures.

Estimates by FAO (2000b) show that global production of total roundwood<sup>11</sup> reached 3 335 million m<sup>3</sup> in 1999. Just over half of this was woodfuel, about 90 percent of which was produced and consumed in developing countries. On the other hand, industrial roundwood production, totalling 1 550 million m<sup>3</sup> in 1999, was dominated by developed countries, which together accounted for 79 percent of total global production. Industrial roundwood production varied from year to year during the 1990s, but the overall trend was relatively flat. This was a

<sup>10</sup> Note that, within the overall trends indicated here, there were considerable differences between countries and regions, with associated changes in trade patterns and in product relativities. Data sources for this section include FAO, 2000b; FAO, 2000c; UN-ECE/FAO, 2000a; ITTO, 2000a; ITTO (various years) *Tropical Timber Market Report*; and ITC, 1998.

<sup>11</sup> At the global level, production approximates consumption, although they may differ slightly in some years because of changes in stock. Total roundwood consists of woodfuel (mainly fuelwood and charcoal) and industrial roundwood. Industrial roundwood either enters international trade directly or is used in domestic processing for conversion into products such as sawnwood, wood-based panels, paper and paperboard, and pulp for paper.

significant change from the rapid growth that occurred prior to 1990. Tropical production in 1999 represented a relatively small proportion of overall global production of the various products: about 15 percent of world industrial roundwood production, 14 percent of sawnwood, 15 percent of wood-based panels, and 9 percent of paper and paperboard.

Global production of individual products increased in 1999 and 2000, after the dip in production experienced by all of them except paper and paperboard in 1997-1998. Sawnwood production was up, but below its earlier highs; wood-based panels and pulp were back to or near their earlier highs; while paper and paperboard products rose continuously to reach a new high. The International Tropical Timber Organization (ITTO) reported that, as of late 2000, tropical log, sawnwood, veneer and plywood production by its member countries was still below earlier levels, and in some cases it was substantially lower.

Two main features of the period under discussion were the significant difference in market conditions between countries and the rebound from the Asian crisis in 1997-1998. Some markets (e.g. in North America and Europe) were strong throughout the period, while others (in China, Japan, the Republic of Korea and Thailand) were significantly affected by the Asian economic crisis and its after-effects.

Consumption of sawnwood, wood-based panels and paper and paperboard products in North America was buoyant throughout the period, with consumption in 1999 about 6 percent above 1998 levels. Consumption in Europe rose by 3 percent between 1998 and 1999.

The situation was less positive in many other countries. The Asian economic crisis had affected some Asian countries severely, and the impacts were also felt outside the region, although to a lesser degree.<sup>12</sup> Significantly, although the effects of the crisis were disruptive in many countries, they were less severe than expected, and the countries most affected in 1997 and 1998 improved in 1999 and 2000. Business confidence returned and

demand recovered, lifting prices for most forest products. The situation improved in China, Japan, Malaysia and the Republic of Korea, among others. Although market conditions in Japan (the largest Asian importer) improved in 1999 and 2000, they remained subdued compared with the standards of the mid-1990s, with imports still at only three-quarters of the pre-1997 levels. China's situation was more mixed; its consumption of sawnwood and wood-based panels fell in 1998 but rose in 1999 and 2000, while paper and paperboard consumption rose steadily throughout the period. Latin America, although affected, recovered quickly. Africa's log exports, which had increased substantially to Asia, fell and then rose again, although not to the level of the peak year of 1997. While countries that had export markets in Asia – such as Australia, Canada, Chile, New Zealand and the United States – were affected to varying degrees, they adapted more quickly than anticipated. The main exception to the recovery was Indonesia, which experienced continuing difficulties.

Unlike in western Europe, demand was low in many eastern European countries because of their weak economic situation. A notable example was the Russian Federation, which was severely affected by internal economic problems in mid-1998. These compounded difficulties that the country had already been facing. With domestic demand depressed, production and consumption of all forest products remained below 1995 levels. Although conditions continue to be difficult overall, exports of some forest products, such as logs and lumber, have increased recently, particularly exports to China and Japan.

Of special note is the important impact that China's increasing consumption is having on world consumption and production trends. China is now the world's second largest consumer of forest products by value. By volume, it ranks second in consumption of wood-based panels, second for paper and paperboard products and third for sawnwood.

As mentioned above, in December 1999 severe windstorms in Europe felled the equivalent of six months' harvest for the region. The immediate consequence was a sharp drop in prices of

<sup>12</sup> For a detailed discussion of the crisis and its impacts, see FAO, 1998c; UN-ECE/FAO, 1998.



industrial roundwood in many European countries; for example, the price of many sawlog grades fell by 20 to 100 percent. Price changes for most other wood products were relatively limited: sawnwood, panel and pulp prices showed little change; secondary processed wood products, such as furniture, cabinetry and joinery, were not affected. Market-related efforts to adapt to the situation varied, but they included measures to reduce supply (by leaving wood in the forest or reducing fellings in undamaged forests), spread supply over a longer period (by storing harvested roundwood) and increase demand by finding new markets (e.g. for wood energy) or increasing existing outlets (e.g. through raw material exports). The longer-term impact on markets will depend on the amount of the windfall actually harvested, the success of storage programmes and, especially, market demand in the region. Initial estimates are that only 50 to 75 percent of the storm-felled timber will reach the market.

Substitutions in various materials and products have occurred in many regions. Markets for reconstituted panels – particleboard, medium-density fibreboard (MDF) and oriented strand board (OSB) – have expanded rapidly and captured some of the plywood and sawnwood market. Some of the substitution has affected tropical timber. For example, Japan has increased its use of temperate softwoods, including coniferous logs imported from the Russian Federation, in the plywood sector, which is traditionally the domain of tropical hardwoods. Similarly, the growth of markets for reconstituted panels has often been at the expense of tropical plywood and sawnwood. There has been some compensation, however; exports of secondary processed products from tropical hardwoods have grown, one example being furniture exports from Malaysia.

Prices for many wood products, especially tropical ones, were down substantially in 1998. They have since partially recovered, but most are still below the levels of the mid-1990s. Paper and paperboard prices dropped considerably in 1998 and 1999, but recovered strongly in 2000. Prices for tropical logs, sawnwood and plywood also dropped sharply in 1998 and 1999. Although the

sharp decline in tropical log, sawnwood and plywood prices in 1997-1998 was arrested, by mid-2000 the prices for tropical plywood were still only 65 to 80 percent of those in January 1997 and sawnwood prices were similar to their 1997 levels. Log prices, however, were 15 to 20 percent above their 1997 levels (ITTO, 2000c).

### Trade in forest products

**Trends in trade.** Global trade in most products followed a common trend: export volumes were down in 1997 and 1998 but recovered in 1999 and 2000. In some cases, exports nearly regained the highs of the mid-1990s. Trade in paper and paperboard was an exception; it expanded continuously over the period.

The share of total production exported increased for all processed wood products. In 1999, about 27 percent of the production of sawnwood (up from 18 percent in 1990), 34 percent of wood-based panels and paper and paperboard (up from about 25 percent), 20 percent of wood pulp (up from 16 percent), but only 5 percent of industrial roundwood production (unchanged from 1990), were exported. Many factors influenced this trend, including the difficulties some countries had in meeting their domestic demand, exchange rate fluctuations, increasing production in some countries with small domestic markets, increasing globalization, and supply restrictions for environmental reasons.

The effects of the Asian crisis were particularly apparent in the tropical timber trade. Exports of logs, sawnwood and wood-based panels decreased in 1997 and 1998 and then recovered, but not to earlier levels in all cases. (Exports in 1999 were more than 60 percent below the levels recorded at the start of the decade.) Partial data available for 2000 show further increases. Trade in tropical sawnwood was less affected by the downturn than trade in tropical logs.

Tropical timber products continued to account for varying, but generally small, shares of the total exports of different products: 20 percent of industrial roundwood, 10 percent of sawnwood, less than 10 percent of pulp and paper and paperboard products, and 39 percent of wood-based panels. The exception to this trend is



plywood; 71 percent of plywood exports are from tropical wood.

A trend that continued over the period was the changing relative export importance of different forest products. Processed products represented a higher proportion of total wood product exports than previously. The shares of both wood-based panels and paper and paperboard increased. Paper and paperboard products now account for approximately 52 percent of the value of global forest product exports, and wood-based panels for 11 percent. Sawnwood has remained relatively stable at 18 percent. Industrial roundwood's share of global exports by value, however, continued to decline to reach its current level of about 5 percent. The share of wood pulp in total exports also decreased, since importers have moved to importing paper and paperboard products.

An important trend for many countries has been the increasing production and export of secondary processed wood products (sometimes called further-processed products or value-added products). These include a wide array of products, ranging from wooden furniture, builders' woodwork (doors, window frames, flooring, beadings and mouldings, etc.) to a variety of small products (tools, brooms, bowls, boxes, statuettes, etc.). This has been particularly important for tropical countries, as exports of secondary processed wood products were less affected than those of unprocessed products.

A further point of note has been the increasing importance of the Chinese market. Its expanding consumption and lack of adequate forest resources, as well as restrictions on its wood supply, have contributed to a recent rapid increase in its imports, a situation that is expected to continue. China is now the world's third largest importer of primary forest products, after the United States and Japan. China's imports of forest products reached about US\$8 billion in 1999. The volume of imports of many products has expanded dramatically in recent years. In particular, roundwood imports have risen, but only to the level of the late 1980s. Sawnwood imports have risen strongly, as have pulp, waste paper, and paper and paperboard products. By

contrast, plywood imports have declined significantly as China's own production capacity has expanded. Imports have shrunk back to the level seen in the late 1980s.

Trade patterns have also been changing, largely as a result of increased trade among developing countries, especially between countries in the Asian region. Trade patterns have also become more diverse, and there has been increased intraregional trade in other regions such as North America. Changes in trade patterns have been facilitated by the reduction of trade restrictions as part of the global trend towards trade liberalization (see Box 6). Some changes may be short-term, while others may be more permanent, such as the emergence of lower-cost producers, growing numbers of suppliers with more consistent or higher-quality products or greater marketing expertise, and the reduced availability of roundwood for some suppliers.

While trade liberalization is progressing at the global level, some countries are making increasing use of export restrictions such as bans, levies and quotas<sup>13</sup> as a policy tool to address national environmental or market problems. Bans or very high export taxes are in place in countries as diverse as Canada, Ghana, Indonesia, Mongolia, the Philippines, the Sudan and the United States. In some cases, total bans are imposed; in others, bans are limited to certain species, certain regions of a country or certain products (e.g. logs, sawnwood, plywood, charcoal). The objectives also vary. Some are imposed to assist the growth of further processing – for example in Malaysia<sup>14</sup> – or to protect domestic industry – as in Mongolia. In other cases, the objective may be the protection of threatened species, such as those listed in CITES appendices.

The increasing use of export restrictions as well as harvesting bans, together with the belief that they can solve – or help solve – national environmental and market problems, is perhaps a reflection of

<sup>13</sup> As distinct from the harvesting bans, discussed in the section Restrictions on timber harvesting, p. 10.

<sup>14</sup> The Sabah state government placed a total ban on the export of *Selangan batu* logs and sawnwood from 1 August 2000, in order to ensure supplies for the furniture industry (*Malaysian Timber*, Vol. 6, No. 2/2000).



## BOX 6 Trade liberalization

Moves to reduce trade tariffs and non-tariff barriers received considerable attention over the period. This came to a climax at the World Trade Organization (WTO) discussions, held in Seattle, United States in November 1999. A number of countries were proposing a new round of multilateral trade negotiations, to start in 2000; others either opposed the idea or opposed some of the issues proposed for inclusion. Among other issues, the run-up to these trade talks focused attention on the possible impacts of further trade liberalization for forest products. Many concerns about the effect that any further liberalization might have on the environment were raised by environmental NGOs and were given widespread media attention. Environmental NGOs considered that further liberalization would increase consumption of forest products and thus increase the pressure on forests. They also considered that environmental tools, such as certification and ecolabelling, would be weakened.

In addition, a number of developing countries felt that they had not benefited much from previous reductions and were concerned about some of the new issues suggested. As a result of the lack of agreement – influenced only to a limited extent by the demonstrations against WTO and trade liberalization by civil society groups – new multilateral negotiations were not agreed to<sup>1</sup> in many areas, including those of interest to forestry. WTO and some regional fora are continuing to seek a way forward on further trade negotiations, although the impetus has been reduced somewhat by the lack of agreement at Seattle.

Despite the failure to agree on a new round of trade negotiations, tariff reductions agreed to in the Uruguay Round Agreements in 1994 continue to be implemented in both developed and developing countries. Under this process, which requires commitments to tariff reductions to be fulfilled by 2004, tariffs on many forest products have been reduced. However, since tariff rates on products in the main developed, importing countries were generally quite low before the Uruguay Round, changes in these markets have tended not to be substantial. There have also been reductions in non-tariff barriers, but their effects are more difficult to identify. Some developing countries have made substantial tariff reductions, although many rates still remain well above those on similar products in developed countries. In addition, many of these countries show clear evidence of tariff escalation – with higher rates on secondary processed wood products than on products such as logs and sawnwood. Tariff reductions have also been accompanied by a general freeing up of import controls and taxes in these developing countries. Of special note is the fact that countries seeking to join WTO, such as China, have been making such reductions in order to qualify for entry. These changes will continue, with an overall trend towards increased liberalization.

<sup>1</sup> New negotiations on the Agreement on Agriculture, which does not include forest products, had already been scheduled and are proceeding.

many countries' growing frustration with less direct actions. In the light of the increasing interest in these types of policy tool, there needs to be more in-depth analysis and evaluation of their effectiveness and of their economic, environmental and social effects.

**Trade and environment – impacts and developments.** Issues concerning trade and the environment continue to be important and to

receive widespread attention. Concerns about environmental issues are now being taken more seriously than previously, and the environmental shortcomings of forest management practices, processing, distribution and utilization are increasingly being recognized. This recognition has resulted in greater efforts to address the problems, although there is not complete agreement on what the problems are, their degree of importance, or how to solve them. Views continue to differ on

how far trade and environmental issues could, or should, be mutually supportive; how their linkages could be encouraged; and whether trade or environmental bodies should predominate in situations where conflicts arise.

The challenge of reaching agreement on many of the trade-related matters was illustrated by the difficulty that the WTO Committee on Trade and Environment had in addressing issues such as ecolabelling and certification, as well as by the difficulty that governments had in reaching an agreement on trade and environmental issues in the Intergovernmental Forum on Forests (IFF) (see Part III, p. 104, for information on IFF). In the case of IFF, although some agreement was finally reached, differences in views were evident in discussions on market access, trade and sustainable forest management, the relationship between obligations under international agreements and national trade measures, and illegal trade.

#### ***Forest products certification – recent***

***developments.*** Certification has long been a controversial issue concerning trade and the environment. Producer countries and trade groups have tended to highlight the trade-restrictive aspects of the practice, while consumer countries with strong environmental lobbies have stressed its potential environmental benefits.

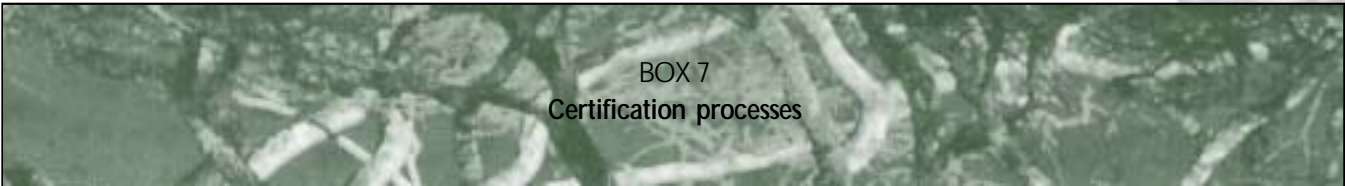
Over the past two years, the subject of certification has assumed an even higher profile and the potential importance of this practice has become more widely recognized. Nonetheless, both the extent and nature of its contribution to encouraging sustainable forest management are still far from clear. The growing acceptance of certification probably has more to do with questions of marketing and market access than with any clear indication that it provides substantial benefits for forest management in the forests under most threat. The greatest interest in certification has been shown by importing countries, largely restricted to western Europe (especially Germany, the Netherlands and the United Kingdom) and to a lesser extent the United States, as well as by exporting countries whose main export markets are in these areas.

Despite the attention paid to certification, only a small number of schemes are in operation and the volume of timber covered by them, while increasing, is still minor. Accurate statistics on the area of forests certified and the volume of certified wood entering the market remain difficult to obtain, and the figures are often hard to interpret. Nonetheless, the area of certified forests seems to be growing (see Box 7). Depending on how the “area certified” is defined, the total global area of certified forests may be around 90 million ha.<sup>15</sup> This represents only about 2 percent of the world’s total forest area. Notably, most certified forests are located in a limited number of temperate countries, and not in tropical countries where unsustainable timber harvesting practices are a contributing factor to forest degradation.

Although the area of certified forests cannot be directly correlated with the quantity of timber originating from them, a growing volume of wood from such forests is reaching the market. This growth in volume is occurring at a slower pace than the increase in certified forest area, and it is still minor in regional or global terms. Furthermore, most of the trade in such wood is concentrated in a few markets and market segments.

Significant developments related to certification have occurred in some important market segments. An increasing number of large retail “do it yourself” chains in Europe and the United States and some major house-builders in the United States have announced that they will favour certified wood products in the future. Buyers’ groups (groups of retailers who have committed themselves to trading only in products from certified sources – and mainly with Forest Stewardship Council [FSC] certification) have expanded, with notable commitments recently from some large retailers in Brazil. Some of these retailers have also now ceased to specify that they market only FSC-certified products. This reflects the fact that they are unable to obtain sufficient wood under the FSC certification

<sup>15</sup> Excludes areas certified to the ISO 14001 standard of the International Organization for Standardization, unless they have also been certified to a specific forest management certification system.



## BOX 7

### Certification processes

Following are some recent developments in the area of forest certification processes:<sup>1</sup>

- The area certified by accredited certifiers of the Forest Stewardship Council (FSC) has reached 22.0 million ha,<sup>2</sup> up from the 10.3 million ha reported for 1998 in the *State of the World's Forests 1999*. Most of this is in Europe and the United States. Sweden and Poland, alone, account for 61 percent of the total, and the United States for another 11 percent.
- Outside the FSC process there has been an even more rapid increase: 21.9 million ha of Finland's forests (95 percent of the country's forest area) have been certified under the Finnish Forest Certification System; a further 6.9 million ha in Norway and Sweden have been certified under national certification schemes; and some 44.0 million ha of forest land in Canada has been certified according to the ISO 14001 standard of the International Organization for Standardization.<sup>3</sup> This last certification procedure indicates that the companies involved conform to the ISO 14001 Environmental Management System standard. Although it does not provide for forest management certification, it can be seen as a step towards gaining certification (Bass and Simula, 1999). Many of the Canadian companies adhering to this standard are now working towards the additional requirements needed to achieve Canadian Standards Association (CSA) certification. This is an ISO-based system that includes forest management performance requirements. Some 5 million ha are already reported to have been certified according to the CSA standard.
- A new European certification process, the Pan-European Forest Certification Framework (PEFC), has been established to provide a framework for voluntary forest certification and a mechanism for mutual recognition among different European national systems. National PEFC governing bodies have been established in 15 European countries.
- The Indonesian Ecolabelling Institute (LEI) has developed criteria and indicators for the auditing of forest management on logging concessions, as well as the ecolabelling of products from these concessions. The LEI system is based on the International Tropical Timber Organization (ITTO) guidelines for sustainable forest management. A memorandum of agreement has been signed with FSC, and this may lead to joint certification by the two processes.
- Malaysia has formed a National Timber Certification Council (NTCC) which is establishing a national set of criteria and indicators, also based on the ITTO framework. It has entered into discussions and trials with other organizations to widen the acceptance of its system.
- The area covered by the American Forest and Paper Association's Sustainable Forestry Initiative, by which its member companies commit themselves to move towards sustainable forestry, has continued to expand. Although this is not a certification process, the principles and guidelines that companies commit themselves to are now being used as a basis for certification by independent bodies. Some 12 million ha of forest have been verified by third-party auditors and 20 million ha are currently reported to be undergoing assessment.

<sup>1</sup> As at early 2001.

<sup>2</sup> As at 30 March 2001, according to the FSC Web site.

<sup>3</sup> Reported on the Canadian Sustainable Forestry Certification Coalition Web site at: [www.sfms.com](http://www.sfms.com) (April 2001).



system to meet their sales needs, and it is also a sign of acknowledgement that many different certification processes have merit and may be acceptable alternatives (see Box 8).

Two other areas of recent development are in the non-wood forest product and the pulp and paper sectors. Certification schemes are starting to certify certain NWFPs. A description of the types of schemes used is given in Box 9. A number of pulp and paper companies have certified their forests and market their products as certified. This has been made simpler by changes in certification rules and procedures that allow products with less than 100 percent certified virgin wood content (i.e. also containing waste, recycled or reused wood) to be certified.

Despite these positive trends, many important certification issues remain unresolved. These include: the lack of a clear link between certification and improved forest management where deforestation is greatest – in developing countries; the fact that there is still little evidence of the positive or negative market impacts of certification;<sup>16</sup> and the continuing possibility that certification will, intentionally or unintentionally, act as a non-tariff barrier to trade and discriminate against those unable or unwilling to become certified. Regardless of the uncertainties, interest in certification continues to grow and the area of

<sup>16</sup> See, for example, Hansen, Forsyth and Juslin, 2000; Pajari, Peck and Rametsteiner, 1999.

#### BOX 8

#### Mutual recognition of certification processes

The following points indicate that mutual recognition of various certification schemes is increasing.

- A decision has been taken by B&Q, a leading home improvement chain in the United Kingdom and a member of FSC and of the United Kingdom WWF1995+Group, to accept Finnish timber certified under the Finnish Forest Certification System. This national certification process has been developed in competition with the FSC system in Finland.
- A wide range of interest groups in the United Kingdom, including the UK Forestry Commission, timber growers' associations, the timber trade, retailers and a number of NGOs, have reached an agreement on the recognition of the United Kingdom Woodland Assurance Scheme (UKWAS), a certification standard for forests in the United Kingdom.
- PEFC is actively encouraging mutual recognition between different European national systems and also has provisions for recognizing non-European certification schemes.
- The International Forest Industry Roundtable, an informal network of forest industry associations from 16 forestry nations, is developing an international framework for

mutual recognition between different performance standards and certification systems; and the Confederation of European Paper Industries (CEPI) is supporting mutual recognition efforts through the development of a comparative matrix of different certification systems as an educational tool for its members and for pulp and paper customers.

- The American Forest and Paper Association's Sustainable Forestry Initiative and the American Forest Foundation's Tree Farm System, which is the oldest system of certification of forests in the United States and has 66 000 non-industrial private forest landowner members, have signed a mutual recognition agreement under which they recognize each other's standards for sustainable forest management. About 10 million ha are certified under the Tree Farm System.

## BOX 9

## Certification schemes for non-wood forest products

Although some existing certification schemes are starting to certify specific non-wood forest products (NWFPs), there is considerable variation in what is being certified and some misunderstandings as to what certification of an NWFP actually means. A common assumption is that certification of an NWFP is a guarantee that it has been produced in a sustainable way. This may not, in fact, be the case. There are four different certification approaches for NWFPs:

**Certificate of origin.** This is used for a variety of products, including food products. It guarantees only that a given product comes from a certain region or area – not necessarily that it has a certain standard of quality. An example is the DOC (Denomination of Controlled Origin) label used for wines, cheeses and other products by many countries. Certain high-value edible NWFPs, such as truffles and morel mushrooms, are increasingly being certified through such documentation of origin systems.

**Product quality standards.** Organic certification is being used for an increasing number of products, from food to textiles. It certifies that the full production sequence of a product (from the farm until processing) has respected the criteria for organic agriculture (which may differ according to the certifying agency). Because NWFPs are gathered in forests and their production does not entail the use of fertilizers or pesticides, they are usually considered organic products by definition. Pine nuts, mushrooms, herbs and other products gathered in

forests are now being increasingly and successfully commercialized as organic food products. Organic certification *per se*, however, does not guarantee that these products have been obtained from sustainably managed forests.

**Social certification.** This involves documentation of certain social aspects of production, assuring that the labour conditions for production are acceptable, for example, or that the benefits are equitably distributed to those involved in production. Social-based certification schemes have existed for a long time for agricultural and manufacturing products (e.g. for soccer balls certified to have been produced without child labour), but they are relatively new for NWFPs. Mechanisms now exist to ensure that the returns from the sale of NWFPs produced by indigenous peoples or by local cooperatives accrue to the producers. Fair trade associations and NGOs are active in this field.

**Forest management certification.** Forest certification schemes based on the standard of forest management are now being extended to include NWFPs. This is much more complex than simply certifying for timber, as the same forest area may have to be assessed for one or more NWFPs, which can have different requirements. It is possible, for example, for a forest to be managed for timber in a sustainable way while, at the same time, its NWFP resources are being overharvested, and vice versa.

forests being certified is increasing. Certification has begun to be seen as a mainstream activity, and changes and adjustments will continue for some time yet.

**Developments in forest industry technologies**  
Recent developments in the pulp and paper industry include increased investment in modern technologies that improve the environmental performance of manufacturing plants, for example

pollution control equipment. Developments are evident in energy generation, such as the use of organic fuel sources (e.g. black liquor and wood residues). Apart from bringing economic and environmental benefits, such technologies contribute to reducing greenhouse gas emissions, as agreed to by many governments under the UN Framework Convention on Climate Change.

Producers of solid wood products continue to adapt to changing raw materials. Large-diameter

logs are becoming scarcer as natural forests become less available and increasing quantities of plantation wood enter the market, and a wider range of species are being used. These trends are giving impetus to the production of engineered wood products, most notably laminated veneer lumber (LVL), glue-laminated timbers and products based on wood fibres, such as OSB. Production of OSB in Europe has been expanding rapidly and taking some of the market share from the market leader – particleboard. OSB production also continues to expand rapidly in the United States. Other developments include new surfacings and coatings that allow external uses as well as use in environments with high temperatures or humidity levels.

The plywood industry, particularly in tropical countries, has taken only limited advantage of the new technologies and improvements in equipment. There are at least three main reasons for this: plywood markets have continued to decline, mainly as a result of the recent Asian economic crisis; the size of logs available to the industry is decreasing; and there has not been a particularly favourable climate for investment in processing.

Environmental pressure, the effects of land use change and other factors have reduced the economic availability of forest-based raw materials to many processors. As a result, innovative ways of expanding fibre<sup>17</sup> supply have emerged. Industry has been responding to changes in wood supply by using short lengths and offcuts to form products, and by making greater use of residues and waste. Another development is the increase in outgrower schemes, promoted by private companies and implemented in close partnership with local communities or small landowners. Yet another is investment in plantations in other countries, as is the case of Chinese, Japanese and North American companies investing in plantations in Southeast Asia, Oceania or South America. In an effort to reduce pressure on natural forests, investment in small-scale plantations has

also been promoted in many countries, often with government incentives. The success of these initiatives still needs to be proved. In the past, many were created without proper consideration of the final use of the resource, the analysis of potential markets or the creation of favourable conditions for industrial development.

## THE CHANGING INSTITUTIONAL FRAMEWORK FOR THE FOREST SECTOR

There is increasing recognition that efforts in economic development, poverty alleviation, environmental protection and social equity cannot be successful in the absence of appropriate governance structures and processes. Governance systems define the relationship between government, civil society and the private sector.

Over the past decade, two major and seemingly contradictory shifts have been taking place: globalization on one hand, and decentralization on the other. A nationally based, centrally controlled world structure is being affected by global networks and by freer flows of labour, capital and information between countries. The centre of power and authority is also being shifted as a result of more pluralistic institutional arrangements, the devolution of responsibilities to a local level and the adoption of participatory processes. As a result, the roles and responsibilities of government, the private sector and civil society are being realigned and the relationships between them are changing. The following section discusses how these changes are affecting the forest sector.

International development agencies lie outside the triangle of governance formed by government, the private sector and civil society, yet they often have a significant impact on development policies, approaches and programmes. The role of these agencies and the recent change in their approaches are also discussed.

### Community-based forest management

The involvement of communities in forest management is now a significant feature of national forest policy and practice and of internationally supported forestry programmes

<sup>17</sup> Fibre includes wood and other fibrous raw material, such as recovered paper and annual plants, used for the manufacture of wood and paper products.

throughout the world. National forestry agencies are commonly undergoing decentralization, restructuring and downsizing. Faced with inadequate financial and human resources, governments are increasingly turning to local communities to assist them in protecting and managing state-owned forests. For forestry agencies, greater reliance on resources at local community levels is a potential solution to a growing resource problem.

Large-scale community-based initiatives began in South Asia in the 1980s. Areas placed under community-based management were then, and still are, those that are usually perceived or classified as degraded and not of commercial interest. Under Joint Forest Management (JFM) in India, for example, the forests given to communities to manage are usually degraded, while the more productive forests remain under the control of the state. The community provides labour and protection to improve the degraded areas and to allow the forest to regenerate. The state receives a revitalized forest and a large share of the income from the timber and other resources. The community gains access to areas that were denied (officially) for the gathering of NWFPs and a portion of the income generated from the sale of timber. This form of community involvement in management, i.e. user-centred cooperation, defines local interests as those of *user interests*.

Attention has now shifted to recent initiatives in community-based natural resource management taking place in Africa. Policy and legal changes and implementation on the ground are gaining momentum in this region. The approach being taken is considerably different from the user-centred model just described for Asia. The emerging trend in Africa, especially in the Gambia and the United Republic of Tanzania, is to support the *custodial interests* of the community. These derive more from history, locality and socio-environmental interests than from product use. The underlying assumption of this approach is that forest-adjacent communities have a custodial interest in ensuring that the forest or woodland does not become degraded. The intention is to make local communities stakeholders of the forest,

not simply users of its products. As with other forest managers, the community-based stakeholder must address a range of forest management goals, including forest protection, production and poverty alleviation, or economic benefits.

Community-based management systems are still very much in a stage of evolution. The transformation of forest management to a multiple stakeholder, community-based approach will not be easy. In fact, it is a major challenge in many places. There is little experience in collaborative management in which (multi-interest) stakeholders work effectively together in decision-making and implementation. There will be a temptation to develop “models” to serve as blueprints for large-scale implementation, even though participatory forest management requires flexible decision-making and planning at the local level.

Important lessons are emerging from experiences in community-based management in both Asia and Africa that can assist current and future initiatives:

- Secure tenurial arrangements and a clear understanding of roles and responsibilities are of central importance. Tenurial rights entail secure, long-term access, enabled by policies that recognize these local rights while also providing the holders with legal and regulatory support in protecting them – against the forest industry, state agencies and encroachment by other population groups, for example.
- Communities have to perceive that they will gain economically if their long-term commitment is to be secured. The incentives would be far greater if they received more productive forests, rather than degraded ones, to manage. While economic benefits are critical, other benefits are also important. In the Gambia, it has been noted that, while the prospect of having relatively unhindered access to the forest and its benefits is important, the driving force behind community involvement has been the realization of the environmental benefits of forests and the satisfaction derived from the feeling of ownership (FAO, 2000e).



### Increasing civil society involvement

Increased public involvement in forestry issues is evident in all regions. Civil society organizations are increasingly spearheading action in support of conservation and sustainable management of forests. Interventions often involve raising awareness of problems and increasing access to information but, increasingly, they include direct involvement in natural resource management or legal action. As democratization and decentralization trends continue worldwide and new technologies improve communication, the "environment" for successful civil society action improves. Open and free media and an impartial judiciary, whose decisions are respected and implemented, are important to support and encourage civil society initiatives.

A small sample of such civil society action includes the following.

- A public interest litigation, initiated in 1996 by concerned citizens in India, resulted in the highest court in the country banning all felling from forests, except in accordance with the principles laid down in the management plans. In taking this decision, the court adopted a broader meaning of forests than the very restrictive legal definition used in the Indian Forest Act.
- In 1999, the Maisin tribe in Papua New Guinea, which has customary rights over an area of forest, took a foreign company to court to stop it from clearing the forest for an oil-palm plantation.
- In December 1999, the Cambodian Government asked Global Witness, a United Kingdom-based NGO that was instrumental in articulating concern over illegal logging in Cambodia, to be an independent monitor of the country's forest sector (see also Part II, Illegal activities and corruption in the forest sector).
- The Mount Tamalpais Declaration was launched in May 2000 as an NGO initiative to "express extreme concern about the role envisioned for tree plantations in helping industrialized countries meet their commitments to reduce greenhouse gas emissions under the Kyoto Protocol". Dozens

of NGOs around the world have signed the Declaration, expressing concern for the potential negative and social impacts of plantations.

- In July 2000, Greenpeace volunteers boarded a Russian freighter loaded with illegal timber and destined for Japan. They chained themselves to the logs to draw worldwide attention to illegal logging in the Russian Federation's far eastern region.
- The Belize Audubon Society (BAS) manages one natural monument, two wildlife sanctuaries, two national parks and one nature reserve as part of a management contract with the Government of Belize. BAS also manages a private nature reserve. These seven areas cover approximately 60 000 ha.
- In El Salvador, the private organization SalvaNATURA manages the El Imposible National Park. SalvaNATURA has prepared a management plan and it runs environmental education programmes and promotes economic activities for people living around the park.

### The changing role of the private sector

The private sector in forestry is undergoing structural changes, owing in part to the effects of globalization. Larger holdings have been formed, especially in the pulp and paper sector.

Companies have joined forces to rationalize their operations, seek economies of scale or adjust to varying economic relationships.<sup>18</sup> Takeovers are increasing, and companies are becoming more vertically and horizontally integrated. These changes are occurring mainly among large companies. Small and medium-sized companies in many countries are not involved in this process, and are often increasingly disadvantaged in international trade.

The role of the private sector in forestry is also changing. The private sector now owns or controls significant forest areas worldwide. In the past, private enterprise focused more exclusively on the economic dimensions of forest

<sup>18</sup> For example, country differences in prices, labour costs, demand environments and exchange rates.

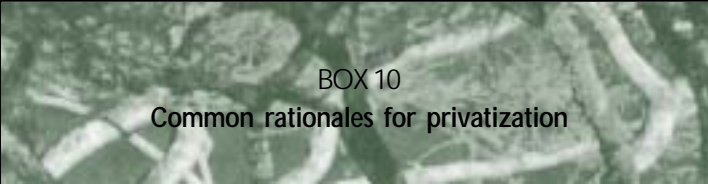
development. Now, in the period following the United Nations Conference on Environment and Development (UNCED), the private sector is increasingly being held accountable for environmental and social aspects of forestry.

This greater accountability has been determined to some extent by the more stringent approach adopted by many governments in regulating their forest sectors, in part to ensure compliance with international environmental standards and commitments. Other influences include the freer flow of information, greater access to the media by advocacy groups and a greater degree of international pressure. Market pressure, for instance from competing products (plastics and metals), is also a factor.

The private sector must now consider environmental issues beyond the traditional task of controlling pollution from processing plants. Governments have increasingly turned over responsibility for many activities to private concerns through the privatization of state-owned enterprises or changed concession agreements. Many such moves have been aimed at encouraging economic efficiency (see Box 10) by handing the decision-making responsibility over to the private sector – within a context of strict guidelines or restrictions set by governments and with penalties for non-performance.

These factors are influencing the private sector, its level of concern and responsiveness, and the base of its decision-making (as global companies make decisions on a regional or global basis). This reflects the tendency of governments to shift from being active participants in forest management and processing, to being the developers and arbiters of regulations and standards affecting the sector. Several governments have begun to devolve direct managerial responsibilities for forests to the private sector through the process of privatization – sometimes of forests but more often of services.

The privatization of forests and resource reallocation have been undertaken to varying degrees by several countries, notably Australia, Chile, China, New Zealand and Viet Nam. There has been an increase in community-based management (but not ownership) of forests in



**BOX 10**  
**Common rationales for privatization**

Some of the main reasons behind privatization in the forest sector are:

- the inappropriateness of direct government involvement in commercial forestry;
- improved efficiency through the separation of commercial forest activities from non-commercial activities;
- improved operational transparency;
- revenue generation from the sale of state forest assets;
- increased efficiency of national forest industry structures;
- a reduced burden on public funds;
- improved access to development capital.

countries of South Asia, in the Gambia, the Philippines and the United Republic of Tanzania, to name a few. A far wider group of countries, especially across Africa, Latin America and central and eastern Europe, are currently examining full or partial privatization options. Large-scale forest privatization has, to date, been almost exclusively in the domain of plantation forests. In general, this is because plantations are often perceived to have fewer cultural and ecological values that merit government protection.

The private sector is increasingly recognizing that there are benefits to be gained from being regarded as a good corporate citizen. This has led to some companies voluntarily adopting environmentally and socially acceptable practices rather than having these prescribed and enforced. The merging of some interests, or at least a greater willingness to work together, can be seen in efforts to encourage the consumption of wood from sustainably managed sources as a preferred material. Both NGOs and industry are promoting wood consumption under this banner. More and more, companies are collaborating on many issues. For example, the International Forum of Forest and Paper Associations, which has a membership of about 27 countries, has recently

## BOX 11

## Statements of goals and missions of selected international organizations

**Food and Agriculture Organization of the United Nations (FAO)**

*Mission:* "Helping to build a food-secure world for present and future generations".

*Goals include:* reducing food insecurity and rural poverty, and conserving and enhancing the natural resource base.

*Forestry mission:* "To enhance human well-being through support to member countries in the sustainable management of the world's trees and forests".

**International Centre for Integrated Mountain Development (ICIMOD)**

ICIMOD's mandate is clearly focused on poverty reduction and sustainable livelihoods of mountain people.

*Goals include:* "improving the well-being of mountain people" and "economically and environmentally sound mountain ecosystems".

**International Centre for Research in Agroforestry (ICRAF)**

*Goals include:* "... to improve human welfare by alleviating poverty, increasing cash income, especially among women, and improving food and nutritional security ...".

**International Fund for Agricultural Development (IFAD)**

*Vision:* "IFAD should be the Leader in showing the way and galvanizing energies to eradicate rural poverty and hunger, and to unleash, through their own participation, the capacities of our clients: poor rural people."

**World Bank**

*Mission:* "To fight poverty with passion and professionalism for lasting results" and "to help people help themselves and their environment by providing resources, sharing knowledge, building capacity, and forging partnerships in the public and private sectors".

focused on climate change and trade liberalization issues. The private sector is now also working proactively with communities and environmental groups to achieve mutually acceptable solutions to problems and to establish mutually beneficial projects.

**Changing emphases of international development agencies**

International development assistance in the forest sector has played an important role in supporting countries' efforts in the conservation and sustainable development of their forests. Over time, both the priority areas for assistance in forestry and the means of implementing projects and programmes have changed. Today, increased emphasis is being placed on forest planning efforts (e.g. through national forest programmes – see Part III, p. 114) and national capacity building in the forest sector. Participatory approaches, community-based management and equity and gender issues are now common elements of implementation strategies.

The evolution in approaches to international forestry assistance over the past 30 to 40 years can be seen as consisting of the following phases: i) industrial forestry; ii) social forestry; iii) environmental forestry; and iv) sustainable management of renewable natural resources (Persson, 1998). It appears that the direction may be shifting again, this time to the use of forests for poverty alleviation.

The adoption of the international development target of halving global poverty by the year 2015 (DFID, 2000a) and the commitment to the 1996 World Food Summit goal of halving the number of the world's hungry by the same year (FAO, 1997c) have refocused or changed the mandates of multilateral organizations, bilateral agencies and international centres. This emphasis is reflected strongly in the mission and vision statements of these organizations, examples of which are provided in Box 11.

Poverty is not just a lack of food or income. A current development approach that attempts to go beyond income and food to include multidimensional characteristics and causes is that of "sustainable livelihoods". A livelihood

comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base (Carney, 1998).

Forests are an important form of natural capital. Forest-dependent people constitute a significant portion of the world's poor. A recent estimate is that "one out of four of the world's poor depend directly or indirectly on forests for their livelihood" (World Bank, 2000a), although the nature of the dependence varies (Shepherd, Arnold and Bass, 1999).

Sustainable use of natural resources has a direct impact on the improvement of natural capital. While all people affect the environment, the rich generally have a disproportionately higher impact and the poor tend to be the most vulnerable to

the effects of environmental degradation (UNEP/NASA/World Bank, 1999). It is the poor who benefit most from being able to continue to have access to forest products, but they may be faced with a diminishing resource (owing to factors such as population growth or restrictions to resource access) and a declining capacity to exploit it.

The current pattern of forest dependence by people who are unable to obtain any, or sufficient, income from agriculture or wage employment is likely to continue. As a result, it will be necessary to identify, develop and promote the economic values of forests. Where forest products have an important supplementary and "safety net" role, users need security of access to the resources (Byron and Arnold, 1999). These will be key issues in the implementation of development assistance efforts in forestry that adopt a sustainable livelihoods approach. ♦