

Forests: Latin America and the Caribbean

Forests have many important socio-economic functions in Latin American and Caribbean countries. These include supplying the wood industry with inputs for domestic consumption and export, providing local communities with essential non-wood forest products and providing forest-dwelling indigenous communities with opportunities to continue their traditional livelihoods. They also provide environmental goods and services, acting as natural shields against disasters, affording watershed protection, biodiversity preservation and prevention of soil erosion, and serving as a sink for carbon dioxide.

Latin America and the Caribbean is one of the most important forest regions, with nearly one-quarter of the world's forest cover (FAO 2001a). The region contains 834 million ha of tropical forest and 130 million ha of other forests, both temperate and dry, coastal and montane, covering 48 per cent of the total land area (FAO 2001a). Argentina, Bolivia, Brazil, Colombia, Mexico, Peru and Venezuela contain 56 per cent of the regional total (FAO 2001a). The region's forests contain more than 160 billion m³ of wood, one-third of the world total. Guatemala and Panama are among the world's highest in terms of standing volume per hectare (FAO 2001a).

The Amazon Basin contains the world's most extensive tropical rainforest. It includes at least 20 different rainforest types, and is considered to be the world's richest ecosystem in terms of biodiversity (FAO 2001a).

The rate of deforestation is one of highest in the world at an annual average of 0.48 per cent (varying from 1.2 per cent in Meso-America to 0.4 per cent in

Forest extent: Latin America and the Caribbean



The most heavily forested region, Latin America and the Caribbean lost nearly 47 million ha during 1990–2000, second only to Africa

Note: dark green represents closed forest, more than 40 per cent covered with trees more than 5 metres high; mid-green represents open (10–40 per cent coverage) and fragmented forest; light green represents other woodland, shrubland and bushland

Source: FAO 2001a

South America and a net gain of 0.3 per cent in the Caribbean). Of the 418 million ha of natural forest lost worldwide over the past 30 years, 190 million ha were in Latin America (FAO 2001a). Total forest area in the region was reduced by around 46.7 million ha between 1990 and 2000.

Causes of deforestation and forest degradation

The major problems are deforestation and degradation of the forest ecosystem, including fragmentation and biodiversity loss. These are caused by conversion of forest land to other uses and non-sustainable use of

Change in forested land 1990–2000 by sub-region: Latin America and the Caribbean

	total land area (million ha)	total forest 1990 (million ha)	total forest 2000 (million ha)	% of land forested in 2000	change 1990-2000 (million ha)	% change per year
Caribbean	22.9	5.6	5.7	25.0	0.1	0.3
Meso-America	241.9	82.7	73.0	30.2	-9.7	-1.2
South America	1 752.9	922.7	885.6	50.5	-37.1	-0.4
Latin America and the Caribbean	2 017.8	1 011.0	964.4	47.8	-46.7	-0.5

Source: compiled from FAO 2001a Note: numbers may not add due to rounding

forests. Forest fires, always a natural force in forest ecosystems, have also become a major problem (see box).

The expansion of the agricultural frontier has been one of the main causes of deforestation (FAO 2001a). Commercial farmers have cleared large areas for soybean exports in Brazil, Bolivia and Paraguay, for coffee in Brazil, and for bananas in Central America, Colombia, Ecuador and the Caribbean (Contreras-Hermosilla 2000). Small-scale farmers also cause deforestation by employing slash-and-burn practices to extend their agricultural lands into forests.

Land tenure regulations are part of the problem. In Amazonia and Central America, local communities own significant proportions of forests while in Argentina, Chile and Uruguay virtually all forests are privately owned. Elsewhere, the state is a major forest owner. When legal property rights over land are not clear, people tend to clear and build on areas to establish a claim to them. Forest cover may also be removed to keep areas accessible when forest communities fear that forests may be declared protected areas, limiting community rights to use the forest. This happened in Costa Rica when the government intended to expand its protected area system (Contreras-Hermosilla, 2000).

Deforestation has worsened in some countries because of policies designed to increase economic growth. Subsidies are a contributing factor. For example, subsidies directed towards improving the productivity of existing agricultural lands should ease the pressure for

more land and therefore reduce the pressure for clearing more forests. However, agricultural incentives can result in higher land ownership and more mechanized, capital-intensive methods of production which displace farm workers. Unemployed workers have migrated into forests in the Amazon, in the Cerrados of Brazil, in Santa Cruz, Bolivia, and parts of Paraguay, causing further forest clearance (Contreras-Hermosilla 2000). Livestock expansion and mechanized agriculture account for more loss of forest cover than wood production, which is concentrated in relatively few countries.

Timber exploitation may also cause deforestation by opening up previously forested areas to small-scale farming. In addition, selective logging can eliminate certain tree species, changing forest composition. The construction of roads also contributes to loss of forest cover — 400–2000 ha of forest may be removed for each kilometre of new road built through it. In the Brazilian state of Pará, deforestation due to road construction increased from 0.6 per cent to 17.3 per cent of the state's area during 1972–1985 (Contreras-Hermosilla 2000). In Ecuador, Peru and Venezuela, mining corporations and individual miners clear large areas of forests (MineWatch 1997, Miranda and others 1998). Additionally, biological phenomena such as the proliferation of pests are a cause of irreversible damage to some forests (Monge-Nájera 1997).

Effects of altering forests

The effects of deforestation, forest degradation and forest fires represent a permanent loss of the potential capacity of forest resources to generate economic benefits (CDEA 1992). These impacts are more severe in some countries than others. Most Caribbean countries have depleted forest resources so much that they must now import forest products, creating an additional need for foreign exchange. In countries with extensive forest resources, such as Brazil, deforestation has had less overall impact, although at the local level the impact can be very significant.

Improving forest regulations and policies

A number of countries have recently adopted new forest regulations. For example, Bolivia adopted a new forestry law in 1996 (Law 1700) which makes state-owned forests available to private companies through concessions provided that local and indigenous populations are involved (Tomaselli 2000). The

Forest fires in Latin America and the Caribbean

Fire is a traditional land use tool for opening up new land to agriculture and making hunting easier. Uncontrolled wildfire is now a major concern: forest fires can destroy up to 50 per cent of the forest's surface biomass, with severe effects on forest fauna (UNEP 2000).

Forests were particularly vulnerable to fire in 1997–99 due to seasonal droughts associated with El Niño and decline in forest quality. In Central America, more than 2.5 million ha of land caught fire in 1998 with the greatest losses in Honduras, Guatemala, Mexico and Nicaragua (Cochrane in press). In Mexico alone, there were 14 445 separate fires (FAO 2001a). The same year, large-scale fires also affected many South American countries.

Social and economic costs of fires are high, when full account is taken of medical costs, airport closures, and timber and erosion losses. The damage resulting from the 1998 forest fires in Latin America has been crudely estimated at US\$10–15 billion. The first South American Seminar on the Control of Forest Fires was held in Brazil in 1998, and policy makers are starting to realize that emergency response needs to be coupled with better land-use practices. In Mexico, for instance, the Ministries of Agriculture and Forestry have been collaborating since 1998 to reduce the threat of agricultural burning to forests (FAO 2001a).

amount of forest land under protection is also increasing — from less than 10 per cent of total forest area in tropical South America in 1990 to more than 14 per cent in 2000 (FAO 2001a).

Market-based instruments such as certification can also contribute to sustainable forest management, and Bolivia, Brazil, Guatemala and Mexico now have 1.8 million ha of forests certified by the Forest Stewardship Council (see page 94) — far exceeding the area of tropical moist forests certified anywhere else in the world (FAO 2001a). Shade-grown coffee is another example where such instruments have the potential to protect environmental resources and to address local concerns (see box).

The area of plantations increased from about 7.7 million ha in 1990 to about 11.7 million ha in 2000. These plantations, composed of mainly *Pinus* and *Eucalyptus* species, are concentrated in the Southern Cone and in Brazil, Peru and Venezuela (FAO 2001a). Regional policies on forestry plantations are mainly oriented towards recovering degraded land. In some countries, there are a few areas where plantations have played a key part in increasing forest cover and bringing in large amounts of foreign exchange. In other areas, plantations are an economic alternative to other land uses (such as agriculture) and thus help to reduce deforestation. However, plantations contain significantly less biodiversity than native forests (Cavelier and Santos 1999).

Most governments receive international support to formulate environmental policies, strengthen

Shade-grown coffee — harnessing the market for sustainable development

When North American consumers pay a premium for shade-grown coffee, incentives can be created for Mexican farmers to maintain the biodiversity of the land on which they traditionally grow coffee in the shade of the existing forest canopy. By relying on inherent natural predators and barriers to protect their crops from pests and on the natural fertility of the soil to nurture the plants, they avoid costly and often damaging fertilizers and pesticides. Their diverse agrosystems can continue to provide habitat for migratory songbirds, insects and other fauna that may otherwise be threatened by conversion to large plantations of sun-grown coffee, while preserving the cultural values, livelihoods and integrity of small communities. By realizing the market value of shade-grown coffee, the economic logic for clearing forests is drastically reduced, while incentives to conserve and sustainably use the forest increase (Vaughan, Carpentier and Patterson 2001).

institutions, and establish structures and mechanisms to improve monitoring and evaluation. Most of the internationally supported programmes and projects are linked to global concerns such as biodiversity conservation and climate change. Examples of such initiatives include the PPG 7 Pilot Project in Brazil, the BOLFOR Project in Bolivia (FMT 2002) and the Iwokrama International Centre in Guyana. International organizations are active in the region and efforts to address problems through regional collaboration are gaining ground. The Central American Council for Forests and Protected Areas advises on policies and strategies for sustainable use of forest resources and conservation of biodiversity while the Treaty for Amazonian Cooperation between eight South American countries fosters collaboration on activities in the Amazon Basin (FAO 2001b).

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