

LIBERIA



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Forest resources

Liberia has a land area of 11.1 million hectares and a population of 3.3 million people. It is bounded by Sierra Leone to the west, Côte d'Ivoire to the east, Guinea to the north and the Atlantic Ocean to the south. The country can be divided into three physiographic regions: (i) the hilly coastal region; (ii) a central plateau ranging from 200 to 250 m with table mountains up to 600 m; and (iii) highlands reaching 1,380 m in the north and northeast. According to a report issued by the Forest Resource Mapping Survey of Liberia (1985), about 50% of the land area, or some 5.5 million hectares, was forest in the mid 1980s, of which about 3.88 million hectares were productive. FAO (2005a) estimated the total forest area at 3.48 million hectares; a recent ITTO diagnostic mission to Liberia reported data compiled by a World Bank-funded study (Bayol & Chevalier 2004), which

estimated that there were about 3.4 million hectares of relatively intact forest and about 2.26 million hectares of poorer forest cover, comprising 1 million hectares of forest land that had been subject to agricultural pressure and another 1.3 million hectares that had been seriously affected by agricultural pressure and contained only islands and patches of forest^b. The intact forest comprised two main blocks: a south-eastern block of very wet evergreen forest and a drier, Upper-Guinean moist evergreen and semi-deciduous forest in the northwest^b.

Forest types. Characteristic species of the moist evergreen forests are *Lophira alata*, *Heritiera utilis* and *Sacoglottis gabonensis*, while Meliaceae (one of the most important timber families in West Africa) is represented by only two species: *Lovoa trichilioides* and *Guarea cedrata* (bossé). The semi-deciduous forests cover the northern half of the country and contain a higher representation of Meliaceae, the characteristic species being *Nesogordonia papaverifera* (danta) and *Aningeria robusta*. Common shade-intolerant species are *Albizia* spp, *Fagara* spp, *Terminalia* spp and *Pycnanthus angolensis*.

Dynamics of forest resource change. The rapid destruction of Liberia's forest resources has been caused by over-harvesting and uncontrolled logging, accelerated by civil war. In addition, shifting cultivators have accessed logged forests using the many logging roads built since the early 1960s. There has been widespread shifting cultivation, mainly for growing upland rice. Between 1990 and 2000, Liberia lost about 760,000 hectares of forest, a deforestation rate of about 2% annually (FAO 2005a). As noted above, about 2.3 million hectares of the forest estate is affected by agriculture, including 1 million hectares that has been greatly fragmented.

Table 1 PFE

Estimated total forest area, range (million hectares)	Total closed natural forest ('000 hectares) Source: FAO 2001	PFE ('000 hectares) ^d			
		Production		Protection	Total
		Natural	Planted		
3.48-5.66	4,124	1,310	n.d.	101	1,411

Permanent forest estate. Liberia's forests are categorized as: natural forests, for granting on lease to concession-holders through forest product utilization contracts; optional forests, which have special arrangements to allow for the removal of timber before diverting them to other non-forest uses; and parks and protected areas for environmental conservation. Based on the limited information available on areas allocated to concessions, the area designated as PFE is estimated at 1.41 million hectares (Table 1); this is likely to be expanded in the near future. In general, surveys to demarcate the PFE are inadequate, as is surveillance to safeguard its integrity.

Planted forests. According to FAO (2001), there were 9,000 hectares of timber plantations in Liberia in 2000, with an annual planting rate of 100 hectares per year. They comprised about 2,000 hectares of teak, 2,000 hectares of pines and 5,000 hectares of other broadleaved species. However, these plantations are likely to have been heavily degraded or destroyed; the ITTO diagnostic mission reported an insignificant plantation estate apart from some important rubber estates "which are generally in a poor condition"^b. There are some coconut plantations and small areas of oil palm.

Institutional arrangements

Forest tenure. According to the 2000 National Forest Law, all forest resources belong to the government except for communal and privately owned forests. Communal land is designated for the exclusive use of local communities for purposes other than logging. Customary rights over such land are not automatically recognized; they must have been previously documented. The only private forest resources are those that have been developed through artificial regeneration on privately owned land. The ITTO diagnostic mission reported that the traditional land and resource rights of the majority rural population have been systematically ignored and undermined by a small elite throughout Liberia's 150-year history. Nevertheless, the Liberian constitution and specific laws, such as the National Environmental Protection Act of 2002, note the rights of rural people. There is mention of "tribal forests", "community forests" and similar terms. The mission also reported strong support across

a range of stakeholders for community-based forest management and greater benefit-sharing with rural people^b.

SFM policy framework. The 2000 National Forest Law has provisions on sustainable management and the utilization of forest resources (Section 8.2). The Forestry Development Authority (FDA) has produced a document entitled *Forest Policy Review: Towards Vision 2024*. This incorporates, among other things, the ITTO Objective 2000.

Forest policy and legislation. The forest code of 1953 was amended in 2000 and has been in force since 2002. The amended National Forest Law is intended to promote SFM as a basis for national reconstruction. Legislation was also planned to encourage the active involvement of NGOs in reforestation with the direct participation of forest dwellers, and to increase incentives for concession-holders. The Commission on Environment was set up in 2000 with powers to prepare guidelines and formulate policies for agencies concerned with nature conservation and the environment, but these powers could not be effectively exercised due to the civil crisis. The stability and sustainability of the logging sector has been threatened by procedural flaws such as exception/exemption procedures for inappropriate forestry activities, the granting of special favours, and forest crimes including timber theft, corruption and illegal logging^b. Indeed, log exports were known to be used as a source of funding for private militias, thereby prolonging the civil war. As a result of international concern over this issue, the UN Security Council passed its resolution 1478 calling on all member states to ban imports of round logs and timber products from Liberia for ten months from July 2003. The import ban was subsequently extended and remained in place as of December 2005.

Institutions involved in forests. An Act of Parliament of 1976 established the FDA as the body responsible for forestry in Liberia and also recognized the importance of forests as a key renewable natural resource. Amendments to this act in 1988, 2000 and 2003 sought to strengthen the FDA's ability to manage and protect forests. The FDA is the agent through which policy is implemented, including forest management plans. However, the FDA is seriously under-resourced;

it lost many staff to the civil war and, for those remaining, salaries are extremely low and often paid several months late^b. The weakness of the FDA has greatly limited progress in initiatives to rebuild the forest sector.

A workshop on reforming the forest sector was organized in Monrovia by the US Embassy in December 2003 involving forestry officials, logging companies, donors and NGOs. The workshop suggested that the Security Council should only lift its sanctions once: (i) UN peacekeepers had deployed forces in forest areas to ensure they were safely under control; (ii) the government had ensured that timber taxes could be accounted for; and (iii) the FDA had been reformed and strengthened (Blundell 2003). A donors' meeting took place in mid 2004, with substantial amounts of money pledged to revive the forest sector and reshape the forest administration after the civil war; however, to date, few of these projects have commenced. An informal alliance called the Liberia Forest Initiative has been formed by a number of actors including the US government, the World Bank, IUCN, Conservation International and several local NGOs such as Green Advocate.

Status of forest management

Forest for production

Because of increasing demand and in order to promote lesser-used species in the international market, the government has promulgated a regulation which re-categorized eleven 'future obligatory species' as 'current obligatory species'. There are also regulations to ensure the effective monitoring and supervision of the extraction, processing and export of timber and timber products. Salvage permits to concessionaires are to be abolished. The growing stock of commercial timber is estimated to be about 81.4 million m³. The timber harvest is supposed to be based on AAC calculations and guided by the ATO/ITTO PCI, but these principles are not adequately applied in practice.

Timber is harvested entirely by private companies through forest resources utilization agreements (FRUAs) entered into with the government, or through operation permits. In the late 1990s, more than

30 companies held logging concessions covering 40% of the national territory; the OTC (Oriental Timber Corporation) alone was logging some 1.6 million hectares both within the PFE and outside it. Some concessions were known to be illegal. The FDA has recently attempted to review these and decide which were legitimate, a difficult task since many files were lost or destroyed during the war^b. Bayol and Chevalier (2004) reported that there were 42 existing forest concessions covering a total of 5.95 million hectares (probably including non-forested areas); there was significant overlap between concessions and proposed protected areas. It was recommended that 18 of these concessions covering 1.82 million hectares be cancelled, 13 (2.43 million hectares) be further assessed, and eleven (1.7 million hectares) be allowed to resume logging^b.

The 2000 National Forest Law requires individuals or companies holding FRUAs to conduct surveys and submit comprehensive work plans to the FDA. FRUA holders also have to file a performance bond with the government issued by a reputable local commercial bank or financial institution. FRUAs have been divided into three categories based on forest size: Class A, with a minimum size of 809,000 hectares; Class B, with a minimum size of 405,000 hectares; and Class C, with a minimum size of 121,000 hectares. All agreements are valid for 25 years. A holder of a Class A agreement is required to develop a large-scale integrated wood-processing mill, for Class B a medium-sized processing mill, and for Class C a small-scale processing unit. All holders of these rights must undertake periodic environmental impact assessments of their operations and engage in community development projects. As of September 2001, 28 registered timber concessions (of which 17 were held by expatriate companies) were active in the production and export of roundwood. Global Witness (2003) reported that, by early 2003, the number of active companies had been consolidated into 14 concessions. As in Liberia as a whole, there is a serious shortage of skilled labour in the forest sector^b.

Silviculture and species selection. The Liberian Selective Logging System involves selective harvesting with no silvicultural treatments apart from assuring good natural regeneration of the

Table 2 Some commonly harvested species for industrial roundwood

Timber species	Remarks
<i>Lophira alata</i> (ekki)	Largest quantity harvested, regenerates well in forests
<i>Ceiba pentandra</i> (ghe)	From open areas, for veneer and plywood
<i>Hallea ciliata</i> (abura)	Syn. <i>Mitragyna ledermanni</i> ; general-purpose timber, from swampy areas
<i>Entandrophragma candollei</i> (kosipo)	Used for flooring and furniture making, difficult to regenerate
<i>Gilbertiodendron preussii</i> (limbali)	Used for heavy carpentry and shipbuilding, etc, difficult to regenerate

stand. The lack of any silvicultural treatments is due both to their cost and the lack of silvicultural research and know-how (Liberia has no forest research institute). FRUAs and harvest regulations prescribe operations before, during and after harvesting. The main harvest controls are girth limits and a 25-year felling cycle; the latter is short compared to those in other tropical forest regions and has been imposed mainly due to economic considerations. It is uncertain how effective harvest controls have been and how the present logging regime affects the forest. The percentage of commercial timber species varies throughout the country. Fifteen years ago, sipo and *Tarrietia utilis* (niangon) were the species with the largest export volume, but the species listed in Table 2 and others like *Tetraberlinia tubmaniana* (tetra) are more important today, both in volume and value.

Planted forest and trees outside the forest.

Planted forests currently play an insignificant role in Liberia.

Forest certification. No Liberian forests are currently certified and there has been no move to develop policies in this direction.

Estimate of the area of forest sustainably managed for production. None of the production PFE is currently under management plans, and no forest can therefore be considered to be managed sustainably (see Table 3).

Timber production and trade. Liberian statistical information on timber production and trade is highly unreliable. For example, while FAO (2003) estimated a total industrial roundwood production

of 337,000 m³ in 2001, ITTO (2005) estimated the volume of log exports that year based on trading-partner reports to be 940,000 m³.

No international statistical reports have been forthcoming from Liberia for several years due to the civil war and subsequent sanctions. During the civil war, some concessionaires took advantage of the armed conflicts to illegally increase production, while others curtailed their activities considerably. According to FAO (2005b), total roundwood production in 2003 was close to 5.9 million m³, almost 95% of which was fuelwood.

With the UN sanctions on timber trade in force, forest production has declined; total industrial roundwood production was an estimated 800,000 m³ in 2003 compared to 1.36 million m³ in 2002 (ITTO 2005). Foreign direct investment in the timber sector, which stood at US\$27 million in 1999, fell to an estimated US\$2.8 million by the end of 2002. Prior to the war, wood processing was confined to sawmilling and very limited manufacture of wood-based panels, but most mills have been destroyed or seriously damaged. A small volume of sawnwood was exported prior to the sanctions. The estimated earnings from the export of wood and wood products in 2002 were US\$325 million, falling to almost nil in recent years.

Non-wood forest products. Fruits, roots, mushrooms, leaves, honey, snails and wild meat are all harvested from forests and used as food by local communities. Wild meat is probably the main source of protein for rural people; some also enters the domestic market. Ntiamoa-Baidu (1997) estimated that wild meat contributed up to 90% of

Table 3 Management of the production PFE ('000 hectares)

Total	Natural			Planted		
	Allocated to concessions/ under licence	With management plans	Certified	Sustainably managed	With management plans	Certified
1,310	1,310	0	0	0	n.d.	0

total protein consumption in the country. The most commonly hunted species are antelopes and monkeys. Gums, resins, medicinal plants and cola nuts (*Cola* spp) are also marketed locally and serve as sources of income.

Forests for protection

Soil and water. No areas have been designated as primarily for soil and water conservation.

Biological diversity. Liberia's forests are of great significance for biodiversity. In 1999, the West African Conservation Priority-setting Exercise funded by the GEF identified the Upper Guinean Ecosystem, of which the most intact remaining examples are found in Liberia, as the top conservation priority in West Africa^b. The forests are home to at least 2,900 flowering plants, 240 timber species, 150 mammals (including the western chimpanzee, the pygmy hippopotamus and forest elephant), 620 birds and 125 reptiles and amphibians^b. Twenty-one mammals, eleven birds, three reptiles, five amphibians and 46 plants are listed as critically endangered, endangered or vulnerable on the IUCN red list of threatened species; of these, 17 mammals, ten birds, four amphibians and three plants are found in forests (IUCN 2004). Two plants are listed in CITES Appendix II (CITES 2005).

Protective measures in production forests. Limited protective prescriptions are included in the FRUAs and forestry regulations, but the extent of their implementation is uncertain.

Extent of protected areas. There are two biological reserves in Liberia: Sapo National Park (162,000 hectares) in the southeast and the Nimba Nature Reserve (13,600 hectares); neither is under effective management^b. Several new protected areas have been proposed based on recommendations by Flora

& Fauna International and Conservation International^b. According to UNEP-WCMC (2004), 100,500 hectares of forest are in protected areas conforming to IUCN protected-area categories I-IV, including 87,000 hectares of lowland evergreen broad-leaved rainforest.

Estimate of the area of forest sustainably managed for protection. No protection PFE is considered to be under SFM at present (Table 4).

Socioeconomic aspects

Economic aspects. In the past, forestry ranked first in foreign exchange earnings and in its contribution to GDP; in 2002, the reported contributions of forestry and logging to GDP and foreign exchange were 26% and 65% respectively^b. The inconsistency of information on almost all aspects of forestry is a particular problem in Liberia. In 2000, for example, the FDA reported the value of logs exported as US\$79.9 million, the Central Bank of the Government of Liberia as US\$60.3 million, and the Global Trade Atlas as US\$103.7 million, while the UN estimated it to be US\$146 million. ITTO (2003), basing its estimate on imports reported by trading partners, reported a figure of over US\$200 million, more than triple the Central Bank figure. There are similar discrepancies in reports of the number employed by the forestry sector, which, for 2000, ranged from 5,000 to 20,000, and was reported to be 7,000 in 2002^b. What is not in doubt is that all of these numbers are now significantly smaller.

Livelihood values. With around half of Liberia's 3.3 million people living in or near forested areas, livelihood and cultural values of forests are significant. Rural communities have become increasingly dependent on forests for subsistence during the recent turmoil. In many rural areas, forests are the only source of food and are crucial to the

Table 4 Management of the protection PFE ('000 hectares)

Total	Attributed to IUCN categories I-IV	Allocated for soil and water	With management plans	Sustainably managed
101	101	0	0	0

survival of many. Thousands of people make their living from the provision of charcoal and fuelwood to urban centres^b.

Social relations. The civil war disrupted the traditional livelihoods of forest-dwelling communities. It contributed to deplorable and dangerous working conditions for timber workers, with serious human rights abuses reported in logging camps (Global Witness 2003). Illegal commercial hunting is widespread.

The sanctions imposed by the UN Security Council in 2003 have resulted in severe restrictions on the timber industry and the primary and secondary employment provided by logging and wood processing has subsequently dwindled. The support provided by logging companies for the running of schools, medical health posts, community facilities and the provision of infrastructure has likewise declined.

According to an ITTO mission, forest policy and even post-war reform efforts have over-emphasized the commercial timber sector and given little attention to resource tenure and issues of high relevance to the poor, such as wild-meat and fuelwood production^b.

Summary

Liberia is blessed with a rich forest resource, a substantial part of which, however, has been lost or degraded in recent years during civil war. Once the country emerges from its political problems, a newly reconstituted and restructured forest sector, built on the pillars of accountability and transparency, could play a major role in economic growth and sustainable development. But its success will depend very much on strong political will and international support.

Key points

- Liberia's PFE covers an estimated 1.41 million hectares, comprising 1.31 million hectares of natural-forest production PFE and 101,000

hectares of protection PFE. More forest could be committed to the PFE from the presently uncommitted area of about 2 million hectares.

- None of the PFE is currently thought to be under SFM.
- The existing protection PFE comprises less than 3% of the country's forests.
- The UN Security Council imposed an embargo on the export of timber from Liberia in 2003 and it remains in force. The embargo was designed to minimize the extent to which revenues from timber exports contributed to private militias.
- In the past, the Liberian forestry sector has generated up to a quarter or more of GDP, but this has declined due to the embargo and the general disarray of the sector.
- There are few or no reliable inventory data available to facilitate forest management.
- The Forest Development Authority (FDA) is responsible for overseeing the forestry sector, but it is seriously under-resourced.
- The FDA has recently attempted to review concession agreements and decide which are legitimate, a difficult task since many files were lost or destroyed during the civil war.
- There is strong support across a range of stakeholders for community-based forest management and greater benefit-sharing with rural people.
- No silvicultural system has been devised for Liberian forests other than a selective logging regime. The prescribed felling cycle of 25 years is relatively short.
- Much of the timber-processing capacity and other infrastructure was destroyed during the civil war and is yet to be rebuilt.

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