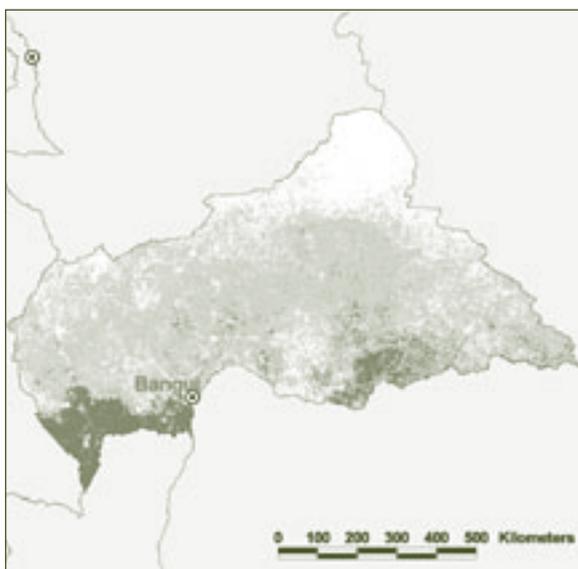


CENTRAL AFRICAN REPUBLIC



*For legend see page 58

Forest resources

The Central African Republic (CAR) has a land area of 62.3 million hectares and a population of 3.7 million people. Situated in the northern Congo Basin, this landlocked country comprises five biogeographical zones. These are, from south to north: the humid Guinean zone, with annual precipitation between 1,500 and 1,800 mm per year and covered by dense, moist forest; the Sudano-Guinean zone, with annual precipitation between 1,000 and 1,500 mm; the drier Sudano-Guinean zone, containing scattered semi-moist forests and open dry forests and savanna; and the Sahel zone, characterized by dry savanna with annual precipitation of less than 800 mm. The general relief of the country is formed by a peneplain with altitudes varying between 500 and

700 m and two separate basins, the Chad Basin in the north and the Congo Basin in the south. The forest area, including the large expanse of open dry forests and savanna, was estimated to be 22.9 million hectares in 2000 (FAO 2001).

Forest types. The major closed forest type is the semi-deciduous rainforest located in the southwestern and southeastern parts of the country (*Forêt de Bangassou*). North of the closed forest there is a transition zone between forest and savanna which stretches in an east-west direction. Beyond this, gallery forests border the large rivers. But by far the largest forest area is the open savanna, covering an area of about 17 million hectares^b. The semi-deciduous rainforests are some of the richest in Africa, containing a high density of high-value timber species such as *Terminalia superba* (limba), *Entandrophragma cylindricum* (sapelli) and *Triplochiton scleroxylon* (ayous), as well as charismatic mammals such as gorillas, forest elephants and bongo. The total standing volume of timber in the southwestern forests was estimated to be more than 127 million³ in a 1993 survey by the Natural Resource Management Project^b.

Dynamics of forest resource change. The estimated annual deforestation rate in 1990–2000 was about 30,000 hectares per year (FAO 2005a). Bushfires are widespread, particularly in the savanna and in the transition zone from forest to savanna.

Permanent forest estate. About 5 million hectares of semi-deciduous closed forests are considered to be productive, including the inventoried forests in the southwest (3.8 million hectares) and the less known, largely unexploited forest of Bangassou in

Table 1 PFE

Estimated total forest area, range (million hectares)	Total closed natural forest ('000 hectares) Source: FAO 2001	PFE ('000 hectares) ^{c,d}			
		Production		Protection	Total
		Natural	Planted		
22.9–29.3	4,826	3,500	3	300	3,803

the southeast (1.5 million hectares)^c. Nearly the whole forest area in the southwest has been allocated, either to forest concessions or as conservation areas^b. In total, about 2.7 million hectares are classified as harvestable. Over the whole country, 46 classified forests (*forêts classées*), ranging in size from 20 to 120,000 hectares and covering a total area of 633,000 hectares, were set aside between 1948 and 1955 for conservation and production purposes; it is not clear how much of these classified forests are still forested. Table 1 shows the estimated PFE derived by ITTO from various sources; it includes only state-administered closed forest. The estimate of protection PFE includes 250,000 hectares of reserves and parks in the southwest and 50,000 hectares of classified forests; the production PFE is taken here to be the area available for (and currently allocated to) concessions. Outside this PFE, a significant area of degraded primary and secondary forest – as much as 1 million hectares in the southwestern forest area, in particular in the zone of Lobaye – has the potential to be productive under SFM^c.

Planted forests. Planted forests cover an estimated 1,800–3,000 hectares^c. In addition, the country's one rubber (*Hevea brasiliensis*) plantation covers an estimated 1,000 hectares.

Institutional arrangements

Forest tenure. Most of CAR's forest land is owned by the state, including the state forests that constitute the PFE. There are also community forests, found mainly in savanna areas, which include natural forests and reforestation areas created by communities, and private forests (a small area of reforestation on private land).

Forest policy and legislation. The forestry policy adopted in 1989 has three main goals: (i) preservation of the stability of forest ecosystems by management and development, (ii) the rational use of forest resources, and (iii) protection of the forest heritage for future generations. A number of measures have been introduced in an effort to implement this policy:

- a new administrative structure that involves stakeholders, including the rural population, more closely in forest management;

- a new forest code which takes into account the needs of local populations and the principles of SFM in forest concessions;
- a review of forest taxation to simplify it and provide incentives for local processing and the utilization of secondary species;
- the promotion of local processing and a restriction on log exports;
- a cooperative endeavour to conserve and restore forest cover;
- an inventory of closed forests in 1996–1998;
- land-use planning, in consultation with rural populations, for the better allocation of forest lands; and
- improved distribution of forest revenues between the treasury, communities and the Forest and Tourism Development Fund^b.

In recent years, significant progress has been made in all of these except land-use planning, as no national zoning plan to define the PFE has yet been created^b. The forest code (Law 90-003), which was promulgated in 1990, was developed with wide inter-ministry and interdisciplinary consultation but little participation by rural populations^c. The forest code describes, among other things: the different forest types and their legal status, the conservation of forest resources in production forests, and the involvement of local populations in decisions on the granting of forest licences. Forest harvesting remains fully the responsibility of the industrial concession-holders. The country has endorsed the ATO/ITTO PCI and is actively involved in various regional initiatives to promote SFM in the Congo Basin, in particular through the Commission in Charge of Forests in Central Africa (*Commission en Charge des Forêts d'Afrique Centrale* – COMIFAC).

Institutions involved in forests. Forestry administration is the responsibility of the Ministry of Environment, Water, Forests, Hunting and Fishing (*Ministère des Eaux, Forêts, Chasses, Pêches, Environnement et du Tourisme* – MEFCPET). MEFCPET is responsible for gathering taxes and fees and for providing funds for programs relating to forests, wildlife and the development of tourism. Other ministries involved in forest development include the Ministry of Commerce and Industry;

Table 2 Some commonly harvested species for industrial roundwood*

Timber species	Remarks
<i>Triplochiton scleroxylon</i> (ayous)	21 million m ³ growing stock, 31% of log exports in 2004
<i>Entandrophragma cylindricum</i> (sapelli)	
<i>Aningeria</i> spp (aniegré)	
<i>Entandrophragma utile</i> (sipo)	6% of log exports in 2004
<i>Chlorophora excelsa</i> (iroko)	12% of log exports in 2004

* Source: MEFCPET 2005

the Ministry of Economic Reform, Planning and International Cooperation; and the Ministry of Finance and Budget.

Staff training and forestry research are undertaken by the University of Bangui and its Agronomic Research Institute. However, both are constrained by a lack of funds and capacity and most professional and technical training is provided on the job by forest companies^b.

The private-sector Chamber of Agriculture, Animal Breeding, Waters, Forests, Hunting, Fishing and Tourism acts in an advisory role to MEFCPET on issues relating to forest management. A number of local NGOs, such as *Amis de la Nature*, the *Mouvement Femmes-Environnement* and the *Organisation Centrafricaine de Défense de la Nature*, are also active in the forestry sector, although due to a lack of capacity they play only a marginal role in forestry matters.

Status of forest management

Forest for production

Large-scale industrial harvesting started in 1968 in the southwestern forests, following an intensive inventory. A second forest inventory carried out in 1991–1993 estimated the standing volume of the 18 most important species at 93 million m³; based on a 30-year rotation, the commercial volume harvestable per hectare was estimated at 15–20 m³/year^c.

After a national consultation on forestry in September 2004, harvesting in the PFE is now carried out in large-scale concessions using only one kind of permit called a PEA (*permis d'exploitation*

et d'aménagement); the system of special cutting area permits (*permis spécial de coupe*) that co-existed with PEAs was abandoned. Small-scale logging outside the PFE is still permitted under artisanal permits (*permis artisanal*). PEAs are valid for the lifetime of the company. Once a PEA is awarded, the concessionaire must prepare a forest management plan within three years, during which time the concessionaire may start harvesting according to specific prescriptions of the Ministry. In mid 2005, ten timber companies, all foreign-owned, were operational in the southwest over an area of 3.3 million hectares (MEFCPET 2005); the size of forest concessions varied between 200,000 and 562,000 hectares^c. The PEA stipulates that local people living in or adjacent to the concession must be involved in the process of establishing permits^b.

There is little awareness in the private sector of the need for SFM. Moreover, the forestry administration lacks the capacity to oversee management of the PFE and to enforce the law, including by imposing sanctions when rules and regulations are infringed^b.

Forest harvesting is taxed in various ways. There is a general company tax and a value-added tax, in addition to three specific forestry taxes: an annual, area-based forest fee (in 2005 this was US\$1 per hectare^c); a felling tax of 7% of the taxable value of the felled volume of timber; and a replanting tax paid at the rate of 11% of the taxable value, which is determined by the Finance Law in relation to FOB value at the seaport of Douala, Cameroon. There is also an export tax of 10.5% on roundwood and 4.05% on sawnwood. In late 2004, an environmental tax was introduced for those companies that do not start the preparation of forest management plans as required under the PEAs; this doubles the

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

Total	Natural			Planted			
	Allocated to concessions/ under licence	With management plans	Sustainably managed	Total	With management plans	Certified	
3,500	2,920	650 ^{c,*}	0	186 ^{c,d}	3	n.d.	0

* Concessions covering a further 1.5 million hectares are in the process of developing forest management plans

area-based tax to US\$2 per hectare^c. A study was carried out in 2004 on ways to replace the area-based fee by a rental fee which takes into consideration the timber value of the forest covered by the permit, but no decision has been taken yet on this matter.

Silviculture and species selection. The 1990 forest code makes specific reference to silvicultural management criteria, including: quantitative limits on logging to avoid creaming and favour natural regeneration; the determination of minimum diameters for felling (80 cm for redwood species in the Congo Basin and 60 cm for whitewood species such as ayous^c); the protection of young trees during logging operations; and the involvement of both rural populations and foresters in conservation and the management of tree-planting. As PEAs are of unlimited duration, long-term management and harvest planning should be possible.

There are about 300 potential timber species in the closed forest area, 79 of which are considered marketable today. Around 30 timber species were harvested in 2004^c; however, loggers tend to focus on 15–18 high-value species. Table 2 lists five species that made up 90% of production in 2004 (MEFCPET 2005). This selective logging is a possible constraint on SFM because the high-value species will almost certainly become rarer, changing forest dynamics and, in the long term, reducing the financial viability of SFM^b.

Planted forest and trees outside the forest. Most of CAR's planted forests are not maintained and are regularly affected by forest fire^c. Plantations of fast-growing limba, *Terminalia ivorensis* (fraké), *Cedrela odorata* and *Cordia alliodora* have generally been abandoned. Various tropical hardwoods, including *Tectona grandis* and *Gmelina arborea*, have performed quite well in experimental trials,

but these have not been scaled up. Small community-based firewood plantations of eucalypts, *Acacia mangium* and *Cassia siamea* are important in non-forested areas. In drier areas, trees planted outside forests are of some importance, including neem, *Butyrospermum parkii* (karité), *Anacardium excelsum* and *Acacia albida*.

Forest certification. Some timber companies are involved in International Technical Tropical Timber Association (*Association Technique Internationale des Bois Tropicaux* – ATIBT) and ATO initiatives on the certification of African timber (see below). One forest concession, *Industrie Forestière de Batalimo* (IFB), which is 186,000 hectares in size, is in an advanced process of certification under the Keurhout system^c.

Estimate of the area of forest sustainably managed for production. In mid 2005, two companies (IFB and SESAM) with concessions totalling about 650,000 hectares were working under comprehensive forest management plans, and five more covering 1.5 million hectares had made good progress in developing such plans^c. The IFB concession (186,000 hectares) is pursuing certification and is thought to be sustainably managed^c.

Timber production and trade. Total roundwood production in 2003 was an estimated 2.82 million m³, of which at least 2 million m³ was fuelwood (FAO 2005b). CAR produces relatively small volumes of mostly high-value timbers. In 2003, total industrial roundwood production amounted to an estimated 516,000 m³, down from 553,000 m³ in 1999 (ITTO 2004, 2005). At least 60% of log production must be processed locally into sawnwood, plywood or other value-added products. Some 223,000 m³ of logs and about 58,000 m³ of sawnwood were exported in 2003 (ITTO 2005). CAR's exports face numerous constraints: train transport through

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
300	3,090	5.7	n.d.	n.d.

neighbouring Congo is slow and highly insecure and costs are very high through Cameroon to the port of Douala.

Non-wood forest products. Wild meat and other animal products are important NWFPs in CAR's forests. Many foodstuffs, medicinal plants and condiments – including *Piper guineense* (forest pepper), *Xylopia aethiopica* and *Afromomum* spp – are collected in closed and savanna forests and sold locally or exported. No quantitative data were available for this report.

Forest for protection

Soil and water. A number of small areas totalling about 5,700 hectares have been set aside for catchment protection purposes (*mise en défens*).

Biological diversity. CAR contains more than 3,600 plant species, 209 mammals and 668 birds. Twelve mammals, three birds, one reptile and 15 plants are listed as critically endangered, endangered or vulnerable on the IUCN red list of threatened species; of these, nine mammals and eight plants are found in forests (IUCN 2004). One plant species is listed in CITES Appendix I and seven in Appendix II (CITES 2005). Several other mammals are locally threatened; the population of elephants, for example, has reportedly decreased to a critical level^c.

Extent of protected areas. The first forest conservation areas to protect the now locally extinct white rhinoceros were created in 1925 (*Réserve de Zimongo*, and the parks of Baminigui, Bangoran and Manovo-Gonda-Saint Floris); these covered more than 1 million hectares of open savanna. Today, protected areas have been greatly extended and cover almost 6.76 million hectares (about 11% of the national territory); they comprise mainly savanna and dry shrub land^c. The main part of the protected area estate is found in the drier northeast; only about 300,000 hectares are closed forest^b. According to UNEP-WCMC (2004), 3.09 million hectares of forest are in protected areas conforming to IUCN protected-area categories I-IV,

including 112,000 hectares of lowland evergreen broadleaved rainforest and 2.01 million hectares of deciduous/semi-deciduous broadleaved forest.

Estimate of the area of forest sustainably managed for protection. Few data are available on the status of forest management in CAR's protection PFE. Considerable efforts have been made to protect the 120,000-hectare Dzanga-N'doki National Park, which is CAR's part of a tri-national protected area between CAR, Congo and Cameroon; however, insufficient information was available to determine the current status of management there.

Socioeconomic aspects

Economic aspects. Forest taxes account for about 14% of state revenues and its contribution to GNP rose from 2.6% in 1997 to 5.3% in 2001 (MEFCPET 2005). Tax incomes from forests represent 14% of total tax revenues (ibid.). The forest sector is important for employment and in socioeconomic development; about 4,000 people are directly employed in the formal forestry sector^b.

Rents and felling taxes on forest harvesting are required to be distributed among the beneficiaries as follows: 30% to the Treasury, 40% to the Forest and Tourism Development Fund, and 30% to communities. Of the revenue generated by the replanting tax, 25% goes to communities and 75% to the Forest and Tourism Development Fund.

Livelihood values. Wild meat and the gathering of edible fruits, nuts, insects and roots are of great importance for local communities dependent on the forest, in particular Pygmies in the closed forest. Yams (*Dioscorea* spp) are a staple food of the Pygmies.

Social relations. The 1990 forest code stipulates the involvement of local people in forest management. According to the law, local people are to have a say in the allocation of concessions and logging permits, and a significant share of revenues generated by forest taxes is to be redistributed to local communities. However, such revenues are unevenly distributed between and within forest communities^b.

Summary

CAR possesses a substantial forest resource base in the south with a sizeable growing stock of high-value hardwood timber. Forest production provides important export revenues and contributes 5% or more to GDP. Two forest inventories have been carried out, the results of which can support forest management planning and economic analysis. In 1990, the country introduced a forest code that sets out social, environmental and silvicultural norms. However, there is a gap between the law and its implementation in the field.

Key points

- CAR has an estimated 3.80 million hectares of PFE, comprising 3.50 million hectares of natural production forest, 300,000 hectares of protection forest and 3,000 hectares of industrial timber plantations.
 - At least 186,000 hectares (about 5%) of the natural-forest production PFE are under SFM. Insufficient data were available to estimate the area of protection PFE so managed.
 - Commercial harvesting is carried out mostly by private entrepreneurs under management permits (*Permis d'exploitation et d'aménagement*), which are valid for the lifetime of the company.
 - In mid 2005, ten timber companies, all foreign-owned, were operating in the southwest of the country in an area of 3.3 million hectares.
 - A relatively small area of closed forest is contained in protected areas.
 - There is little awareness in the private sector of the need for sustainable management, although such awareness may be growing as companies are obliged to develop forest management plans.
 - The ministry in charge of forests, MEFCPET, generally lacks the capacity to oversee management of the PFE and to enforce the law, including sanctions when rules and regulations are infringed.
 - The forest sector generates about 14% of state revenues.
- Wild meat and the gathering of edible fruits, nuts, insects and roots are of great importance for local communities.
 - According to the forest law, a significant share of revenues generated by forest taxes is to be redistributed to local communities. However, such revenues are unevenly distributed between and within such communities.
 - CAR is a landlocked country and the transport costs of exported timber are relatively high compared to those of other countries in the Congo Basin, limiting the profitability of SFM.

References and other sources

- ^b ITTO 2002. ITTO Mission in support of the Government of the Central African Republic towards the ITTO 2000 Objective and Sustainable Forest Management. Report of the Diagnostic Mission. Presented at the thirty-third session of the International Tropical Timber Council, November 2002. ITTO, Yokohama, Japan.
 - ^c Information derived from the report of, and discussions with participants at, a training workshop on ITTO criteria and indicators, held 25–29 July 2005, Bangui, CAR, attended by 48 people from government, civil society and the private sector.
 - ^d ITTO estimate
- Amsallem, I., Koné, P. & Wilkie, M. (eds) 2002. *Status and Trends in Forest Management in Central Africa*. Forest Management Working Paper 3. FAO, Rome, Italy.
- CITES 2005. CITES-listed Species Database. Available from: <http://www.cites.org/eng/resources/species.html> (accessed September 2005).
- FAO 2001. *Global Forest Resources Assessment 2000*. FAO Forestry Paper 140. FAO, Rome, Italy.
- FAO 2003. *Forestry Outlook Study for Africa – Subregional Report for Central Africa*. FAO, Rome, Italy.
- FAO 2005a. *State of the World's Forests 2005*. FAO, Rome, Italy.

- FAO 2005b. *Yearbook of Forest Products 2003*.
FAO, Rome, Italy.
- ITTO 2004. *Annual Review and Assessment of the World Timber Situation 2003*. ITTO, Yokohama, Japan.
- ITTO 2005. *Annual Review and Assessment of the World Timber Situation 2004*. ITTO, Yokohama, Japan.
- IUCN 2004. 2004 IUCN Red List of Threatened Species. Available from: <http://www.redlist.org> (accessed September 2005).
- MEFCPET 2005. Statistiques forestières. Projet d'appui institutionnel à l'Administration Forestières. March 2005. MEFCPET, Bangui, CAR.
- Tchatat, M., Ndoye, O. & Nasi, R. 1999. *Produits Forestiers Autres que les Bois d'œuvre (PFAB): Place dans l'Aménagement Durable des Forêts Denses Humides d'Afrique Centrale*. Projet FORAFRI. CIRAD-Forêt, Montpellier, France.
- UNEP-WCMC 2004. Spatial analysis of forests within protected areas in ITTO countries. UNEP-WCMC, Cambridge, UK. Data prepared for ITTO, 2004 (see Annex 1).