BOS

The Congo Basin

Recent Developments and
Alternatives for Sustainable Development

Journal on Tropical Forests and Forestry for Sustainable Development

BOS NIEUWSLETTER Volume 16 (3), Number 37, November 1997

BOS Foundation Organization for International Forestry Cooperation

The BOS Foundation

On December 16th 1981, a group of Dutch tropical foresters founded the *Stichting BOS*, the Dutch abbreviation for Foundation for Forestry Development Cooperation. Concern for the problems of tropical forests' - and land use led them to formulate the need for a professional response and a commitment to mobilize action and increase international forestry cooperation. Since 1995 the *BOS Foundation* is known as Organization for International Forestry Cooperation. Key concepts to indicate the Foundation's main endeavours are ecosystem management, sustainability, multifunctionality, social equity and partnership.

Objectives of BOS

The main objectives of the *BOS Foundation* are:

- to increase attention for and action on behalf of forests, forestry and land use in the tropics within the context of sustainable development;
- to improve the quality and enlarge the scale of international forestry cooperation, stimulated from The Netherlands;
- to promote and facilitate the exchange of information between tropical foresters, other experts and organizations involved.

The *BOS Foundation* supports field workers and other specialists in the field by combining their forces and promoting their interests.

The BOS NiEuWSLETTER

The BOS NiEuWSLETTER is the four-monthly journal of the *BOS Foundation* on tropical forests, forestry and land use within the context of sustainable development and international cooperation. Each issue contains articles, book reviews, announcements of meetings, symposia and courses, all related to tropical forests, forestry and land use. In 1994 Michael Pilarski wrote in his book "Restoration Forestry, an international guide to sustainable forestry practices" about the BOS NiEuWSLETTER: **this newsletter is one of the best ways to keep abreast of tropical forestry developments**.

You are invited to send information on subjects related to tropical forests, forestry and land use. Announcements of meetings, symposia and courses, as well as book reviews, articles and comments/opinions are most welcome. For guidelines for articles and comments/opinions see back cover.

ISSN: 0923-7488 Editor and colour design: Peter Sips Cover design: Roelof A.A. Oldeman

Contents

Alternatives for sustainable development

Publication of this issue of the BOS NiEuWSLETTER and
in particular the color pictures was also made possible thanks to a grant from the:

Netherlands Committee for
IUCN
The World Conservation Union

Editorial

Peter Sips

Comfortably installed in my hammock I'll be reading O' Hanlon's Congo Journey. While in pursuit of a pygmy-tales inspired prehistoric legend reality reveals itself in seemingly obvious but yet un-experienced encounters. Even more overwhelming and confronting is the visualized reality on the 8 o'clock news or in the numerous background documentaries in the last couple of months.

The Congo Basin has been, and still is the setting for many reports on political and military upheaval, tribal conflicts, mass murders, international politics and trade, and exploitation of natural resources. Trying to understand the reason for all these events, I stumble over colonial periods, fetishism, ancient cultural and tribal rivalry, present days political and financial interests, and hypocrisy.

The Congo Basin's cultural and biological diversity is under threat. In this theme issue it is tried to give a first insight in the biological and cultural characteristics of the region, threats involved, and alternatives offered for a more sustainable development. In the first part the authors focus on the tribal richness of the region, its flora and fauna and the way man and nature interact. In the second part focus is on the threats imposed by the international timber trade, poaching, urban use of forest resources, and the construction of an oil-pipeline. Part three offers some relevant initiatives aiming to promote the wise and sustainable development of the region.

In May 1998 the governments of the region and the international donors will be meeting in Bata, Equatorial Guinea. NGOs will hopefully join in a parallel meeting to be organized by the IUCN. It is hoped that all parties involved will be in the position to discuss the problems of the region as well as alternatives for development. Likewise it is hoped that all involved will be open about their interest and available means and are willing to see things in perspective. Hopefully the words of a Nigerian museum director, who just recently expressed his feelings about the robbery of African art mainly destined for Europe, United States and Japan, may be of relevance:

"taking away the art from its African context, makes the art worthless."

Congo Basin regional profile

Arie Verdoes[1]

Introduction

The Congo Basin comprises the main parts of Congo-Kinshasa (former Zaire), Congo-Brazzaville, Equatorial Guinea, Cameroon, Gabon and the Central African Republic (CAR). Depending on the definition regions of Angola, Kenya, Rwanda and Uganda also are part of the basin. Below, in short country profiles, an overview of the general developments in the last 40 years of the political, economical and environmental situation is given.

The Congo Basin in to Africa what the Amazonia is to South America. The basin is bordered by mountain ranges in east Congo-Kinshasa, plateaus in south Congo-Kinshasa and south Cameroon and central CAR. The rivers in the basin are formed by:

- the vast Congo river and its tributaries, like the Oubangui (CAR), Sangha (Cong-Brazzaville), Kwilu, Kasai and Tsuapa River;
- the Ogooué River (in Gabon) and its tributaries;
- the Sanaga river (Cameroon);
- the Rio Benito (Equatorial Guinea);
- and several other rivers that float directly to the Atlantic Ocean.

The vegetation of the basin is mainly dense tropical rainforest (over 1.5 million km^2), varying from swamp forests to montane forests, but areas with savanna can also be found. Especially coastal areas are heavily exploited. The more inward areas because of their inaccessibility and consequently high transport costs are relatively undisturbed. Support for opening of new areas include the risk of expanding poaching and agricultural activities though population pressure is not very high. The rate of forest destruction is not as high as in Brazil but still alarming. At present there is very little control over forestry exploitation especially where economic revenues from this industry are very important to obtain (imported) food security. Added to the regional political instability this is a difficult base for the stimulation of both sustainable forest exploitation and an increase in export of forestry commodities.

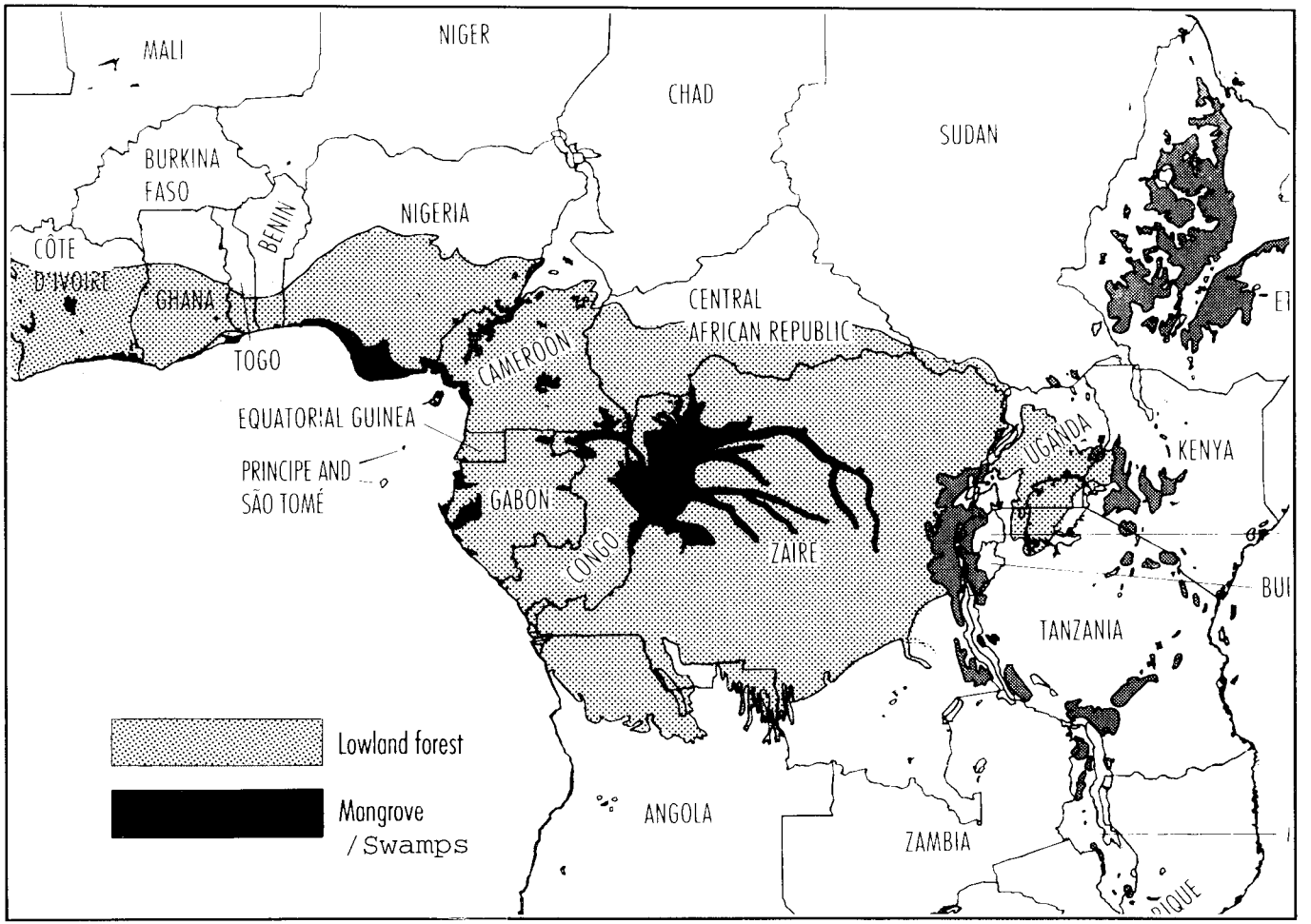
Fortunately foreign support is directed at providing a base for sustainable use of the forest. Protecting vulnerable areas in reserves, introduction of improved forest management techniques, training of cadres, revision of laws and inventories to upgrade statistical data are all necessary areas of attention in support programs. When also the political situation stabilises the very high potential of the Congo Basin can both have a long-term protection and can give increasing revenues.

Table 1: Roundwood removals

	Fuelwood	Industrial	Export
Cameroon	11,488	2,933	1,000
Gabon	2,711	1,633	1,715
Congo-Kinshasa	40,093	3,150	164
Congo-Brazzaville	2,154	1,331	319
CAR	3,350	492	--
Equatorial Guinea	--	613	217

(fuelwood and industrial 1992; export indication for the period 1993-1996; all in 1,000 m^3)

[1] Cort van der Lindenstraat 6, 6702 BG Wageningen, The Netherlands, Phone: +(0)317-426582.



General regional history

Because of the incredibly dense vegetation in the Congo Basin, unlike in other parts of Africa, until the end of the 19th century European colonizers did not show much interest for this region. From the 15th to the 18th century colonizers settled in the coastal areas, where they used local coastal kingdoms for the supply of slaves from the interior. Only at the end of the 19th century several countries started claiming parts of West-Central Africa and a treaty was signed in what was called the Convention of Paris in 1885. With this treaty today's boundary's were roughly established, after which only minor changes took place. Belgian received Congo-Kinshasa, France claimed Congo-Brazzaville, Gabon, the Central African Republic and part of Cameroon. Spain got control over Equatorial Guinea and Portugal over Angola. All countries became independent after WWII.

The end of the Cold War catalysed the change from a one-party or dictatorship situation to a more democratic one. However anyone who has followed recent developments

must admit that stability and thereby democracy is still in progress.

Cameroon

The country is situated on the north side of the Congo Basin, north of Equatorial Guinea, Gabon and Congo-Brazzaville. Chad and CAR are situated on the east side and Nigeria on the western side. The country itself can be divided in three geographical zones: the northern savanna area, the southern and eastern rainforest area (47% of the country) and the western hill region. The latter Anglophone region has the highest population density. On the fertile volcanic soil coffee, palm oil trees and cacao are cultivated. The northern part is semi-arid, while in the south-western part it can rain up to 5000 mm per year. The Sanaga river is roughly the dividing line between the northern and southern part of the country.

The population is divers not only because of the difference between the areas that have been ruled by France or Great Britain, but also due to the religious differences between the Muslims in the north and Christians in the south. Still the country has a relatively peaceful coexistence.

Germans were the first to sign a commercial treaty with chiefs in the south-western part of the country to form large-scale plantations. After WWI the League of Nations gave the French a mandate over 80% of the country and the British a mandate over two other parts, one in the south-western part and one in the north. After a referendum the northern part decided to join Nigeria.

In the 1950's two political parties arose in French Cameroon, the southern Union des Populations du Cameroon (UPC) and the northern Union Camerounese. The leader of the last party, Ahmadou Ahidjo, became the first president after independence. He was considered an archetypal political strongman, he banned all other political parties and also all ethnic associations. Until 1975 the state of emergency, initiated after the rebellion in 1960 in west French Cameroon, was active. In 1972 British Southern Cameroons and French Cameroon ended their federation and merged into one republic. Under Ahidjo agriculture, education, primary health care and roads were strongly developed. It made Cameroon self-sufficient in food supply and provided a range of agricultural commodities for export. Major investments were enabled after oil exploitation started in 1978.

In 1982 Paul Biya succeeded Ahidjo. He replaced power from the northern foremen to people from his own tribe, leading to a coup in 1984 which almost succeeded. From 1990 on more and more political parties were founded after dissatisfaction with the management of the economy and corruption. Mass demonstrations and a general strikes followed repressions of these parties and democratic movements. Although opposition parties won election and formed a coalition government, Biya managed to be re-elected as president in 1992. With the economy still in development, president Biya (like some other presidents in the region) seems to be one of the few to enlarge his fortune.

The rate of rainforest destruction is alarming. With 0.8% the country still has half of the rate of destruction of Brazil, but by far the highest of Central Africa. The problem arises from shifting cultivators who follow commercial logging. Starting from the west logging spreads into the eastern and southern regions. 6 million ha or 25% of the forest area has been distributed to 150 logging companies.

In 1991 Cameroon was the largest log exporter of Africa. The production of roundwood removals, including sawlogs, veneer logs, logs for sleepers, and other industrial and fuel wood, amounted more than 14.000.000 m^3 in 1991, 1992 and 1993.About 90% of all logs and processed wood is exported to countries in the European Community. 60% Of export is in three species: ayous (*Triplochiton*), sapele (*Entandrophraga Cylindrum*) and azobé (*Lophira alata*). It is believed that marketing of lesser known species can increase both the yield per ha (now limited to 0.5 m3/ha/year) and absolutely. New laws, which include provision of long term concessions, harvesting according to management plans, use of improved silvicultural techniques, should make the exploitation more sustainable.

The Kilum mountain forests in west Cameroon and Korup national Park on the border with Nigeria are some of the remaining protected areas. Other official parks and reserves are: Reserve du Dja, Reserve de Campo Nyebessan, du Faro, Parc National de la Béńoué, de Waza, de Bouba Njida.

Equatorial Guinea

As the name indicates, this small country is situated near the equator. Besides the province on the mainland called Rio Muni, there are 5 islands belonging to the second province. On the volcanic soils of Bioko, the biggest island, cacao is grown. The others are Pigula, Coriso, Grand Elobey and Little Elobey. The mainland is almost fully covered with (degraded) rainforests. The main river is the Rio Benito. Its neighbouring countries are Gabon to the south and Cameroon to the north.

After Spain granted independence in 1968, the country was terrorized by Macias Nguema for 11 years. Already in the first year he managed to get most of the Spanish plantation owners and technicians out of the country, after which cacao production dropped dramatically. The labourers working on the plantations were treated very badly and in 1975 Nigeria ordered 45.000 workers home after continuous reports of ill-treatment and even loss of lives. Also coffee production and the wood industry declined, the latter also by over-logging. Because even boats were destroyed, Equatorial Guinea at the end of Nguema's ruling period was practically isolated from the rest of the world. About one third of the population fled to neighbouring Cameroon and Gabon, or went into exile in Spain. Many were killed or put to prison. In 1979 his nephew Theodore Obiang made a successful coup attempt. After introducing more freedom for the people and replacing the monetary unit by the CFA, economics improved slightly. Still there is political instability as Obiang survived three coup attempts. In 1989 he was reelected as the sole presidential candidate for the only political party.

Was the estimated forest area 50% in 1959, in 1985 this was reduced to 28%. Especially the coastal area has been heavily harvested, used by shifting cultivators and now covered by secondary vegetation. The inland area, because of its inaccessibility, so far has been saved from this scenario. The area secondary forest has stayed approximately the same at 10% of the total land area.

A major problem is that the forestry sector contributes largely to the import of food and repayment of foreign debts. In 1990 timber from the mainland Rio Muni accounted for 21% of the export revenues. In spite of the importance of the forestry sector it can be characterized by:

- a forest administration without knowledge on forest preservation and sustainable management;
- a lac of statistics to evaluate present tendencies in the exploitation or to prepare planning;
- a dominant forest industry; and
- a total absence of plans for regulations or reafforestation.

In the next 25 years it is estimated that another 65.000 ha of forest will be transferred in short period agriculture plantation and eventually secondary vegetation. The crops grown here, like maize and cassava, do not satisfy the nutritive need of the population. Therefor hunting is widespread, both for domestic use as well as for sale in urban areas.

The FAO is trying to work on better statistics like creating a 1:200.000 scale map, making forest inventories and initiating a model area for introducing new forest management techniques. The EC is directing its efforts to the upgrading of the forest production as main national economic sector. For this forest roads are constructed, commercialization of forest products is improved and protection of forest resources is given attention. The Cooperacion Espanola has investigated forest areas that are worth protecting, is training national staff in formulating long-term objectives and helps in setting up a legal cadre for the protection of forest land.

Congo-Brazzaville, Republic of the Congo

Congo-Brazzaville, situated on the north side of the Congo and Oubangui river, is bounded by most other Congo Basin countries and the Atlantic Ocean. Before independence in 1960 Congo-Brazzaville together with Gabon and CAR formed French Equatorial Africa. Congo was exploited heavily for its natural richness, as it has been before when many slaves were captured in Central Africa and sold in the harbors of Congo. Shortly after independence the former French colony went into Marxism.

The continuous frictions between the army and the National Revolutionary Movement Party (later Congolese Workers Party) and the Trade Union hindered economic development. Only since the exploration of oilfields major investments in industries could be made. Due to oil-exports nowadays Congo-Brazzaville is with a per-capita year income of US$1000 the fifth richest country in Black Africa. In spite of the changeover to a democratic system in the early nineties and the oil revenues still the country can not feed itself. In comparison, the export of logs provides about 30% of export revenues, but does not cover the countries food import bill. Moreover, recent fights, that seem to be the end of the line of destabilisation from Rwanda via Congo-Kinshasa to Congo-Brazzaville, indicate that the process of political stabilization still has a long way to go.

Of the total land area of 34.2 million hectares 55% is forest. A quarter of this forest area is commercially exploited. The northern part contains most of the countries vast forest reserves, which represent 10% of Africa's total and are the second largest in Africa after Congo-Kinshasa. The inland swamp forests are well developed along several rivers. Most people live in the central and coastal part of the country with 75% in the vicinity of railway tracks. The dry lowland forests are mainly semi-deciduous. The central plateau is the countries breadbasket.

All forest land in the Congo is the property of the state and all citizens enjoy constitutional rights, even in an area under management for timber. Administration of the forest, wildlife and conservation is the responsibility of the ministry of forest Economics.

With help from FAO, the forest authorities have divided up the national forest estate into forest management units, each of sufficient size to support an independent forest industry. Each industry is required to conduct an inventory of its management unit an propose a management plan for ministerial approval. The plan should provide for selection felling on a 25-year cycle with a minimum cut diameter of 60 cm. Extraction would be subject to three-year exploitation permits which prescribe the area to be logged and the minimum volume of timber to be produced.

The government is attempting to relieve the pressure on virgin forest by requiring forestry companies to replant and by increasing plantation production, in part to serve local demand for fuelwood. Fuelwood consumption in 1991, 1992 and 1993 amounted approximately 2.100.000 m^3.

In the sparsely populated north the forests remain largely undisturbed after logging and regenerate well. Here cyclic selective logging appears sustainable. In the densely populated south, many of the management units have been invaded by shifting agriculturists and potential timber yields have been seriously reduced. Due to insufficient supervisory field staff the management unit system has never been put into practice properly.

There is one national park in the country, Odzala, and the Dimonika Biosphere reserve. In addition there are two other kinds of protected areas: seven faunal reserves, where hunting is totally prohibited; and three hunting reserves. As for the forestry sector, the wildlife service is seriously understaffed at present, resulting in inadequate protection of the different types of reserves. Illegal hunting and poaching for meat is widespread as it is a source of income and the main protein source for a large part of the population.

Congo-Kinshasa, Democratic Republic of Congo

Ever since independence in 1960 uprises have taken place, but all were put down mostly with help from countries that protected their economical and regional political interests. Belgium interests comes from the period that King Leopold owned a chain of trading stations along the river Congo, before it became a Belgium colony in 1908. Mobuto was a colonel in the army and became chief of staff after independence. He has been the president since shortly after independence. With the fled of Mobuto the civil war in this country has only recently come to an end.

The new president Kabila started his victory march in the far-eastern province of Kivu after hundred thousands of people moved here to avoid the fights in neighbouring Rwanda and Burundi. Time will tell if president Kabila will manage to unify this enormous country, where 250 tribes and clans thrive, the biggest African rainforest makes transportation very difficult and opposition along tribal lines has strongly developed.

With a land area of 234 million ha Congo is as large as Western-Europe and the third largest country in Africa. It is extending from the Atlantic coast in the west to Uganda, Rwanda, Burundi and Tanzania in the east, also sharing borders with Congo-Brazzaville, the Central African Republic, Sudan, Zambia and Angola.

Forest types range from dry forest in the north and south to evergreen and semi evergreen forests in the equatorial region. The Sudanese and Zambezi dry forests are heavily degraded. The evergreen forests, forming 52% of the total land area, can be divided in three major categories: swamp and riverine forests, the Guineo-Congolian lowland forests of Cuvette Centrale and Bas-Zaire and the various Afro-montane forest communities of the highlands in the eastern borders of the country.

Infrastructure in Congo is known as the worst in whole Africa. Half of all the timber ever exported from Congo has come from the Mayombe region in Bas-Zaire, where all commercially valuable timber has been exhausted and farmers have encroached the forests. Major transportation problems and costs cause that only one-third of the annual exploitation of 400.000 m^3 is eventually exported. In compare it is estimated that fuel wood consumes are one hundred times higher.

Canada provided considerable technical assistance for the forestry sector during the 1980's, including the preparation of an exhaustive inventory of forest resources. A substantial proportion of logging is carried out by the German Danzer Group, although in 1996 a Malaysian enterprise was examining the possibility of seeking logging concessions covering 1.5 million ha.

Whereas most of the logging takes place in western and northwestern areas, protected areas can be found in all other parts of the country. In total about 8% (almost 20 million ha) of the total land area is protected in 7 national parks and 57 hunting reserves, with many minor forest reserves. In at least half of the hunting reserves there is no control at all, though they are situated around or near national parks. Still the managing 'Institut Zairois pour la Conservation de la Nature' has a good reputation as it operates largely autonomous.

Though Congo is very rich in mineral resources, with 60% of worlds cobalt, 90% of worlds small industrial diamonds and a significant portion of the worlds copper, the yearly per-capita income of US$180 belongs to the ten lowest in the world. Mining contributes to about 75% of export earnings, but mining of minerals (except diamonds) declined a lot in the last ten years, copper even to 7% of the level of 1985. It is estimated that the output of diamonds is steady, but no real figure is known because of smuggling from private mining. Also coffee is subject to smuggling, with a peak of 30% of export earnings in 1994 an important export commodity. As salaries are rarely paid, informal economies and bribes contribute to the economic chaos, also described as the ultimate no-nonsense state in which everything is for sale.

In principle Congo-Kinshasa is food self-sufficient, but also here the distribution of the growing food crop production is hampered as efficient transportation to urban areas is difficult. Therefor in 1995 EC approved a programme to support agricultural rehabilitation, which was focussed on the renewal of 4000 km of local roads and 600 km of national roads in Kivu and Kasai provinces.

Gabon

Gabon became independent in 1960 after which two parties formed a coalition government. After the first president M'Ba died in 1967, his successor and present president Albert-Bernard (later forename Omar) Bongo dissolved all political parties and founded one new: the Parti Démocratique Gabonais. After serious riots in 1990 opposition parties and multiparty elections to the National Assembly were legislated. But it took several years and many elections before opposition parties were represented in the government. However, many times disagreement on the fairness of the elections and interpretation of agreements, resulted in long lasting delays in the implementation of the electoral timetable that was among others agreed upon in 1994 in Paris. In the meantime president Bongo is still firmly in control.

The country comprises the entire drainage basin of the westward flowing Ogooué river, together with the basins of several smaller coastal rivers. The country is not densely populated, especially as one half of the people live in urban areas. With 80% of the area covered with forest the country belongs to the most densely forested of Africa. There are also some large areas with grass savannas.

Already at the beginning of this century the okoumé tree (*Aucoumea klaineana*) was exported for the use of plywood. Gabon ranks currently the fourth largest African producer of tropical wood. In addition oil, manganese and uranium export help to import 50% of the food, because only 1% of the country is under cultivation. Nonetheless with a yearly per capita of US$3800 (1993) this is the richest country in Black Africa. Economic developments for many years were hampered by low world prices for uranium and manganese, the latter of which Gabon has the largest reserves of the world. Also export of logs was under pressure as transport costs are high. With the exploitation of new oil fields the economic situation seem to stabilize after years of decline.

Management of the forests is the responsibility of three divisions within the Ministry of Water and Forestry: Inventories; Forest Exploitation; and Reforestation. Forest management practices by law should be based on selective logging principles. This includes minimum cutting cycles of 20 years and minimum diameters of 55-70 cm depending the species. A small 1% of the land area of 25.8 million ha is logged every year, whereas 50% is believed being logged at least once.

For the purpose of granting licences, Gabon is divided in to three districts: the coastal, easy accessible and already depleted first zone; the second, central part of the country; and the by the Transgabon Railway opened up north-eastern zone. Concessions in the coastal area are licensed to Gabonese nationals, in the inland area every company can obtain a license. Prices for okoumé and ozigo (*Dacryodes buettneri*) are controlled by the state company Société Nationale des Bois du Gabon. Roundwood production (including sawlogs, veneer logs, logs for sleepers and fuelwood) amounted approximately 4.300.000 m^3 in 1991, 1992 and 1993.

There are several natural parks and reserves. The central is Lopé, the northern Ipassa and the coastal Moukalaba, Sette-Cama, Wonga-Wongue and Sibang protected areas. However all protected areas except that of Ipassa have been exploited, as villages have the right to use the forest for subsistence living "as long as a sustainable use of the forest is guaranteed".

Central African Republic (CAR)

The country is the former French colony Oubangui Chari. The country lies north of the Oubangui river, which forms the border with Congo, on both sides of the Chad-Congo watershed. The watershed between Nile and Congo

forms the eastern border, while unnatural boundaries form the eastern border with Cameroon, Chad and Congo-Brazzaville.

In the short history of CAR after independence in 1958, one name is eminent: Bokassa. This former army commander-in-chief ruled from 1965 to 1979, coroneted himself emperor and was mentioned to be an even more violent dictator than Idi Amin of Uganda. In 1987 he was trailed and convicted for murder, treason and cannibalism. The sentence to death was commuted in life imprisonment and hard labour by president Kolingba. This president was reluctant to change to a more-party system, although further foreign aid especially from former protector France was connected with it. In 1993 Patassé was elected as president. He managed to survive two rebellions of non-salary paid troops, with support of French soldiers. A government of national coalition has still not been formed.

Diamonds are the main export product accounting for 25% of the country's foreign exchange earnings, but uranium deposits have the potential of even greater economic importance as soon as the world prices recover. Other major earnings are timber, coffee and cotton. Although rainfall is sufficient to feed the population, access to save drinking water and high infant/child mortality rates rank CAR low on UN's human development index. Most people live in the southwestern part of the country, with 25% of the population of 2.5 million people in the capital city Bangui.

Tropical rainforests are situated in the southwest and south-east of the country. The vegetation slowly thins out northwards, becoming dry shrub in the scarcely populated north-eastern region. Deforestation is fairly slow in compare with Cameroon, Kenya or Brazil. Frequent hunting in the colonial period helped the creation of several national parks and reserves. Large game hunting still is an important economic revenue. Bamingui-Bangoran, St Floris and Dzanga-Ndoki national parks receive help out of European Development Funds. In the first park poaching from out of Sudan is a serious threat.

References

Country profiles. Tropical Forest Update, Volume 4 nr 1,4,6. ITTO

La conservation des Ecosytemes forestiers du Gabon. Chris Walks. IUCN, 1990.

Conservacion de los ecosistemas forestales de Guinea Ecuatorial. John E. Fa. IUCN, 1991.

La conservation des Ecosytemes forestiers du Guinea Zaire. Charles Doumenge. IUCN, 1990.

La conservation des Ecosytemes forestiers du Congo. Philippe Hecketsweiler. IUCN, 1990.

Africa south of the Sahara. 26th Edition. 1997. Europe Publications, London.

The author

Arie Verdoes graduated in 1990 from Wageningen Agricultural University, the Netherlands. After working for the Committee for Science and Technology for Vietnam during his civil service, he worked for the Quang Tri-Holland Development and Friendship Association. This was a cooperation between Dutch NGO's and the Vietnamese provincial authorities of Quang Tri province. Both occupations concerned managing agricultural and forestry projects.

Forest Peoples of the Congo Basin

- "In stories about settlement, Pygmies are the guides who taught the immigrants how to cope with the various habitats within the rainforests....."

Forest-dwelling communities are increasingly coming into conflict with logging companies. They are particularly vulnerable to the effects of commercial forest exploitation because their customary land rights and systems of land ownership and control continue to be disregarded by national authorities.-

Marcus Colchester[1] & Dorothy Jackson[1]

Keywords

Congo Basin; forest peoples; trade; logging; land rights; social impacts; poverty; prospects.

The forest peoples of the Congo Basin

The Congo Basin is home to several hundred related peoples, numbering some 12 millions (Vansina, 1990), most of them linguistically closely related and referred to in the anthropological literature as the 'Western Bantu', as well as some 300,000 so-called 'Pygmies' and similar groups (Beauclerk, 1993). Today, in the Equatorial African region comprising Gabon, Central African Republic (CAR) and Republic of Congo (Brazzaville), the number of people inhabiting the forest areas, mainly through self-provisioning economies based on shifting cultivation, treecropping, hunting and fishing, number some two million, owing to the very high proportion of the population in these three countries living in cities.

Archaeological investigations show human occupation of the area by hunters and gatherers using simple stone tool kits from at least 70,000 BC (Oslisly and Peyrot, 1987) but it remains an open question whether these peoples are in any way related to the so-called 'Pygmy' peoples who are the descendants of the earliest surviving inhabitants of the region. It is thought that some 5,000 years ago, the Western Bantu began their penetration of the region from their origin near the present Nigerian-Cameroonian border, based on a well-developed agricultural economy of yams and oil palms, reaching the Congo river by 3,000 BC and the Central Lakes area by 2,000 BC (Vansina, 1990). In these early times Bantu society seems to have upheld a tradition of equality based on a decentralised settlement pattern in which certain households, and within them individuals, led as much due to personal esteem as the assertion of any real authority or power. Settlements were fluid and mobile and local leaders were accountable to the rest of the village, or at least to other males or elders (Vansina, 1990).

In a similar vein, detailed studies of the middle Congo villages of the mid-19th century emphasise the deep rooted unease within Western Bantu cosmology towards the accretion of power. The Western Bantu cosmology held that an increase in spiritual power or social esteem or material wealth implied a proportional decrease in the other two and that one individual's gain was seen as always bringing a corresponding loss to the wider social group (Harms, 1981). Such beliefs were expressed, on the one hand, in strong pressures to share and redistribute wealth and other resources and, on the other, through 'witchcraft' accusations which were the main expression of unresolved tensions and jealousies. According to such analyses fear of 'witchcraft' was a great equaliser: a sanction against personal greed and aggrandizement.

[1] World Rainforest Movement, UK Office, 1c Fosseway Business Centre, Stratford Road, Moreton-in-Marsh, GL56NQ, England, Phone: +44-(0)1608-652893, Fax: +44-(0)1608-652878, Email: wrm@gn.apc.org

The introduction of iron working from around 2,500 BC (Oslisly and Peyrot, 1987) and bananas and other elements of the Malayo-Polynesian root crop complex from around 1,000 BC, coupled with natural increase, inevitably resulted in a population growth such that by the end of the first millennium the population stood at some four people per km^2 (Vansina, 1990). The result was the emergence of new traditions of hierarchy which overlay uncomfortably, and exist today in dynamic tension with, earlier egalitarian traditions. Warfare and competition for land and later slaves led to the emergence of much larger and more centralised villages, stockaded settlements, elaborate weaponry etc. (Vansina, 1990).

It is possible to see this same tension, between the ideals of egalitarian respect and subordination, in the ambiguous notions held by the Bantu of so-called 'Pygmies', on the one hand revered in myth as the source of much knowledge and wisdom about forest dwelling and on the other despised as primitive and inferior beings (Lewis and Knight, 1995).

> *"In stories about settlement, Pygmies are the guides who taught the immigrants how to cope with the various habitats within the rainforests..... The stories.... are remarkable because, by the nineteenth century, all surviving bands of Pygmy hunters and gatherers were serfs for the villagers, who held profoundly ambivalent views about them. They were a despised, uncivilised, subhuman race, unfit for sexual congress with any farming woman. Yet they were the fountain of civilisation; the first in the land; the inventors of fire; the teachers about habitats; the wise healers with medicinal plants.... and on occasion the first farmers. The inhabitants of the Kuba kingdom for instance, so intertwined the very notion of untutored nature, its bounty and its dangers, with the notion of Pygmy hunter-gatherers that the image of the nature spirits was modelled after the ideal Pygmy.... and that any claim to mastery of the land had to involve the legitimising presence of a quintessential autochthon, a Pygmy."* (Vansina, 1990)

Effects of trade and conquest on forest peoples

These new traditional hierarchies in Equatorial Africa were to be exaggerated by future trade patterns and by colonial interventions to the point where the submergence of the egalitarian traditions can be seen as one of the main problems in the Western Bantu area today. Almost all outside pressures since contact have exaggerated the tendency to hierarchy and reduced the accountability of leaders to their fellow citizens.

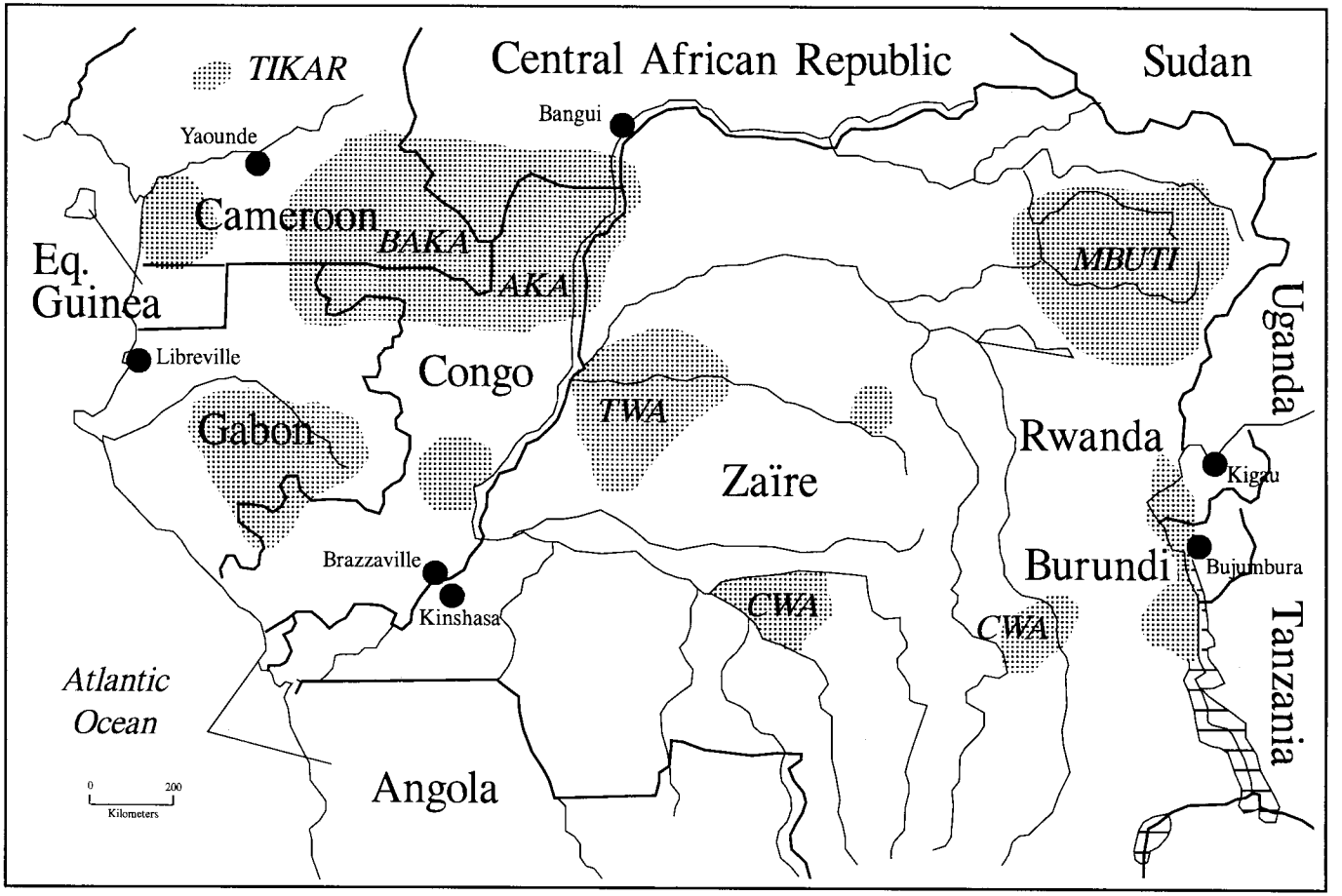
The most tragic and obvious example of how contact with the 'west' brought out the hierarchical and arbitrary aspects of leadership in Bantu societies was the slave trade, which cost the lives of several millions of Africans and led to the transport overseas of millions more.

Following the 'scramble for Africa' at the end of the 19th century, Equatorial Africa (later to be called French Equatorial Africa - AEF) fell under the control of the French government, which allocated most of the territory of 700,000 square miles to 40 companies. The express aim of these concessionaires was to extract the wealth of the area's natural resources - chiefly wild rubber, ivory and later coffee, cocoa and palm oil - as cheaply and as fast as possible (Austen and Headrick, 1983; Hecketsweiler et al., 1991).

The French colonial authorities attempts to impose taxation was met by protracted resistance by the villagers, leading in turn to increased colonial military presence. Since the main problem for colonials at this time was not so much gaining control of land as the shortage of labour, the aim of the fiscal and military interventions was to enforce the corvee, and, through various levies and taxes in both produce and money, to oblige the African to involve themselves in the cash economy, which meant, essentially, work for the concessionaires.

Campaigns to reduce resistant populations were expressly carried out in support of the concessionaires who were having trouble with indigenous participation. Thus from

Figure 1: **Distribution of African Pygmy populations** (Dyson, 1992)



1917 the colonial army undertook a brutal campaign in the upper Congo to ensure that the local people worked for the Compagnie Française du Haut Congo. A detailed study in the area carried out for the World Conservation Union concluded:

> *'The result was catastrophic and the psychological effect on the population was profoundly negative and still persist to this day. Villages emptied, the villagers fled to the hunting and fishing camps out of reach of the 'works' and military recruitment. This massive exodus into the bush on the present Gabon-Congo border, between 1917-1920 is called by tradition the "rubber war"'.*
> (Hecketsweiler et al., 1991)

A central plank in the French administrative policy was to bring the local people under the control of the administration through *'regroupement'* - resettling the dispersed and mobile African communities in larger,

permanent villages on roads and along rivers so that they could be obliged to render up their tax and labour and also to ensure they were under surveillance to prevent further rebellions. All this, it was claimed in line with the thinking of the times, was to benefit the local people making it easier for the administration to provide health care, education and other services. However, these benefits were long in coming but the onerous exactions of the colonial state were imposed immediately.

The *'regroupement'* policy had devastating effects on the local peoples. In the early days, resettlement was carried out without the minimum of consideration being given to customary land rights, resulting in conflicts over land between different groups (Pourtier, 1989). The policy was continued into the 1970s by the post-independence governments of Gabon and the Congo.

Poverty and patron-client relationships

The reason for the striking continuity between the colonial and independence policies lay in the acculturation of the African élite, who by the time of independence had absorbed French culture, French values, French education and French tastes to the point where indigenous traditions were treated by them with scorn (Davidson, 1992).

From the early 20th century the French authorities discriminated between the local Africans and their colonial masters. While the latter were ruled by French law, the former were subject to the*'indigenat'*. This legally constituted process of discrimination assigned an inferior legal status to the local people and allowed the French administrators considerable latitude to administer justice as severely as they saw fit.

However, the small frenchified indigenous élite whose members were considered to be*'evolués'* and were thus accorded the status of citizens, were notably exempt from this discrimination. This created a local 'elite attuned to the French presence and subservient to its interests' (Barnes, 1992). The process of cooptation of the indigenous leadership extended right down to the community level, as the civilian administration imposed a hierarchy of *'chefs du canton'* and *'chefs du village'* chosen to act as intermediaries between the villagers and the administration.

It is a structure and a practice which persists to this day. Leaders, chiefs and favoured ethnic groups continue to feel that they owe their primary allegiance to the urban élites and to the administration and not the villagers or the remoter, more traditional rural communities.

The close convergence of interests between the post-independence bureaucracies, the ruling indigenous élites and foreign capital opened a deepening gulf between the rulers and the ruled. The result was that though 'development' was certainly promoted, it was of a kind that bypassed the rural poor. Prestige projects in construction, mining, railways, oil, forestry and agribusiness served the interests of the urban elite and foreign companies, perpetuating the enclave economics of the colonial era. The countries' forest heritage continued to be exploited by foreign companies, national politicians and government officials for personal gain at the expense of the local people and the nation as a whole, and their chance of sustainable development.

Social impacts and land rights

The social impact of logging on local people has been little studied in Africa resulting in the myth that local people far from objecting to logging, actually welcome it for the roads, schools and clinics and jobs that it brings. It might be fairer to say, however, that local people, denied for over a century either a say in how their forests should be 'developed' or any alternative livelihood, have learned to make the most of logging. A deep seated resentment of logging as an intrusion of their land rights is widely noted (Witte, 1993; Doumenge, 1992). Typically logging is a boom and bust phenomenon, bringing rapid social change, jobs and cash, and then moving on. Schools, clinics and roads - if they were ever provided - are not maintained and soon fall into disrepair. New expectations and new needs created by the ephemeral cash incomes in the logging camps cannot be satisfied on a sustainable basis once the

logging ends. This contributes to the instability of the population, as particularly the younger elements leave for the towns or other enclaves.

Although conditions in the logging camps have improved since the colonial era, they are still depressing. Diseases such as malaria, yaws, ulcers, tuberculosis and jiggers are common (Oubangui n.d.) particularly among 'Pygmies', who make up between 30 and 47% of the workforce in the logging camps on the Congo-CAR border, and who often are not given the same amenities as Bantu workers. 'Pygmies' in the new settlements that have sprung up in response to the logging and wage labouring have suffered a breakdown of their traditional social structures and a loss of forest dwelling skills (Sarno, 1993; Wilkie and Sidle, 1990).

Considering the tragic history of social disruption, exploitation and political marginalisation suffered by the indigenous peoples of Equatorial Africa, the endurance of their customary systems of land rights are testimony of their fundamental importance to these societies. Studies throughout the region agree that the local peoples, both Bantu and 'Pygmy', have clear concepts of land ownership and control (Hecketsweiler et al.,1991). Yet these customary rights were largely ignored by colonial authorities, are not secured through national laws, are increasingly threatened by top-down development and conservation projects and are being side-stepped by an emerging indigenous élite seeking individual title to extensive areas of land for speculation, agricultural estates and personal gain.

Prospects

Notwithstanding the colonial era's severe impacts on the peoples of Central Africa, the forests themselves have remained relatively intact compared with the rest of Africa. The exception is Cameroon where deforestation may be as much as 3% per year (Biodiversity Support Programme, 1993). Central Africa's great expanse of moist tropical forest is now attracting a different kind of interest, including that of international development agencies and organisations concerned with conservation and biodiversity, as well as extractive logging and mineral industries. The forest peoples' communities are increasingly affected by these initiatives, yet their ability to influence the decisions taken about their environment and livelihoods is still very limited due to their lack of information and lack of mechanisms to present their point of view. Whilst most of the international agencies have assessment procedures to evaluate social and environmental impacts of their lending, these measures are often inadequately applied in practice. For example, a coalition of Central African NGOs recently decried the inadequacy of consultation about the proposed route of the Exxon/ Shell/ELF/World Bank oil pipeline, which is to carry oil from Chad through the forests of Cameroon to the coastal port of Kribi (Horta, 1997, also see Horta in this issue).

The ability and willingness of state governments to control logging activities in the forests over which they claim authority is questionable. Leaked studies carried out for the World Bank in the Congo and published by the World Rainforest Movement (Colchester, 1994) show how foreign timber companies can evade national regulations and laws while ruling élites and their foreign backers become richer. Further problems are caused by the financial involvement of European political figures, for example, in Cameroonian logging companies (Verhagen and Enthoven, 1993).

Forest-dwelling communities are increasingly coming into conflict with logging companies. They are particularly vulnerable to the effects of commercial forest exploitation because their customary land rights and systems of land ownership and control continue to be disregarded by national authorities since practically all land outside urban centres is considered to be owned by the state. Customary rights are recognised to varying degrees in the different Central African countries, but are readily extinguished in the 'public interest' and logging concessions are granted without considering or consulting local populations. Local people want secure rights to their land. A World Bank forest management project in the CAR

found that local communities 'want the government to give them back the power to manage the forest as in traditional times, which would allow them to securely protect the forest' (PARNR, 1992). Most observers agree that to stabilise rural livelihoods, encourage investments in land and promote sustainable forest use, customary rights to land must be secured. New forest policies which reassert the rights of local communities to control over their customary lands are urgently needed. African governments have the task of find a way of legally securing communal tenure in a form acceptable to local communities, without favouring the interests of élites and outsiders.

Increasingly, pygmies are engaging in seasonal employment for logging operations. © M. Marzot, 1995.

The undertaking by the Cameroon government (under pressure from the World Bank as part of the 1994 reform of Cameroon forest policy) to designate community forests of up to 5,000 ha each could provide an opportunity for forest communities to assert control over local resource use. However, this initiative appears to be fraught with problems, not least the prohibition of community forests in protected areas and areas covered by large logging concessions, with the result that community forests are competing against licences for short-term, small-scale logging issued by local élites. In addition, the fact that the government retains title to the land and leases it to the communities for a maximum period of 15 years hardly provides an incentive for communities to invest in long-term sustainable use. So far, the Cameroon Government has not approved any applications to establish a community forest (Counsell, 1996).

The World Bank is moving increasingly towards compacts with the private sector to deliver the reforms it is seeking, rather than pressing governments to improve their regulatory frameworks and institutional capacity. For example, third party certification of timber is being promoted as a means of regulating the European logging consortia active in the Central African forests. At present, the only agency with a fully operational scheme for the certification and labelling of timber is the Forest Stewardship Council (FSC). The FSC principles for good forest management do require forestry operations to recognise legal and customary land rights, and to engage in full consultation with 'stakeholders'. It remains to be seen whether the FSC has the 'teeth' to insist on full compliance with these principles in the Central African situation.

In the process of 'nation building', Central African states have chosen to ignore, discourage or suppress, recognition of ethnic differences and the collective rights of the different peoples within the state boundaries. This has contributed to a very fragile form of participation in which decisions are largely made in the cities, far from the forests and the people who live there. Meanwhile, elsewhere in the tropics, over the last three decades a powerful grass roots movement of increasingly organised indigenous peoples has developed, and has been a major force in the development of international laws recognising indigenous rights to self-determination, representation through their own institutions and control over their lands and resources. The creation in 1992 of the International Alliance of Indigenous-Tribal Peoples of the Tropical Forests' has brought forest peoples into the indigenous peoples movement in a programme which aims to secure respect for indigenous and tribal forest dwelling peoples rights, territories, institutions and processes and to promote an indigenous/tribal model of socially and environmentally sensitive development and conservation in tropical forest regions (International Alliance, 1992). Both Bantu and hunter-gatherer peoples of the Central African forests are beginning to engage with this rights-based approach to environment and development process. This, perhaps, is where their best hopes for the future lie.

References

Austen, Ralph A. and Rita Headrick, 1983. **Equatorial Africa under colonial rule.** In: David Birmingham and Phyllis M. Martin (eds.) History of Central Africa Volume 2. Longman, London: 27-94.

Barnes, James F., 1992. **Gabon: beyond the colonial legacy.** Westview Press. Inc, Boulder.

Beauclerk, John, 1993. **Hunters and Gatherers in Central Africa: on the margins of development.** Oxfam Research Paper # 6, Oxford.

Biodiversity Support Programme, 1993. **Central Africa: Global Climate Change and Development.** Technical Report. Biodiversity Support Programme, Washington, USA.

Colchester, M., 1994. **Slave and Enclave: The Political Ecology of Equatorial Africa.** World Rainforest Movement, Penang.

Counsell, S., 1996. **Visit to Cameroon, Congo and Gabon, October 23rd - November 20th 1996.** Unpublished report. Rainforest Foundation, London.

Davidson, Basil, 1992. **The Black Man's Burden: Africa and the Curse of the Nation-State.** Times Books, New York.

Doumenge, Charles (ed.), 1992. **La Reserve Conkouati, Congo: Le Secteur Sud-Ouest (Permis Kayes'A').** IUCN, Gland.

Dyson, Mary, 1992. **Concern for Africa's forest peoples: a touchstone of a sustainable development policy.** In: Kevin Cleaver, Mohan Munasinghe, Mary Dyson, Nicolas Egli, Axel Peuker, Francois Wencelius (eds.) Conservation of West and Central African Rainforests. World Bank, Washington DC:212-221.

Harms, Robert, 1981. **River of Wealth, River of Sorrow: the Central Zaire Basin in the Era of the Slave and Ivory Trade, 1500-1891.** Yale University Press, New Haven and London.

Hecketsweiler, P., C. Doumenge and J. Mokoko Ikonga, 1991. **Le Parc National d'Odzala, Congo.** IUCN, Gland.

Horta, Korinna, 1997. **Questions concerning the World Bank and Chad/Cameroon Oil and Pipeline Project.** Environmental Defense Fund, New York.

International Alliance of Indigenous-Tribal Peoples of the Tropical Forests, 1992. **Charter of the Indigenous-Tribal Peoples of the Tropical Forests.** Penang, 15 February 1992.

Lewis, Jerome and Judy Knight, 1995. **The Twa of Rwanda. Assessment of the Situation of the Twa and Promotion of Twa Rights in Post-War Rwanda.** World Rainforest Movement and International Work Group for Indigenous Affairs.

Oslisly, Richard and Bernard Peyrot, 1987. **L'Art Prehistorique Gabonais.** Rotary Club, Libreville.

Oubangui, Joseph, undated. **Pygmees et Chantiers Forestiers de la Sangha.** MS. (WCI files).

PARNR, 1992. **Compte Rendu: stages de formation/selection des animateurs.** July 1992. Poulin Theviault Inc. Project d'Amenagement des Resources Naturelles Renouvables. MS.

Pourtier, Roland, 1989. **Le Gabon: Etat et Developpement.** L'Harmattan, Paris.

Sarno, Louis, 1993. **Song from the Forest: my life among the Ba-Benjelle Pygmies.** Bantam Press, London.

Vansina, Jan,1990. **Paths in the Rainforests: Toward a History of Political Tradition in Equatorial Africa.** James Currey, London.

Verhagen, H. and Chris Enthoven, 1993. **Logging and Conflicts in the Rainforests of Cameroon.** Friends of the Earth Netherlands and Netherlands Committee for IUCN.

Wilkie David S. and John G. Sidle, 1990. **Social and Environmental Assessment of the Timber Production Capacity Extension Project SFAC.** US Department of Agriculture, Washington DC.

Witte, John, 1993. **Zaire: Landlessness and Deforestation.** In: Marcus Colchester and Larry Lohman (eds.) The Struggle for Land and the Fate of the Forests. Zed Books, London.

The Flora of the Congo Basin

R.H.M.J. Lemmens[1] & M.S.M. Sosef[1]

Keywords

Congo Basin; plant diversity; hotspots; endemism; botanical exploration; herbaria; floras.

Summary

The Congo Basin is the richest area in tropical Africa concerning species diversity and endemism. This is mainly due to the large area of rain forest. Several sub-areas with a markedly high species diversity have been distinguished. Botanically speaking the region is poorly explored and consequently still poorly known. The local facilities for botanical research and herbarium collections are still very limited.

Introduction

In general, the tropical African flora with approximately 30,000 plant species is rather poor in comparison with the relevant parts of the other continents. Several plant families are abundant in other tropical regions but quite absent in Africa, notably *Magnoliaceae*, *Fagaceae* and *Symplocaceae*, whereas other families are much more poorly represented in Africa than elsewhere, e.g. *Theaceae*, *Myrtaceae*, *Melastomataceae*, *Araliaceae*, *Monimiaceae*, *Lauraceae* and *Palmae* (Brenan, 1978). However, several pantropical plant families are most diverse in tropical Africa; examples include *Dichapetalaceae* and *Connaraceae*.

[1] Herbarium Vadense, Department of Plant Taxonomy, Wageningen Agricultural University, Wageningen, The Netherlands, Phone: +317-484390, Email: Roel.lemmens@algem.pt.wau.nl or Marc.Sosef@prosea.pt.wau.nl

Besides the relative poverty of the African flora compared with those of other tropical regions and the poverty or absence of certain plant groups, Richards (1973) considered another phytogeographical characteristic as significant for Africa: the wide areas of distribution of numerous African species. Drastic climatic changes in the past might well explain these events; the more vulnerable species could not survive the periods of relative drought and cold. Furthermore, it is interesting to note that African forests appear to be exceptionally rich in lianas.

On the UNESCO/AETFAT (Association por l'Étude Taxonomique de la Flore d'Afrique Tropicale) vegetation map of Africa, based on White's (1976, 1979) phytogeographical regions, the Congo Basin belongs to the Guineo-Congolian Region, which covers the original forest zone from Guinea to the eastern Democratic Republic of Congo (formerly Zaire). Within the Guineo-Congolian Region, White distinguished three blocks: Upper Guinea (from Guinea to Ghana), Lower Guinea (Nigeria, Cameroon, Gabon and Congo-Brazzaville, and Congolia (Democratic Republic of Congo)). Whereas Upper Guinea and Lower Guinea are clearly separated botanically by the so-called Dahomey interval (Togo and Benin), the demarcation between Lower Guinea and Congolia, defined by White as the Sangha River interval, is much less clear and even questioned by some authors (e.g. Breteler, 1984) who doubt whether the two regions can be considered as separate entities within the Guineo-Congolian Region.

The Guineo-Congolian Region is considered a major center of specific endemism, and the Lower Guinea block is richest both in specific diversity and endemism. Brenan (1978) estimated that the number of higher plant species for Cameroon amounts to 6,500. However, for various groups of plants, Gabon is the richest country in Lower Guinea (e.g. 60% of the African taxa of *Dichapetalaceae* occur there, and almost 70% of *Connaraceae*). The number of higher plant species in Gabon might well amount to 6,000 (Breteler, 1990). Reliable estimates for Equatorial Guinea

and Congo-Brazzaville are not available. The estimated number of higher plant species for the Democratic Republic of Congo lies around 10,000.

Centers of plant diversity

In the Cameroon/Gabon area, several sub-areas with a markedly higher species diversity have been denoted. From north to south these comprise: the western Cameroon mountains, the western part of the South Cameroon Plateau, the Crystal Mountains (Gabon), the Chaillu Massif (Gabon), the Doudou Mountains (Gabon), and the Mayombe area, situated in both Congo's (Sosef, 1994). They are centers of biodiversity of rain forest organisms, as well as centers of endemism, and consequently prime areas for nature conservation. It is striking that most of these biodiversity 'hotspots' are located in hilly regions.

These subareas are considered to represent rain forest refuge areas. In tropical Africa the climate was cooler and drier during the last glacial, the maximum of which lies around 18,000 years BC, and this led to isolated patches of lowland rain forest: the refuges. Several studies (not only botanical but also zoological, palynological and pedological) have pointed to the presence of rain forest refuge areas in Cameroon, Equatorial Guinea, Gabon and Congo-Brazzaville, and also in the most eastern part of the Democratic Republic of Congo (Maley, 1996). Some forest might have prevailed along rivers, where conditions were slightly more favorable. When the climate became more favorable for the rain forest again, the forest area expanded again. This is regarded as the reason for the high biodiversity along the western and eastern border of the Congo Basin (the former refuge areas) and the lower biodiversity in the center.

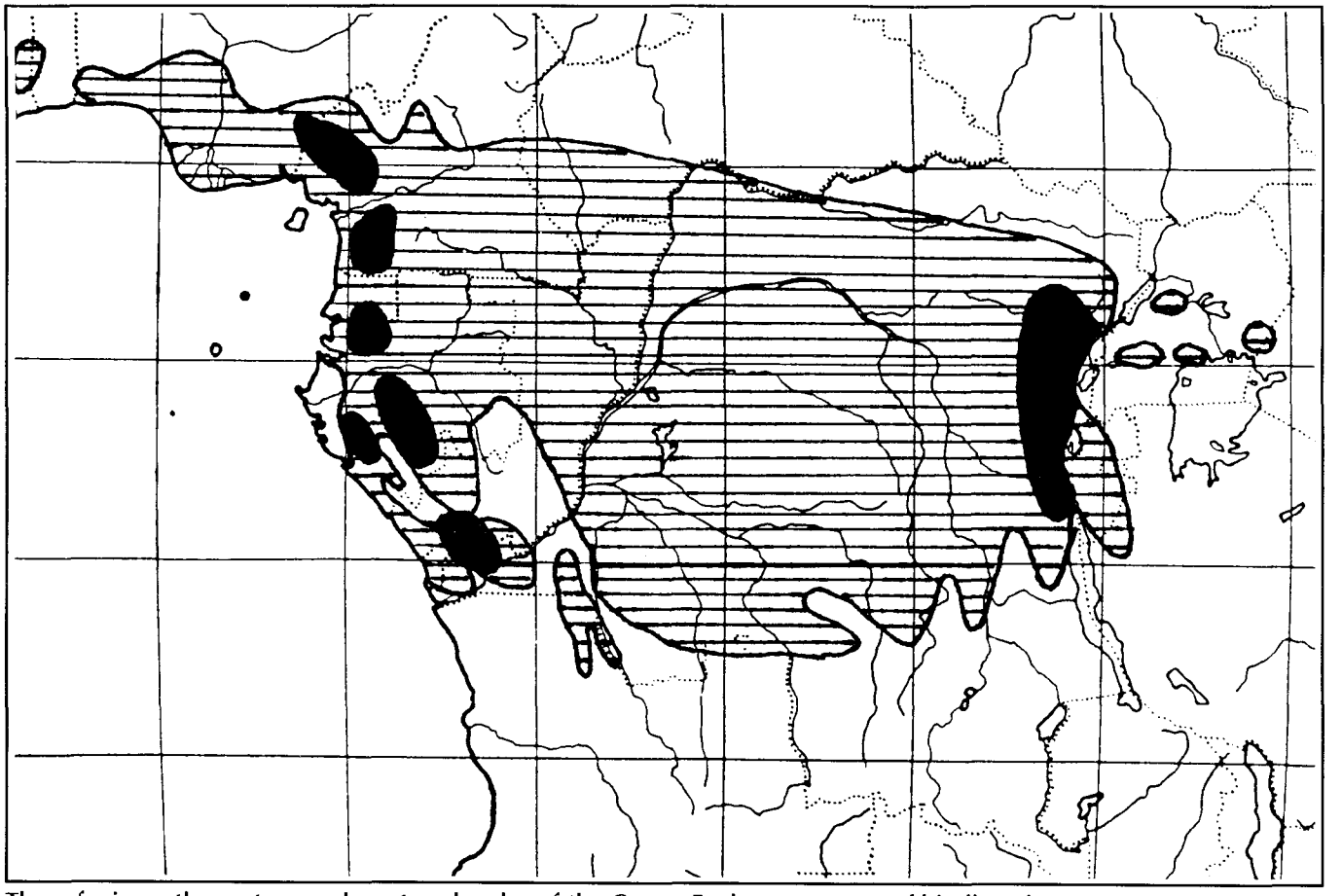
Recently, sites have been chosen for the 'Centers of Plant Diversity' project of the IUCN (Beentje, 1996). In Cameroon these are the Korup National Park, Mount Cameroon and the Dja River forests, in Gabon the Crystal Mountains, in the Democratic Republic of Congo Maika National Park and Salonga National Park, and Mayombe in both Congo's. Many of these sites are situated within the supposed rain forest refuge areas, which is logical as they are chosen mainly on the basis of their plant diversity and high proportion of endemic species. A site like Mount Cameroon which is situated outside the supposed glacial refuge areas is selected because of its exceptionally high number of endemic montane species, although Sosef (1996) argues it may well represent a refuge area as well.

The occurrence of so-called 'inselbergs' in the Congo Basin is interesting from the view point of plant diversity. These are isolated rock outcrops of considerable geological and geomorphological age, occurring throughout the tropics. Microclimatically and edaphically they can be considered as arid islands even in perhumid (permanently humid) climates. Thus they bear a flora differing almost completely from the surrounding vegetation. Succulents and grass-like species are amongst the characteristic elements.

Botanical exploration

At least from a botanical point of view, most countries of the Congo Basin are rather poorly explored. The number of specimens collected in Gabon is estimated at 60,000 (Breteler in Breteler & Sosef, 1996). About one third of this is being collected by staff and students of the Herbarium Vadense (Wageningen), which is a very modest amount for a country covering over 250,000 km^2. When a tropical region has a density of 2 specimens per km^2 it is regarded as being 'well known'. About half of the surface of Gabon has a collecting density of less than 1 specimen per 30 km^2 and quite some surface of this has never been explored at all.

Equatorial Guinea is botanically a very interesting country that has not yet received the critical botanical study that it merits, and also Congo-Brazzaville is comparatively poorly known but seems highly interesting. Breteler (in Breteler & Sosef, 1996) rated the state of exploration of Gabon, Equatorial Guinea and Congo-Brazzaville as highly insufficient to insufficient, whereas Cameroon, the Central African Republic and the Democratic Republic of Congo were rated as 'moderate'.



The refugia on the eastern and western border of the Congo Basin are centers of biodiversity.

Several inventory projects have been approved in the past few years concerning Cameroon and Gabon by e.g. the World Bank, WWF, the Dutch Government and the European Union, but a large-scale project for the whole area is still lacking.

Herbaria and current floras

Virtually all information regarding the distinction between species and species distributions is based on the botanical collections conserved in herbaria. Such information is vital for issues related to nature conservation and the sustainable management of the vegetation. Many countries in the Congo Basin do not dispose of a good reference collection. The most important herbaria are situated in Yaoundé (Cameroon), Libreville (Gabon), Brazzaville (Congo), and Lubumbashi and Yangambi (Democratic Republic of Congo). These herbaria are small, and the latter three may be severely damaged during recent political disturbances.

The knowledge, as far as it exists, is stored in the herbaria abroad, mainly in Europe. Most important concerning the

collections of plants from the Congo Basin are the herbaria of Meise, Belgium (particularly for the Democratic Republic of Congo), Paris, France (particularly for Cameroon, Gabon and the Central African Republic), Kew, United Kingdom (particularly for Cameroon) and Wageningen, the Netherlands (particularly for Cameroon and Gabon).

Several floras of the region are in preparation, but most of these have been completed for only 30-40%. The flora of Cameroon was originally managed in Paris but now in Yaounde, the flora of Gabon in Paris, and the flora of Central Africa (Democratic Republic of Congo, Rwanda and Burundi) in Meise (Belgium).
Only these incomplete floras, which are prepared more or less independently, are available for the Congo Basin, whereas for West Africa a flora already exists (although already slightly outdated) and for East Africa it is in an advanced stage of preparation.

In conclusion, a flora project covering the whole Congo Basin would be very desirable. The various floras of the countries in the region could then be attuned to each other and the flora resulting from the project could serve as a sound base for biodiversity studies. Such a project could be linked with a compilation project concerning the useful plants of the region, comparable with the flora of West Africa together with Burkill's useful plants of tropical West Africa and the Flora Malesiana and the PROSEA (Plant Resources of South-East Asia) program.

References

Beentje, H.J., 1996. **Centers of plant diversity in Africa.** In: van der Maesen, L.J.G. et al. (Editors): The biodiversity of African plants. Proceedings XIVth AETFAT Congress. Kluwer Academic Publishers, Dordrecht / Boston / London. pp. 101-109.

Brenan, J.P.M., 1978. **Some aspects of the phytogeography of tropical Africa.** Annals of the Missouri Botanical Garden 65: 437-478.

Breteler, F.J., 1984. **Geography of African Dichapetalaceae with special reference to White's phytochoria.** Garcia de Orta, Ser. Bot., Lisboa, 6(1--2): 111-118.

Breteler, F.J., 1990. **Gabon's evergreen forest: the present status and its future.** Proceedings of the twelfth plenary meeting of AETFAT. Mitt. Inst. Allg. Bot. Hamburg 23a: 219-224.

Breteler, F.J. & Sosef, M.S.M. (Editors), 1996. **Herbarium Vadense 1896-1996.** Wageningen Agricultural University Papers 96-2. 136 pp.

Maley, J., 1996. **Le cadre paleoenvironnemental des refuges forestiers africains: quelques donnees et hypotheses.** In: van der Maesen, L.J.G. et al. (Editors): The biodiversity of African plants. Proceedings XIVth AETFAT Congress. Kluwer Academic Publishers, Dordrecht / Boston / London. pp. 519-535.

Richards, P.W., 1973. **Africa, the "odd man out".** In: Meggers, B., Ayensu, E. & Duckworth, W. (Editors): Tropical Forest Ecosystems in Africa and South America: A comparative review. Smithsonian Institution Press, Washington DC., United States. pp. 21-26.

Sosef, M.S.M., 1994. **Refuge begonias. Taxonomy, phylogeny and historical biogeography of Begonia sect. Loasibegonia and sect. Scutobegonia in relation to glacial rain forest refuges in Africa.** Wageningen Agric. Univ. Papers 94-1: 1-306.

Sosef, M.S.M., 1996. **Begonias and African rain forest refuges: general aspects and recent progress.** In: van der Maesen, L.J.G. et al. (Editors): The biodiversity of African plants. Proceedings XIVth AETFAT Congress. Kluwer Academic Publishers, Dordrecht / Boston / London. pp. 602-611.

White, F., 1976. **The vegetation map of Africa - The history of a completed project.** Boissiera 24: 659-666.

White, F., 1979. **The Guineo-Congolian Region and its relationships to other phytochoria.** Bulletin du Jardin Botanique National de Belgique 49: 11-55.

Fruits of Cnestis mannii (Baker) Schellenb., a liana found in Nigeria, Cameroon, Gabon and northern Angola.

© J.C. Arends.

The liana Cnestis uncata Lemmens is endemic for Gabon.

© L.J.G. van der Maesen.

Forest Peoples in the Central African Rain Forest: Focus on the Pygmies

Adapted by S.A. Dembner[1,2]

Keywords

Central Africa; pygmies; sustainable use; biological diversity; tropical forests; human influences.

Abstract

This article describes the life of the central African pygmy people and highlights their relationship with neighbouring farmers as being valuable for the economic, social and sustainable use of the rain forests. It points out that the nomadic lifestyle of the indigenous peoples is potentially compatible with the sustainable exploitation of the forest, often more so than are "sedentarization" programmes. The authors affirm that biological diversity exists in central Africa because of human habitation and that excluding human beings from large areas of forest will not conserve the present biological diversity.

Introduction

Approximately 200 million ha of forest lie within the boundaries of six central African countries (Cameroon, the Central African Republic, the Congo, Equatorial Guinea, Gabon, Rwanda and Zaire). This area of forest represents 20 percent of the world's tropical moist forest, second in size only to Amazonia, and contains a wide diversity of flora, fauna and human cultures. The most prominent geomorphological feature of the central African rain forest is the Zaire River basin, which forms a vast depression in the centre of the African continent. The lower and central part of this river basin, which varies from 200 to 500 m above sea level, contains vast areas of forest that are seasonally or permanently inundated. On its eastern lip, the basin is rimmed by a chain of volcanic mountains that mark the Western Rift Valley with its highly fertile soils on which depend some of the highest population densities in Africa. Moving northwards and southwards from the central basin, the forest gradually gives way to gallery forests interspersed with savannah and then, finally, savannah alone. These areas around the lip of the basin at the forest-savannah ecotone have richer soils and experience greater rainfall seasonality. They also have higher population densities and are the source of most immigration into the forest.

Compared with other areas south of the Sahara, population densities in central African countries are low. In Gabon and the Congo, for example, there are fewer than six inhabitants per square kilometre, and in Equatorial Guinea and Zaire fewer than 20 inhabitants per square kilometre. Moreover, the populations are unevenly distributed - more than 30 percent of the people are concentrated in urban areas. In Zaire, which contains 100 million ha of closed forest, or about one-half of Africa's total rain forest, approximately 40 percent of the population is urbanized. Despite the fact that the region is sparsely populated, more people live in and rely on the forests of central Africa than in any other tropical forest area in the world.

African pygmies

Genetically, there is no evidence that pygmies are distinct from other Africans; there is no "pygmy marker" that is common to all pygmies and exclusive of all other Africans (Cavalli-Sforza, 1986). Similarly, linguistically and culturally, pygmies cannot be considered distinctive

[1] The material for this article is drawn from two papers by R.C. Bailey, S. Bahuchet, B. Hewlett and M. Dyson, published in K. Cleaver, M. Munasinghe, M. Dyson, N. Egli, A. Peuker and F. Wencélius, eds. 1992. Conservation of West and central African rainforests. Washington, DC, World Bank.

[2] The article was previously published in Unasylva 186, Vol. 47, 1996.

from other central Africans; there is no distinctive "pygmy language family", and pygmies across central Africa exhibit a broad range of cultural adaptations, many similar to those of Bantu- and Sudanic-speaking African farmers.

Pygmies are distributed discontinuously across nine different African countries - Rwanda, Burundi, Uganda, Zaire, the Central African Republic, Cameroon, Equatorial Guinea, Gabon and the Congo - and live in innumerable distinct ethnic groups that are separated by geography, language, customs and technology. The one characteristic that is common to them all, regardless of their location or degree of acculturation, is their disdain for the term "pygmy". Without exception, they prefer to be called by their appropriate ethnic name, such as Mbuti, Efe, Aka, Asua, and consider the term "pygmy" as pejorative.

None the less, this article refers as "pygmies" to those peoples distributed across the forested regions of central Africa who are particularly short in stature and who have traditionally lived by specializing in hunting and gathering wild forest resources, which they consume themselves or trade to neighbouring Bantu- and Sudanic-speaking farmers in exchange for cultivated foods.

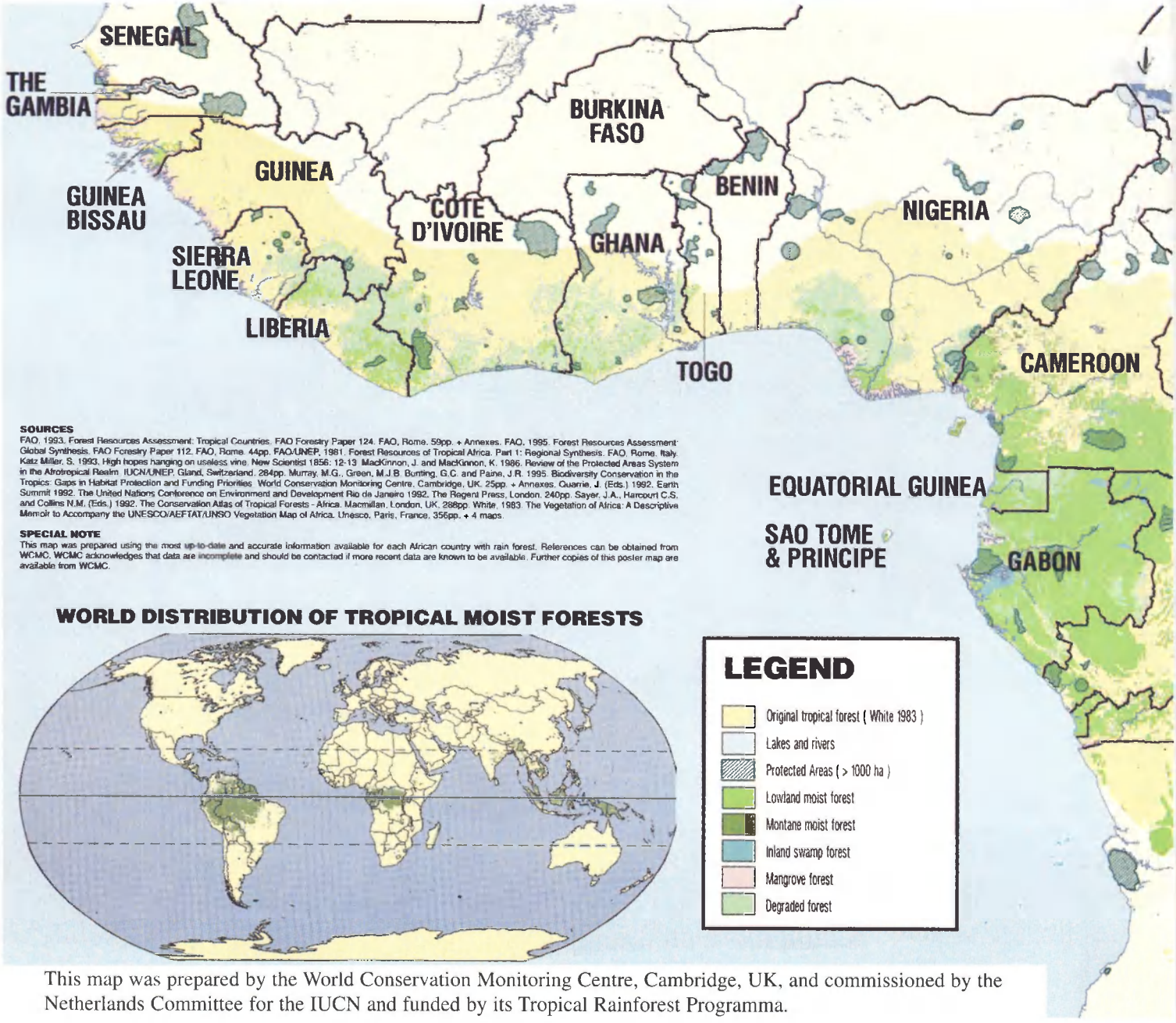
Contrary to many romanticized accounts of pygmy life, there are no people living today in central Africa independently of agriculture as pure hunter-gatherers, and all evidence suggests that this has been true for many hundreds of years (Bahuchet and Guillaume, 1982) - if indeed pygmies ever lived in the forest without access to agricultural foods (Bailey and Peacock, 1988; Bailey et al., 1989).

Nowadays, most pygmies are what we call specialized hunter-gatherers. They specialize in extracting resources from the forest and thus are nomadic in habit. They consume some of those resources themselves and they trade some with neighbouring farmers to acquire cultivated foods, iron implements and other material items. Wherever pygmies have been carefully studied, including the most remote corners of their geographic distribution, researchers have found them relying on cultivated foods for at least 50 percent of their diet (Bahuchet, 1985; Bailey and Peacock, 1988). Moreover, pygmies everywhere have extensive relations with neighbouring Bantu- and Sudanic-speaking farmers that extend beyond economic trade to include all aspects of political, religious and social life. Indeed, it is not possible to consider pygmy culture and subsistence in isolation from the African farmers with whom they trade and live.

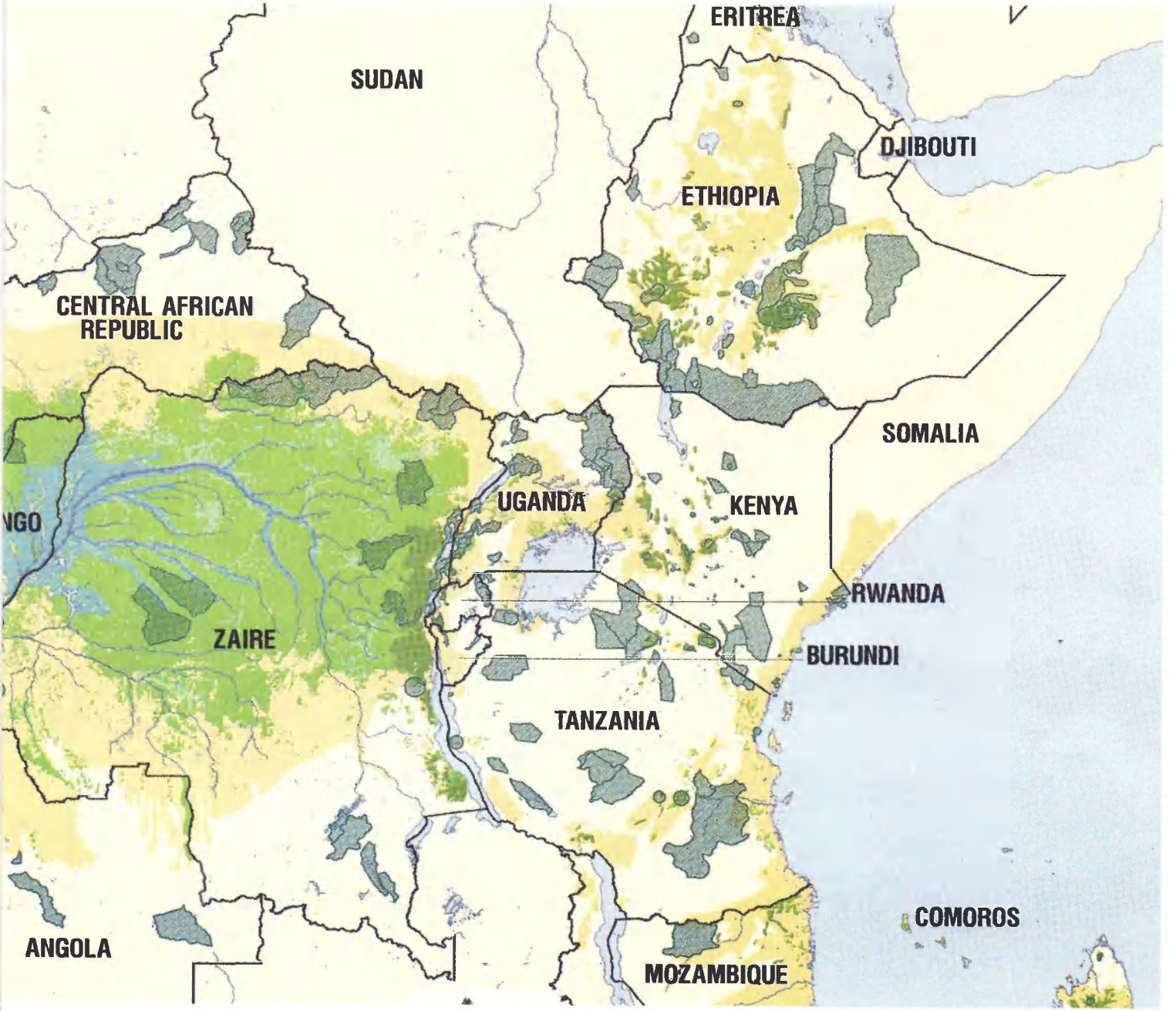
In many areas of central Africa, specific pygmy clans have traditional relationships with specific groups of farmers which are passed from one generation to the next, creating a complex web of economic and social exchange that leads to high levels of cooperation and support. Pygmies provide forest products - protein-rich meat, in particular - to farmers, while the farmers provide much-needed starch to pygmy foragers. The meat, honey and medicinal products from the forest are significant contributions to the farmers' survival, while pygmies would be hard-pressed to do without the iron implements and the political representation provided by the farmers. In most areas, pygmies are viewed by farmers as essential to successful ceremonies, while the farmers can have considerable control over many crucial pygmy events, including marriage, circumcision and burial. Relationships between pygmies and farmers are so extensive that elaborate fictive systems tie the two groups together in a web of kinship that ensures social and economic interdependency.

Close relationships between pygmies and farmers extend to their perception of rights to land. Each farmer clan has rights which are recognized by all neighbouring farmer clans to a specific area of forest, which they may clear for crop cultivation or where they may hunt, fish, gather and extract the materials required. The clan of pygmies traditionally associated with that same farmer clan also has recognized rights to exploit the same area of forest. The farmers assist their pygmy partners in maintaining exclusive rights to this area, and violations by either pygmies or other farmers are contested through negotiation, or sometimes violence. In this way, most, if not all, areas of forest in

The Congo Basin



This map was prepared by the World Conservation Monitoring Centre, Cambridge, UK, and commissioned by the Netherlands Committee for the IUCN and funded by its Tropical Rainforest Programma.


ERITREA
SUDAN
DJIBOUTI
ETHIOPIA
CENTRAL AFRICAN
REPUBLIC
SOMALIA
UGANDA
KENYA
NGO
RWANDA
ZAIRE
BURUNDI
TANZANIA
COMOROS
ANGOLA
MOZAMBIQUE

central Africa are claimed by indigenous people and elaborate informal mechanisms exist to guarantee specific land rights.

It should be clear that, for the purposes of designing programmes for development or conservation, pygmies cannot be considered in isolation from forest farmers. Central African farmers and pygmies exist together, are interdependent and should be considered as an integrated economic and social system.

Patterns of adaptation, acculturation and development

While most pygmies in central Africa still live within the traditional farmer-pygmy relationship, most also engage in activities outside that relationship and, like their farming partners, have managed to adapt in myriad ways to changes caused by development and commercialization. This is true not just in individual localities where development has been more extensive, but in every area of central Africa. Any one population of pygmies spans the full range of acculturation and adaptation to changing conditions.

Commercial hunting

Because of the growing populations around the edges of the Zaire River basin, there is a growing demand for meat from the forest. Increasingly, pygmies are becoming commercial hunters, spending a greater proportion of their time hunting forest game and selling larger quantities of meat to traders who travel great distances from towns and cities located at the edge of the forest. These traders bypass the traditional farmer-pygmy relationship and pay cash or trade starch for meat to induce pygmies to intensify their hunting. The effect is to break down the traditional farmer-pygmy relationship, to bring pygmies into the money economy and, inevitably, to cause the depletion of wild game, thus endangering not only the forest fauna but also the subsistence base and basic way of life of the pygmies and their farmer partners (Bailey, 1982; Hart, 1979).

Employment

Many pygmies also work on a casual, sporadic basis for commercial coffee, rubber or palm plantations or for logging companies. They usually work seasonally – planting, weeding or harvesting on plantations or identifying trees and supplying other workers on logging operations with meat. Pygmies generally do not hold positions of authority or receive high salaries.

Farming and "sedentarization"

In recent years, and for various reasons, some pygmies have become sedentary, village-living farmers. In some regions, insufficient areas of forest remain to support the pygmies' specialized hunting and gathering life; in others, overhunting has depleted forest game. Moreover, in every region there have been periodic formal campaigns by national governments to force pygmies, or induce them with gifts, to settle in villages and become sedentary farmers.

Those who design and implement sedentarization programmes do not recognize the economic or social value of the traditional farmer-pygmy relationship, nor do they appreciate the contribution that forest nomads make to the national economy by efficiently exploiting forest resources on a sustainable basis. The pygmies themselves are seldom, if ever, consulted or given a decision-making role in the design and implementation of these programmes. Most sedentarization programmes have failed, as the pygmies return to the forest when the gifts run out or they abandon their gardens when the first good honey season begins.

There are pygmies who have voluntarily turned to farming and who live in villages along the roads. However, like traditional African farmers, they spend at least some time in the forest and depend on it for a significant supplement to their mixed farming subsistence. A few such sedentary farming pygmies, again like their farmer neighbours, grow some cash crops in addition to their subsistence crops.

However, cash cropping by pygmies is far from common in any region.

Conclusions and recommendations

A number of conclusions and recommendations can be drawn for those engaged in planning and administering development projects in central Africa, particularly those affecting areas inhabited by pygmy peoples.

Few, if any, unoccupied lands exist in central Africa. For the purposes of planning the development or protection of any area of land, it should be assumed a priori that any forest is occupied or claimed by some person, or some clan, lineage or group. Even if there are no overt signs of occupation (e.g. houses or garden sites), the land is most likely to be occupied intermittently and exploited by people whose lifestyles depend on frequent movement.

The present diverse composition and distribution of plants and animals in the rain forest is the result of the introduction of exotic species, the creation of new habitats and the manipulation by the forest-dwelling people for thousands of years. No areas are what most proposals and reports refer to as "pristine", "untouched", "primary" or "mature" forest. Present-day biological diversity exists in central Africa, not in spite of human habitation but because of it.

The land rights of all indigenous forest dwellers must be recognized. In most central African countries, all land legally belongs to the state; however, even the state must recognize traditional rights. Traditional rights need to be articulated by these people themselves as the first step towards securing them.

The value of a nomadic lifestyle should be recognized as a potentially effective strategy for exploiting the tropical rain forest in a sustainable way and as being vital to the economic, social and psychological well-being of forest-dwelling people. While mobility creates difficulties for governments and agencies to provide education, health and other services to tribal people, there are means of accommodating mobile lifestyles and ensuring that such people are not denied appropriate opportunities.

The protection of forest areas (reserves and parks) is not incompatible with the continued presence of forest-dwelling people. The creation of protected areas should not necessitate the removal and resettlement of forest dwellers, nor should it require severe restrictions on their rights to forest resources. Frequently, indigenous groups are permitted to remain in protected areas as long as they remain "traditional" - a term usually defined by policy-makers without consultation with, or extensive historical knowledge of, the people themselves. Such restrictions lead to "enforced primitivism". The management policy for reserves should be general enough and flexible enough to allow for variation in management styles across local groups and over time.

Planning the organization and management of biological reserves in central Africa will be most effective if it enlists the participation of indigenous people at levels below that of the regional government and even below that of tribal chief.

Pygmies should be assured equal rights as full citizens of the state and assured equal access to services offered to other citizens. As governments take action to rectify violations of such basic human rights, they must take care not to seek justification for resettlement, sedentarization or other mechanisms for forced acculturation.

For any development project, the relevant forest-dwelling people should be an integral and early part of the planning process. To increase forest people's input into development planning, local people's representatives (not necessarily "élite" members) should be asked to participate in the early stages of project planning, and planners and consultants who know either the local tribal language or the regional dialects should be sought.

A Pygmy honey tapper preparing to climb a tree using a liana as tree-climbing strap. © M. Marzot, 1995.

Honey in Congo is traditionally harvested from wild hives after the bees have been driven off with smoke. This technique decimates the bee colonies, reduces the nutritional properties of the honey and can result in bush fires. Therefore, with help of an FAO project, Congo tries to introduce modern bee keeping as well as improved honey conservation and processing.

The honey tapper, held up by the liana strap, cuts footholds into a tree. © M. Marzot, 1995.

In the forest areas of central Africa, tourism is only just beginning, but it is sure to grow with the creation of national parks and the growing popularity of eco-and ethnotourism in the developed countries. If forest dwellers are made part of the formation of tourism strategies (rather than manipulated by those seeking profits), tourism can enhance cultural awareness and the knowledge of ethnic history while avoiding the "people in a zoo" phenomenon. The participation of indigenous people will be crucial for maintaining the region's cultural and environmental integrity.

A pygmy village in Cameroon. © T. Janssen, 1995.

Bibliography

Bahuchet, S. & Guillaume, H. 1982. **Aka-farmer relations in the northwest Congo basin.** In E.P. Leacock & R.B. Lee, eds. Politics and history in band societies. Cambridge, UK, Cambridge University Press.

Bahuchet, S. 1985. **Les pygmées Aka et la forêt centrafricaine: ethnologie écologique.** Paris, Selaf.

Bailey, R.C. 1982. **Development in the Ituri Forest of Zaire.** Cultural Survival Quarterly, 6(2): 23-25.Bailey,

R.C. & Peacock, N. 1988. **Efe pygmies of northeast Zaire: subsistence strategies in the Ituri Forest.** In I. De Garine & G.A. Harrison, eds. Coping with uncertainty in food supply. Oxford, UK, Oxford University Press.

Bailey, R.C., Head, G., Jenike, M., Owen, B., Rechtman, R. & Zechenter, E. 1989. **Hunting and gathering in tropical rain forest: is it possible?** Amer. Anthropol., 91(1): 59-82.

Cavalli-Sforza, L.L. 1986. **African pygmies.** New York, Academic Press.

Hart, J.A. 1979. **Nomadic hunters and village cultivators: a study of subsistence interdependence in the Ituri Forest, Zaire.** Ann Arbor, Michigan, USA, University Microfilms.

World Bank. 1991. **Community involvement and the role of non-governmental organizations in environmental reviews.** Environmental assessment sourcebook. Vol. 1. Washington, DC.

(Non-) Human Primates in the Congo Basin

- In the face of unprecedented forest clearance, the management of tropical biodiversity for the benefit of both human and non-human primates presents an urgent and fascinating challenge involving partnership between scientists, policy makers and local peoples. -

Ignaas Spruit[1] & Simon K. Bearder[2]

Keywords

primates; species; biodiversity; management; indigenous knowledge; ethics.

Abstract

A considerable number of primate species has been discovered in the last ten years and it is likely that many more remain to be described. The Congo Basin stands out as the most important area for primate diversity in the World, including half of the countries in the top ten list. Despite this invaluable wealth of species, action plans have not always resulted in progress, for example because of political instability and lack of teamwork.

Primates can be used as flagship species to highlight the plight of tropical habitats where, in contrast to temperate areas, the mass of biological material necessary to support life is bound up in the plants and animals rather than in the soil. Urgent changes at a global level will be required to prevent further erosion of this irreplaceable resource. The involvement of local people is also essential. Their knowledge is often underestimated and can be instrumental for effective management, good science and sound policy.

[1] Stichting Pro Primates, Morsstraat 53, 2312 BL Leiden, Tel. (0)71-5149894, Fax (0)71-5126031, Email: primates@stad.dsl.nl

[2] Oxford Brookes University, UK, Email: skbearder@brookes.ac.uk

Introduction

When we look at the list of top twelve countries in terms of primate species diversity, seven of them are in the Congo Basin. This indicates the importance of this part of the world for primatology and the related disciplines of evolutionary biology and anthropology. In 1985, when this list was first published, the total number of primate species was thought to be around 200 (see table 1). In 1997, most primatologists accept that there are around 250 species, and several specialists argue that the true number is closer to 300 in view of the rate at which new species are being discovered and old ones redefined.

This is surprising since monkeys and apes are among the most abundant and conspicuous animals in tropical forests and their evolutionary relationship to humans means that they have attracted special interest from all kinds of scientists. Here we explore the how's, why's and where's of this new development and show how it affects our understanding of biodiversity management problems - and solutions.

Species definitions

One reason for the discovery of new primate species lies in the way that species are defined. The definition that most people learned at school was: 'a group of animals that can interbreed to produce fertile offspring'. However, in practice this causes great difficulty, since it is usually very hard to know whether different individuals that are studied in a museum or in the wild are capable of interbreeding! In the early days of primatology most species were discriminated and described on the basis of similarities in appearance, such as the color of their fur and structure of their bones. As more detailed comparisons became

available, including a combination of structure, behavior, chromosomes and biochemistry, it became clear that a number of different species had been lumped together due to similarities that were only skin deep.
In other words, as the techniques for studying biological differences become more refined, so the number of species recognized increased. The four examples may illustrate this.

- Until recently the douroucouli or night monkey (*Aotus trivirgatus*) from South America was thought to be a single species. Now there are ten different species recognized (known as cryptic species). One study at Rotterdam Zoo showed that douroucoulis that had been kept together without producing fertile offspring were genetically different, even though they looked almost identical. Exchanges between zoos to bring together animals with the same genetic structure soon led to fertile infants.

- In some cases different species are capable of interbreeding and produce offspring which are known as hybrids. It is true that hybrids are usually infertile but this is not always the case. It is known that there are groups of gibbon hybrids living in Asia where the mother and father have

Zanzibar Red Colobus. © T. T. Struhsaker. Source Oates, 1996.

different numbers of chromosomes but, nevertheless, the offspring is still fertile. Similar cases are known in zoos (for example, between rhesus and Java macaques) and among forest monkeys in the Central African Republic. There are even reports of a hybrid between a gorilla and a chimpanzee in the Congo Basin.

- Since the 1970's, six different classifications of red colobus monkeys have been published, with up to 14 species and around 20 subspecies recognized, but with continuing debate on the issue of "good" species and the possibility of hybrids. Until now it has not been possible to breed these monkeys in captivity, or to run genetic tests, and it is difficult to judge the evidence from skins and bones.

Table 1: The top countries in the world for primate diversity.

Country	No. of species	No. of genera
Brazil	51	16
Congo-Kinshasa	29-32	13-15
Cameroon	28-29	14
Madagascar	28	13
Peru	27	12
Colombia	27	12
Indonesia	27-30	8
Nigeria	23	13
Congo-Brazzaville	22	14
Equatorial Guinea	21-22	12
Central African Republic	19-20	11-12
Gabon	19	11
Uganda	19	11
Bolivia	17-18	11-12
Angola	18-19	10-11

(Adapted from Primate Conservation 5, p. 42, 1985)

- One major group of primates, the prosimians, are specialized for a nocturnal way of life. The number of species recognized has risen dramatically in recent years. For example, among galagos (bushbabies), the number has risen from 6 species in the 1970's to at least 17 in 1997. Similar-looking species have been separated for the first time by comparing a combination of characteristics which suggest that they are, because of e.g. differences in their calls, reproductive organs, facial markings, chromosomes and DNA structure, unable to interbreed.

Are species being invented?

Scientists working on a particular group of animals could be accused of creating new species to suit their own purposes. Such scientific colonialism is not unknown from the past, and the discovery of 'new' species may bring several benefits. In practice, however, it is much more difficult to convince a modern scientific community about the validity of a species than it was in the past.

Failure to interbreed in captivity, correlated with chromosome differences (as in case 1 above), provides a good test but this is usually hard to achieve. A useful alternative has been to show whether or not the females are sexually attracted to the males, and vice versa. In nocturnal galagos (case 4), the males and females use distinctive calls to attract each other and these vary considerably between species, along with differences in other aspects of their biology, suggesting that they do not interbreed. However, when less information is available (as in case 3) the controversy continues between the so-called 'splitters' and the more traditional 'lumpers'.

Another motive for scientists to describe more species could be a political one: the naming of new species increases the biodiversity value of a given geographical area. In addition, when one old species are divided into several new ones, each with a smaller geographical range and population size, then the threat of extinction increases, giving each population a greater conservation status. For the red colobus monkeys in case 3 it can be helpful to emphasize the differences since this attracts attention to more isolated pockets of vegetation away from the main

tracts of rainforest. The western world has been educated to the severe threats of tropical rainforests and it is therefore easier to obtain sponsorship for programs to protect the main forest belt rather than the forest outliers occupied by red colobus. However, scientists can be cleared of this motive since they published their ideas on the diversity of red colobus monkeys before marketing pressures to save the rainforest reached world-wide attention.

Nature and nurture

The use of differences in behavior to help separate cryptic species poses another problem: the extent to which behavior is influenced by local learning. The interaction of genetic and environmental influences on behavior has been the subject of heated debate for many years. For example: how do we know whether differences in the pattern of calling between two populations are because they are separate species, or because they have developed different dialects through social learning? Or are both influences working together? Related to this is the question of whether we should give greater protection and status to species, just because they are genetically distinct, rather than to populations which display unique behaviors or local traditions? Our knowledge of local customs in the tool making and hunting techniques of chimpanzees, for example, would be limited were it not for the protection of several different populations.

The hybrids described in case 2. help to answer the first question as well as providing an interesting dilemma. Male and female gibbons give different calls in the form of a duet and there is a strong element of learning in the way the calls of a mated pair are synchronized. In addition, the intensity of calls varies to reflect the emotional state of the caller. At the same time, the calls of the hybrid gibbons are not the same as either of their parents but a combination of elements from the two, suggesting that gibbon calling also has a strong genetic component. Part of the call therefore provides information on species identity, part on emotional state and part on past experience.

The view that a hybrid represents "genetic pollution" has been stated by some scientists and civil servants, whereas others argue that this view is a case of speciesism (like racism and sexism) and that hybrids should be accorded the same rights as any other primates. Indeed, it could be argued that such individuals (and even groups, since some hybrids remain fertile) might be given special status in relation to biodiversity management - because of their small numbers and restricted geographical range.

Perhaps the answer lies in managing for diversity in both nature and nurture. Only then will it be possible to examine the relationships in further detail. The modern trend is towards an ecocentric view of the world which gives greater emphasis to all sources of variation, as opposed to a more anthropocentric view which seeks to retain neat and easy-to-handle categories, and to reject information that does not fit. Soft ethical arguments are overruled with the simple conclusion that we need to conserve as many variations as possible in order to have the opportunity to develop a better understanding in the future.

The importance of local people

It may be desirable to protect forests for scientific reasons but is it going to happen? Often the answer is 'no', but in some areas there is an increasing development of partnerships between interested parties. In the end, rainforests will only survive if they cease to be decimated by foreign powers while the people living in or near them must benefit from their economic value.

New research on the uses of plants and animals by indigenous and local people for food and medicine and the use of traditional manuscripts, interviews and discussions with hunters, represent an invaluable source of knowledge on tropical flora and fauna, and their hunting skills can lead to exciting discoveries. An excellent recent example is the discovery of the world's second smallest monkey by Dutch biologist Marc van Roosmalen, who was confronted by the first example of a tiny primate in South America when it was simply brought to his reception center by a Brazilian hunter.

Table 2: Primate species list (sub-families with species in alphabetical order) and their presence in the Congo Basin.
Ca=Cameroon, CAR=Central African Republic, Co=Congo-Brazzaville, DRC=Democratic Republic of Congo, EG=Equatorial Guinea, Ga=Gabon.

Lorisinae							**loris**
Arctocebus aureus	Ca	CAR	Co	DRC?	EG	Ga	golden potto
Arctocebus calabarensis	Ca						angwantibo
Perodicticus potto	Ca	CAR	Co	DRC	EG	Ga	potto
Galaginae							**bushbabies**
Euoticus elegantulus	Ca	CAR	Co	DRC	EG	Ga	southern elegant
Euoticus pallidus	Ca				EG		northern elegant
Galago alleni	Ca	CAR	Co		EG	Ga	Allen's
Galago matschiei				DRC			eastern needle-clawed
Galago moholi				DRC			Mohol
Galago senegalensis	Ca	CAR		DRC			Senegal
Galagoides demidoff	Ca	CAR	Co	DRC	EG	Ga	Demidoff's
Galagoides thomasi	Ca			DRC	EG?	Ga?	Thomas's
Otolemur crassicaudatus				DRC?			large-eared greater
Cercopithecinea							**guenon-like monkeys**
Allenopithecus nigrovirdis	Ca		Co	DRC			Allen's swamp monkey
Cercocebus galeritus	Ca	CAR	Co	DRC	EG	Ga	crested mangabey
Cercocebus torquatus	Ca		Co		EG	Ga	red-capped mangabey
Cercopithecus aethiops	Ca	CAR	Co	DRC			vervet monkey
Cercopithecus ascanius (**)	Ca?	CAR		DRC			red-tailed monkey
Cercopithecus cephus (**)	Ca	CAR	Co	DRC	EG	Ga	moustached monkey
Cercopithecus dryas (*)				DRC			dryas monkey
Cercopithecus erythrotis	Ca				EG		red-eared monkey
Cercopithecus hamlyni				DRC			owl-faced monkey
Cercopithecus lhoesti				DRC		Ga?	l'hoest's monkey
Cercopithecus mitis				DRC			blue monkey
Cercopithecus mona	Ca						mona monkey
Cercopithecus neglectus	Ca	CAR	Co	DRC	EG	Ga	De Brazza's monkey
Cercopithecus nictitans	Ca	CAR	Co	DRC		Ga	spot-nosed monkey
Cercopithecus pogonias	Ca	CAR	Co	DRC	EG	Ga	crowned monkey
Cercopithecus preussi	Ca				EG	Ga?	Preuss's monkey
Cerxcopithecus solatus (*)						Ga	sun-tailed monkey
Cercopithecus wolfi				DRC			Wolf's monkey
Erythrocebus patas	Ca	CAR		DRC			patas monkey
Lophocebus albigena	Ca	CAR	Co	DRC	EG	Ga	grey-cheeked mang.
Lophocebus aterrimus				DRC			black mangabey
Mandrillus leucophaeus	Ca				EG		drill
Mandrillus sphinx	Ca		Co		EG	Ga	mandrill
Miopithecus sp.	Ca		Co		EG	Ga	northern talapoin
Miopithecus talapoin				DRC			southern talapoin
Papio anubis	Ca	CAR	Co	DRC			olive baboon
Papio cynocephalus				DRC			yellow baboon
Colobinae							**colobines**
Colobus angolensis				DRC			Angolan colobus
Colobus guereza	Ca	CAR	Co	DRC	EG?	Ga	guereza
Colobus satanas	Ca		Co		EG	Ga	black colobus
Procolobus badius	Ca	CAR	Co	DRC	EG		red colobus
Pongidae							**human apes**
Gorilla gorilla	Ca	CAR	Co	DRC	EG	Ga	gorilla
Pan paniscus (*)				DRC			bonobo
Pan troglodytes	Ca	CAR	Co	DRC	EG	Ga	chimpanzee

(*) = known only in this country
(**) = hybrids between the two species are known in CAR

In Ghana we learned from local primate hunters that they knew of "red monkeys" in the area and, at first, these were assumed to be the well-known red patas monkeys. However, when hunter Kofi Amoah was paid to join the research team he quickly located a group of seven red colobus and then explained that there were two kinds of red monkey living there. Since Ghana appears to be a border zone between primate species of the Congo Basin and those found in West Africa, such a new finding may throw light on the diversity of red colobines. Further research is necessary however before the significance of this find can be clarified.

Research challenges

Given the amount of scientific research in colonial Africa it was, for a long time, assumed that the discovery of new primate species would be an unlikely event. We now know that there are several good reasons to assume that we are entering a second era of discovery: in the past, many parts of Africa were simply inaccessible; some species, particularly the nocturnal ones, were hard to see and their appearance deceptive; relatively few populations had been studied in any depth - for example using new biochemical techniques such as chromosome mapping, protein analysis and DNA sequencing; and finally, there was a considerable underestimation of the value of indigenous knowledge. The future looks very exciting indeed, but the reader should be warned that the road to further progress is filled with potholes.

A few words of warning to enthusiastic biologists set on exploring the tropics: scientific research on poorly described or unknown species is simply very hard work. Months on end of disappointments, regular changes of your hypotheses and constant doubts on the financing of your project, coupled with poor living conditions and many distractions, mean that only the most dedicated and single-minded people will succeed. As Louis Leakey defined when he hired Jane Goodall to study the Chimpanzees of Gombe Stream Reserve: a primatologist who survives in the Congo Basin must be a biologist, an anthropologist, a politician and a diplomat.

Conservation possibilities

Bearing this in mind, the Congo Basin is the most interesting region of our Earth in terms of the future of primatology and primate protection. In this area primates are "flagship" species, providing a focus for concentrating the efforts of, and communication between, scientists, politicians, business people and local inhabitants.

Primate populations are generally found throughout the forest and their numbers can be used as a measure of its health and sustainability. They provide relatively simple figures as a basis for politicians to make decisions about conservation and exploitation of the forest in general. Scientists may prefer more complex approaches and should indeed work towards a more in-depth understanding by politicians and lay people, but primate surveys provide an effective guide to biodiversity conservation in the short time that is still available.

The contrasting lifestyles of the daylight monkeys and apes, which live together with the night-living prosimian primates, leads to survey work throughout the 24 hour cycle. Small nocturnal species, such as galagos, are almost never hunted and can therefore be used as a control for assessing the hunting pressures on larger species, such as monkeys and antelopes. This is because any differences in their population densities will reflect conditions that are not due to hunting. Conversely, the day-living species, such as red colobus monkeys, are much more effective when it comes to protecting local areas, as illustrated below.

Because primates are conspicuous and frequently display characteristics that vary from one region to another, they provide powerful symbols which represent the special nature of each area. The great diversity of primate species and sub-species leads to a deeper appreciation of the variation within rainforests that would otherwise appear very similar. Nearly all forest primates such as guenons, mandrills, mangabeys and colobines use vision, and particularly color vision, as an important aid to communication, which accounts for the array of colors on the face, chest, flanks, rear and tail, often accentuated by

ridges of skin, swellings and tufts of hair in many shapes and sizes (see photo). For this reason, even when there is scientific uncertainty about the exact identity of a species, local people will often recognize and relate to the special features of their own monkeys. Here the nocturnal primates are of much less value and even a diverse array of galago species may be given only a single name.

Moral dilemmas

Good science is a process rather than a set of facts. Today's answers often prove to be tomorrow's questions. In the case of conservation biology the time taken to reach a firm conclusion on the naming of a species may lead to its extinction before it is even recognized! An alternative way of highlighting biodiversity is by examining the importance of different plants and animals to local people and by emphasizing the differences between populations whether or not they are different species. Only in this way will it be possible to increase the chances of discovering things that are as yet unknown.

Some simple rules serve as a guide to studies of primate diversity. First, honesty is clearly the best policy to enhance communication and reduce misunderstandings: publish the problems as well as the successes. Second, especially if the country is not your own, develop close liaisons with local people to ensure they know what you are doing and why you are doing it. Third, ensure that your project brings tangible benefits. For example, the Congo Basin is logistically difficult to develop for tourism but, in the absence of large development grants, the struggle against logging and over-exploitation due to poverty can be offset by making alliances with local people. Small scale tourism projects working with eco-volunteers can lead to situations in which both parties can benefit (win-win management).

Last, but not least, is to engage in the national and international dimensions of primate and forest conservation. In this respect the Congo Basin presents some of the greatest challenges with relict populations of unique animals such as the bonobo and mountain gorilla in an area of severe economic hardship and political instability. But the protection of the remarkable wealth of plants and animals for the benefit of our descendants is surely worth the effort? To this end we would like to recommend to our readers the fine example of cooperative teamwork in the Bonobo Action Plan and other sources that are noted below (see References). If we lose the rainforests we not only lose innumerable species but also the thin covering of tropical soils and vital catchment areas for fresh water. Likewise we will open the way for the spread of disease and international climatic change.

References

Bearder, S.K., Honess, P.E. & L. Amrose, 1995. **Species Diversity among Galagos with Special Reference to Mate Recognition**. in: Creatures of the Dark: The Nocturnal Prosimians. Plenum Press, New York, pp. 331-352.

Davies, A.G. & J.F. Oates, 1994. **Colobine Monkeys**. Cambridge University Press, Cambridge.

Gaston, K.J., 1996. **Biodiversity: A Biology of Numbers and Difference**. Cambridge University Press, Cambridge.

Mittermeier, R.A. & J.F. Oates, 1985. **Primate Diversity: The World's Top Countries**. in: Primate Conservation 5, pp. 41-48.

Oates, J.F., 1996. **African Primates: Status Survey and Conservation Action Plan - Revised Edition**. IUCN, Gland.

Pan paniscus/Bonobo News letter, **several editions**.

Smuts, B., Cheney, D.L., Seyfarth, R.M., Wrangham, R.W. & T.Y. Struhsaker, 1987. **Primate Societies**. Chicago University Press, Chicago.

Spruit, I., 1993. **On Declaring Non-human Primate Rights: An Approach to Primate Protection**. in: Proceedings of the Symposium "Ape, Man Apeman: Changing Views since 1600; Leiden University, 28 June - 1 July, 1993, pp. 377-383.

The authors

Simon Bearder is Principal Lecturer in anthropology and Deputy Head of the School of Social Studies and Law at Oxford Brookes University, UK. Ignaas Spruit is managing director of Pro Primates and guest lecturer at Leiden University.

Short Overview of the Situation of Tropical Moist Forests and Forest Management in Central Africa and Markets for African Timber

- The main problem of logging is the indirect impact of logging on deforestation. The construction of roads and other infrastructure in the virgin forest often leads to an influx of people who start cutting and burning the forest.

The influence of the Asian market is not only visible in the increased export to Asia and the increased presence of Asian buyers, but also through direct investments in logging and the acquisition of large forest concessions.-

Dominiek Plouvier[1]

Keywords

West and Central Africa; logging; forest policy; forest management; export; European and Asian markets.

State of the forests

Africa's rainforests represent slightly less than one-fifth of the world's tropical rainforests, while Asia holds slightly more than a fifth and Latin America still contains almost three fifths. Africa's closed canopy tropical moist forests can be divided into the forests of the Upper Guinea Zone (West Africa) and those of the Lower Guinea Zone (Central Africa), divided by the so-called Dahomey Gap.

Most of the countries of West Africa were once clothed in forest from the coastline to deep inland, but now only small relicts of these forests remain. It is estimated that only about 11-12% of the original forest cover in West Africa remains (data as of 1990, FAO). Annual deforestation rates in West Africa are among the highest in the world. FAO (1992) cites a figure of 2.1% for the region, with countries like Ivory Coast facing deforestation rates of more than 5% on an annual basis. Today, Liberia is the only country in West Africa with considerable tracts of little-disturbed forest.

In Central Africa there still is a vast, more or less continuous expanse of rainforest. Although whittled away on its borders by fire and agriculture, and increasingly opened up by timber exploitation, areas of undisturbed forest still remain. It is estimated that -with approximately some 185 million hectares of closed forest left- not more than 60% of the original forest cover of Central Africa remains today (IUCN, 1992). FAO estimates the deforestation rate for Central Africa at some 0.6%. This part of the continent still has the opportunity for strategic planning for conservation and economic development.

The massive deforestation of the African rainforests only started some 50 years ago. At the time of their independence (late 50's, early 60's), most of the forests of Ghana, Liberia and Ivory Coast, as well as the Central African forests were largely intact. The wide availability of improved medical services led to an acceleration in the rate of population growth. Deforestation and environmental degradation in Africa are close correlates of human population growth. Africa's population growth is now running at 2.9% (doubling time 24 years), an expansion

[1] Kloosterstraat 9, 9860 Oosterzele, Belgium.

that is resulting in massive demands for agricultural land, water, fuelwood and other natural resources.

At the same time, mobile chainsaws and heavy vehicles made the logging and clearing of the forests much easier and economic growth in Europe provided a rapidly expanding market for timber and commodity crops from the forests. These factors, coupled with incentives to cultivate cash crops such as coffee and cocoa, pushed the people into the forests. As a result of these pressures, Africa's rain forests have suffered more radical change in the past 50 years than they had throughout their 10,000 year post-glacial history.

The causes of deforestation and degradation of the African rainforests are often closely interrelated. It is clear that the single greatest threat to the rainforests of Africa is the proliferation of destructive slash-and-burn agriculture by migrant populations.
However, this is frequently associated with the opening-up of new forest areas by logging. Obviously, there are enormous differences between the countries and even within the countries. The situation in Ivory Coast for example is completely different from that in Gabon, and the situation in the south of Congo is totally different from that in the north.

Characteristics and impact of the logging and timber trade in Africa

Although commercial tropical timber harvesting has a long history in Africa, it was only after World War II that considerable logging and export of timbers to Europe started. From the beginning - and still today - it has concentrated on a small number of species, of which the most important are: the African mahoganies sipo, sapele, etc. (*Entandophragma* and *Khaya sp.*), obeche (*Triplochiton scleroxylon*), okoume (*Aucoumea klaineana*), iroko (*Chlorophora excelsa*), azobe (*Lophira alata*) and some others.

This involved -and still involves- a very selective exploitation of the forest. Frequently only one stem per hectare is harvested. But, this selective harvesting system requires the opening-up of vast areas of forest for a rather small output of volumes of timber. Mean harvesting rates in Africa's forests are estimated at 10 cubic metres per hectare, which is less than 5% of the total stand (FAO, 1982).

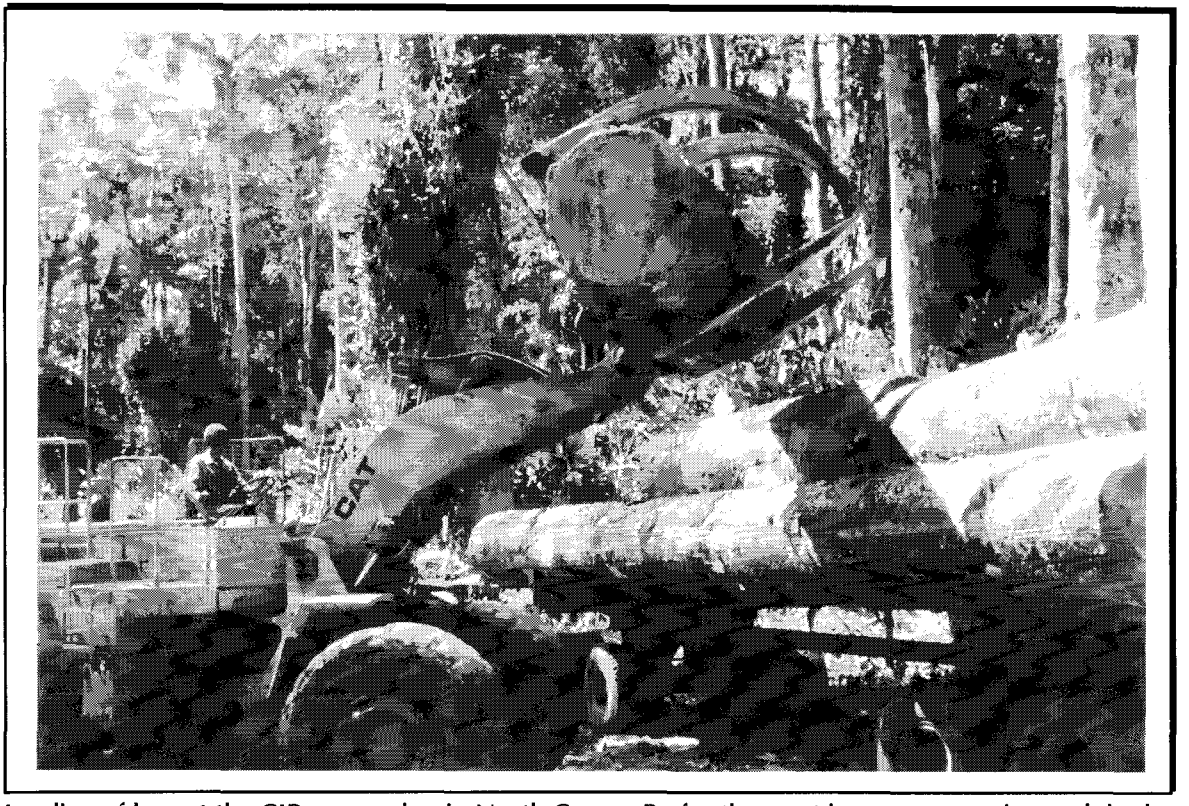
Most of the logging is being carried out by large European consortia. They exploit the commercially important species in timber concessions (varying from 10,000 to 500,000 hectares) through a system of logging permits. Important groups are the Group Rougier (France), Group Thanry (France), Group Danzer (Germany), Group Bolloré (France), Group Wyma (Netherlands), etc. Most of them have concessions in several African countries.
Once the timber species have been cut, the company moves on to new areas. Due to the selective timber markets, this so-called "creaming" of the forest is the general situation, but exceptions exist and new trends have appeared. One new trend is the influx of Asian-based logging companies into several countries in the region, some of which offer to invest heavily in transformation on the spot.

In general, selective logging does not lead to deforestation of Africa's forests. Properly managed, the forests should be able to provide new timber harvests given that the conditions are there to let the forest recover. Unfortunately, the conditions for good forest management are generally not available in the region. For the moment, there is hardly any sustainable logging in Africa. The study of ESE (1995) revealed that less than 1 million ha of Africa's forests are currently "being brought under sustainable forest management". This area is very small compared to the more than 60 million hectares which have been brought under timber exploitation so far in Africa (and of which a lot has disappeared).
To be clear, this does not mean that there is currently an "overcutting of logs" in Africa (with total production figures of 12-15 million cubic metres/year for the region), but rather that no management is applied to assure "sustainability" of the forest.

Side effects of logging

Without any management, logging produces a series of side-effects for the people and the ecosystem. Some of the side-effects of actual logging in Africa's forests can be summarised as follows. The main problem is clearly the indirect impact of logging on deforestation. The construction of roads and other infrastructure in the virgin forests often lead to an influx of people who start cutting and burning the forest. The example of Ivory Coast is but one of the many clear examples of the indirect impact of logging on total deforestation.

Another side-effect is hunting which is closely associated with logging. The proliferation of modern hunting equipment and the emergence of important urban markets for bushmeat, has exacerbated this problem. The flourishing bushmeat trade is an important economic factor in attracting people into the forest. A timber worker for instance can earn more money by poaching a chimpanzee than he can from one month's hard work for the timber company (Rietbergen in IUCN, 1992). Logging roads, in combination with the increased frequency of transport to large cities, greatly increase the threat of hunting to animal populations, especially large primates.



Loading of logs at the CIB concession in North Congo. By far the most important species exploited in Northern Congo, East Cameroon and CAR are sapele (*Entandophragma cylindricum*) and ayous (*Triplochiton scleroxylon*). © D. Plouvier.

Logging frequently leads to conflicts with local people, who do not receive sufficient benefits from the logging. As logging in Africa is generally carried out by large foreign-based enterprises, local people often consider the companies as "robbing their resources without paying for them". One of the problems is that taxes are to be paid to government authorities and that local people hardly accrue any benefits from the logging. This has led to several problems in countries like Ghana, Cameroon and others. Other negative consequences of current logging practices (generally based on exhausting forest concessions and moving on to new ones) are that the infrastructure -often including schools and medical services- established during logging operations are left to deteriorate and that people lose their jobs, once the commercially important species have been cut.

In some regions logging produces serious side-effects on forest-dwellers such as the pygmies and other tribes, by disrupting their locally adapted lifestyles and cultures.

Forest policy and forest management

African governments tend to treat their countries' forests simply as a source of revenue and foreign currency. They may have little alternatives given their high external debts and the pressure of structural adjustment programs imposed by the international financial organisations. Declining prices of other export commodities, particularly oil, cocoa and coffee have recently exacerbated the situation. Yet African governments have often failed to obtain a reasonable percentage of the financial benefits accruing from timber harvests; most certainly not enough to offset the ecological, economic and social costs of logging. Another problem, closely associated with the previous one, is corruption. A large part of the profits that remain in the country flow to sources where they do not benefit the people nor the forest but only some individuals.

In Africa most of the forested land is nominally under government control. Good forest management depends therefore on the effective implementation of appropriate government policies. But, although some countries have committed themselves to -at least- sustained-yield policies in their forest legislation, little of this commitment can be traced in the field. In general, forest legislation is poorly applied and forest protection not enforced. Few of the concession areas in Africa have been classified as "permanent production forest". Even today there are cases by which logging permits are granted in "legally protected forest reserves".

The weakness of forest departments is a major problem. Salaries are so low that employees are easily tempted to accept bribes for approving logging plans they have never seen, or for accepting volume return forms filled out by the logging company without verifying them. Logs may be underscaled, underreported or mis-classified. It is clear that the African States lose a lot of income in this way. However, it is essential that governments secure maximum revenue from the harvesting of their timber resources.

The control of logging and its impact on the residual forest in the concession areas is equally problematic. In the rainforests, future timber harvests depend on advanced growth of commercial species left undamaged after logging. However, measures to limit damage to residual stands are generally not required. Even when they are required, the lack of enforcement does not encourage compliance by the loggers. Numerous aspects regarding "good forest management" in Africa depend on the interest (or non-interest) of the logging companies themselves. Because they are mainly driven by economic factors and market pressures and the fact that concession agreements often only last for 5 or 10 years their commitment is generally low. The climate is however slowly changing as some large companies have shown the first signs of being interested in long-term forest management.

Improving forest management

Natural forest management for timber production can be practised at various levels of intensity. At least it involves the following: demarcation and protection of the production forest, inventories, the regulation and control of

exploitation, and the elaboration and implementation of a long term forest management plan.
More intensive management involves silvicultural interventions such as the release of regenerating timber trees by clearing unwanted competitors and cutting climbers. As the minimum conditions for good forest management do not exist in most parts of the region, it is a question of first tackling these minimum conditions before trying to justify extra costs of silvicultural operations for the moment.

Efforts to enhance forest management in Africa should involve a combination of political, social, economic and ecological considerations. It should therefore concentrate on the following factors :

- legal definition of a permanent forest estate, including field delimitation and demarcation of concession areas;
- a consultation and involvement of local people to identify rights and benefits of each stakeholder, and to define boundaries in order to assure protection of the production forests against encroachment;
- legal definition of long-term concession agreements (at least 40 years) in order to assure an interest in long-term management;
- elaboration of a management plan, including definition of a sequence of harvesting areas based on inventories and expected yields, planning of infrastructure, prescriptions for implementing felling, skidding, etc;
- effective control on logging operations by the Forest Service. This involves an institutional strengthening of the Forest Service in most cases;
- control of hunting in logging concessions;
- equitable distribution of benefits and reinvestments in the forest.

In some countries efforts are being made to put some of these elements in place, through a better legislation and application in the field. One of the countries with the most advanced forest policy in the region definitely is Ghana. The permanent forest estate is well defined and long-term concessions and management plans have been adopted and established. However, there is still a long way to go.

The responsibility for a better forest management lies in the hands of both the government authorities and the logging companies. Logging companies tend to blame the authorities for not having a clear long-term forest policy and argue they cannot suffer any more taxes due to competitive market prices. Government authorities tend to look at logging as an interesting source of income and for employment. Both generally look only at the short-term benefits logging offers and not enough at the long-term potentials.

Production and export of African timber; current situation and trends over the last few decades

Over the last two decades the production of tropical industrial timber has been dominated largely by Asia. According to the 1995 ITTO-Review of the World Tropical Timber Situation total production of tropical logs in 1995 was around 132 million cubic metres. Of this 89 million

Table 1: Timber production of different countries within the African continent (in 1,000 m^3).

	Production	Log exports	Sawn timber exports	Veneer/plywood exports
Cameroon	2700	1100	200	40
Gabon	2600	2300	10	30
Côte d'Ivoire	2200	180	550	160
Ghana	1050	--	320	64
Congo	700	500	25	35
Zaire	300	100	40	10

(ITTO, 1996)

cubic metres derived from the Asia-Pacific Region, 33 million cubic metres from Latin America and only 10 million cubic metres from Africa. Africa thus only produces 8 % of total tropical timber, although it possesses approximately a fifth of the remaining tropical rainforests.

The figures in table 1 indicate the low level of industrialisation in the timber sector, with the notable exception of Ghana and Cote d'Ivoire. Gabon still exports more than 90% of its log production and in Cameroon, notwithstanding existing legislation obliging each enterprise to transform at least 70% of is production within the country, log exports are still very important.

Ghana was the first country on the continent to impose a total ban on log exports in 1995, followed by Côte d'Ivoire later on. Although West African countries like Ghana and Côte d'Ivoire do not possess more than 5% of the remaining African rainforests, their overall production still represents more than a third of total African log production.

Since 1994, production figures have risen substantially in countries like Cameroon and Gabon, due to two reasons. The first one being the devaluation of the CFA in 1994, which led to an increase in investments in logging equipment. This phenomenon, coupled with the arrival of new emerging markets in Asia led to substantial increases in log production in several Central African countries. ITTO-statistics indicate that log production in Cameroon for instance increased by more than 50% in the years 1994 and 1995 (ITTO, TFUpdate 1/96).

It is important to note that the market for timber products within the African countries themselves is very limited. The majority of industrial timber production from the African continent is exported. Only Ghana and Côte d'Ivoire have some production for internal market, although these are generally lower quality products.

The Asian market

Statistics on export markets for African timber products and the fluctuations therein are very limited and/or poor in quality. Europe has for long been the traditional market for African timber products. However, since 1994 a remarkable change has been noted as exports toward the Asian continent have substantially increased. The direct cause of this was the ban on log exports imposed by Sabah in 1992. This led to an acute shortage of tropical logs for the Japanese timber processing industries. Price increases of more than 300% for meranti logs coming out of Sarawak were noted in 1993, from 150 up to 450 US $ per cubic metre, in order to meet demand for sufficient raw materials for the mills in Japan and other countries like Korea and Taiwan. Since then, Asian buyers have been looking for other supplies of tropical timber on the African and South American continent.

The influx of especially Korean traders in Ghana led to a massive overproduction and port congestion in 1994, and subsequently a complete destabilisation of the Ghanaian timber market. This phenomenon led to the instalment of a (temporary?) ban on log exports in 1995.

In Cameroon, since 1994 Asian traders have been buying logs in increasing volumes from traditional European or Lebanese exporters. Since 1995, different Asian logging companies (especially from Thailand and Malaysia) have started to import logging equipment into the country and to negotiate the approval of concession areas or forest land to start logging in Cameroon.

In Gabon, Chinese and Japanese capital groups in particular have started to buy logs in increasing quantities. According to recent SNBG statistics, Gabon's log exports towards Asia rose from 130,000 m^3 in 1990 to over 1,200,000 m^3 in 1996, representing more than half of total log exports. Of this, 650,000 m^3 was exported to the Republic of China and 330,000 m^3 to Japan.

The influence of the Asian market is not only visible in the increased presence of export towards Asia and the increased presence of Asian buyers, but also through direct investments in logging and the acquisition of large forest concessions. By far the most active country in this regard is Malaysia. In Gabon, for instance, more than 6 Asian logging companies were present by mid 1997. Between 1,5 and 2,5 million hectares of forest in Gabon have been negotiated yet by Malayan firms. While most of them are still in the prospection (and road-building) phase, more than 2 are actively logging and directly exporting logs as well.

Table 2: European import of African tropical timber (in 1,000 m^3 rwe).

	Total import from Africa	Percentage of country's total tropical timber import	Ranking as to total tropical timber import in Europe
France	977	64	2
Italy	942	77	5
Spain	544	93	7
Germany	493	40	4
Netherlands	243	17	3
Greece	231	97	8
UK	169	10	1
Belgium	103	14	6
Denmark	11	8	9
Total	3713	42	--

(UCBD, 1993)

By far the most active Malaysian logging company in the Congo Basin is Rimbunan Hijau; the company -that has a very bad record for its activities in PNG- is now active in Cameroon, Gabon and Equatorial Guinea. The export of logs from Equatorial Guinea for example has tripled within 2 years time.

Although for decades the traditional market for African timber has been the European market, it seems this will change within very short time. The 1993 figures in table 2 give a good overview of the current situation. Especially France, Italy, Spain, Greece (and Portugal - not mentioned in the statistics) rely heavily on African timber to satisfy their needs for tropical timber. The majority of provisions in tropical timber for these South European countries is in the form of logs, mainly from Gabon (okoume) and Cameroon (ayous/sapelli). France imports annually some 400,000 m^3 okoume logs from Gabon to supply its own plywood industry.

Countries from Northern Europe (UK, Netherlands) import rather small quantities of timber from Africa. They rely much more on products from Asia (especially meranti in the form of sawn timber from Malaysia and plywood from Indonesia). Germany still has a strong tradition of buying Ghanaian timber. The European market -in contrast to other markets like the Asian market- is very selective as to species and quality. Only some species have a market value, for specific applications. Furthermore, the Northern European market has a strong preference for kiln-dried sawn timber which is still not available in large quantities from Africa.

Apart from the traditional European market and the new emerging Asian markets, a small part of the export of African timber leaves toward the Middle East and the Arabian States.

References

ATO/OAB, 1996. **ATO/OAB Information Bulletin Number 4.**

ATO/OAB, 1997. **Second ATO Colloquium for the promotion of sustainable industrialisation and investment in the African Timber Sector.**

ATIBT. **La lettre de l'ATIBT.** Several numbers 1996-1997

CIRAD-FORET. **Bois et Forets des Tropiques.** Several numbers 1995-1997.

Crossley, R. et al. **Is there a case for tropical timber certification ?** The World Bank, Washington DC, USA.

ESE, Environmental Strategies Europe, 1995. **Aménagement forestier durable, enregistrement international des forêts et Éco-certification du bois.** Rapport soumis au Ministère Français de la Coopération et a la Commission Européenne DG-XI.

ITTO. **The ITTO Tropical Forest Update.** Several numbers, 1994-1997.

ITTO, 1996. **Annual review and assessment of the world tropical timber situation.** ITTO, Yokohama, Japan.

IUCN, 1992. **The Conservation Atlas of tropical forests: Africa.**

Tropical Timbers. **UK Monthly Review.** Several numbers, 1995-1997.

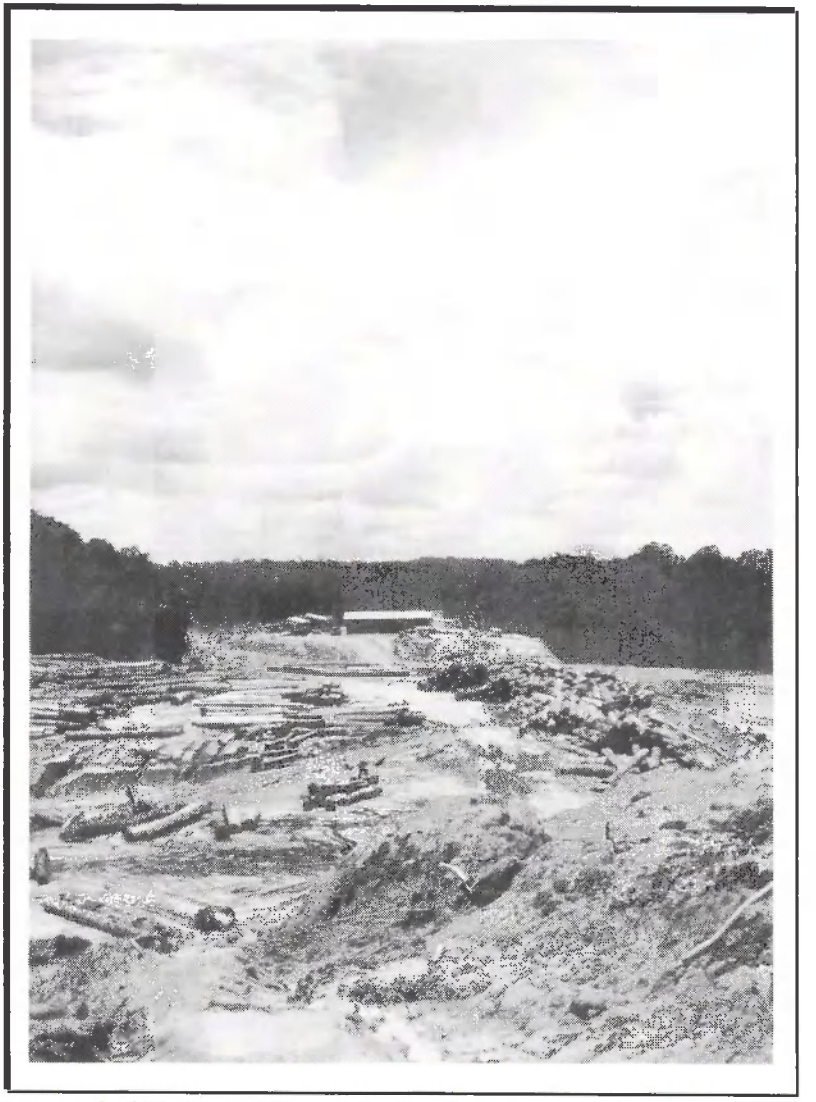
UCBD, 1995. **Statistics for the year 1994.**

List of abbreviations

ATO	African Timber Organisation
ATIBT	Association Technique Internationale des Bois Tropicaux
FAO	Food and Agriculture Organisation - UN
ITTO	International Tropical Timber Organisation
IUCN	International Union on the Conservation of Nature
OAB	Organisation Africaine du Bois
SNBG	Société Nationale des Bois Gabonais
UCBD	Union de Commerce des Bois Durs - Europe

The author

Dominiek Plouvier is an independent forestry and timber consultant with experience in forest management and timber trade issues in South America and Africa.



Log yard of Rimbuan Hijau at the Bordamur concession near Lambarene, Gabon. © D. Plouvier, April 1997.

About tropical hardwood, chocolate and gorilla's

Conservation of forest fauna in south Cameroon

- It goes without saying that the rapid expanding logging activities have greatly enhanced the observed boom in commercial hunting in the South and East provinces of Cameroon. -

Martha Klein & Mark van der Wal[1]

Keywords

Cameroon; rainforest; Dja Wildlife Reserve; logging; bushmeat; apes.

Abstract

In Cameroon, particularly in the rural areas in the south- and eastern parts, mammals are equivalent to meat. The rapid expansion of logging concessions has greatly enhanced the development of commercial hunting. Logging and hunting are both important economic activities and are currently the main direct factors causing severe ecological degradation of the southern rain forests belt. This situation that is certainly not confined to Cameroon but concerns the whole part of the Congo basin subject to commercial logging practices.

In and around the Dja Wildlife Reserve, Cameroon's largest protected area and since 1987 listed as a World Heritage Site, conflicts between conservation aims and human activities are eminent. Since a few years, various national and international agencies are trying to get a hold on the more or less anarchistic way of forest exploitation. At the same time they are exploring ways towards a more sustainable use of natural resources and the conservation of the biological diversity characterizing the Dja region. Efforts and constraints with respect to the conservation of the rainforest fauna of Cameroon in general and the Dja Reserve in particular are highlighted in this article.

[1] IUCN, Project Dja. Tel./fax: +237-208888; Email: mwal@sdncmr.undp.org or rocn@hq.iucn.org; BP 5506, Yaoundé, Cameroon.

Introduction

Cameroon reflects on a country level the cultural and natural diversity which characterises the African continent. With a greatest north-south length of about 1,200 km it stretches from the Sahelian zone bordering lake Chad in the north to the central African rain forests in the south just above the equator. The ecological spectrum is completed in the west by the presence of a mountainous area (its highest point being Mount Cameroon reaching 4,095 m) and coastal plains bordering the Atlantic Ocean. The country's population of about 12 million (1995) is composed of many different ethnic groups including one Pygmy tribe (Baka).

Rainforests cover about half of Cameroon's 475,000 square kilometres. They are phyto-geographically divided in evergreen forest (7.6 million ha) in the west, transition forest (8.5 million ha) in the centre and semi-deciduous forest in the south and eastern parts (9.5 million ha) (NFAP, 1995). The lowland rainforests of Cameroon belong to the "guinéo-congolaise" biogeographic region (IUCN, 1996).

Despite the fact that logging activities have been going on for thirty years or more, the southern and eastern part of the country still holds relatively large tracts of unlogged forests. Traveling south cast from Yaoundé, population densities decrease and local economy shifts from market oriented to a subsistence economy. However, this situation is changing fast as logging activities are rapidly expanding, opening up remote areas and bringing along new opportunities and aspirations.

Wildlife means meat

Although goats, sheep and chickens are abundantly found around the villages, bush meat forms the main daily source of protein in south-east Cameroon. The domesticated animals play a rather symbolic role and are slaughtered for special occasions like weddings, funerals, inaugurations, etc. To illustrate what a common feature bush meat is in Cameroon: at the night of arrival in Cameroon (April' 97) the second author had porcupine for dinner; the following morning, heading for Lomié in the central south, making a stop over halfway to have lunch (again porcupine), a young chimp was offered for sale. Further during a one week workshop in Lomié, game was served by the one and only restaurant in town twice a day, including crocodile, red riverhog, blue duiker, pangolin and an unidentified monkey.

Bushmeat has always been an important aspect of human life in the forest belt of Central Africa forest block and it is deeply rooted in Cameroon's culture. Pygmy tribes like the Baka, traditionally nomadic people of Cameroon's rainforests but nowadays more and more settled along the roads, are basically still hunter gatherers with little interest in agricultural activities. However, although hunting has become much more effective by the use of steel cable snares (which are illegal) and, to a much lesser extend, to the availability of fire arms and ammunition power, it is doubtful that local consumption causes serious threats to the fauna in south and south-east Cameroon as population densities are very low.

Flourishing bushmeat trade

But not only rural communities consume bushmeat. The taste of wild animals is appreciated at a national scale. In Yaoundé, Cameroon's capital city, large quantities of bushmeat are offered for sale every day. An inventory at the four main meat markets revealed a monthly arrival of 70 to 90 ton of bushmeat, with an average of 2,300 kg per day. The origins of the meat are spread over the whole country and no real seasonality was found (Baillon, 1996). Having said this it must be stated that the main axe for the bushmeat trade is the railway from Ngaoundere to Douala via Yaoundé which passes through the eastern province: more than 95% of the bushmeat going to Yaoundé and Douala is transported via this railway. Transport of bushmeat by road is small compared to transportation by rail. Although with the increase of good roads, facilitated by the logging activities in the region, road transport is gaining importance (pers. comm. Chef de Faune - Eastern Province).

Almost all mammal and reptile species are eaten, including elephant, gorilla and chimpanzee. The latter species fetch top of the market prices since their meat is considered to be very prestigious (smoked gorilla and chimp meat has also found it's way to the African market in cities like Madrid, Paris and Brussel. Pers. comm. Dir. TRAFFIC Europe). To illustrate the intensity of the threat for a severely endangered species like the gorilla, one example. In Kagnol, a small village (60 km from the road Bertoua-Abong Mbang) settled by the SEBEC concession, every day one can find at least one woman selling gorilla meat (pers. comm. Chef de Faune - Eastern province).

Commercial hunting has increased enormously over the last few years, particularly in the southern parts of the country, and is nowadays one of the main causes for the ecological degradation of the region (De Wachter, 1997). Two factors play a pivotal role in this increase: firstly the economic crisis which Cameroon is facing since the mid-80's and during which timber has become Cameroon's mayor export product; secondly, the general lack of enforcement of Cameroon's forestry and wildlife regulations.

The big rush to harvest Cameroon's timber

During the 80's prices of oil, coffee and cacao, at that time Cameroon's main export commodities, experienced a steep fall. As Cameroon's oil production decreases and given the world's structural overproduction of coffee and cocoa, it is unlikely that their attribution to Cameroon's Gross Domestic Production (GDP) will regain its former levels. Another important factor which has deepened the economic crisis is the 100% devaluation of

Eco-guards showing a truck load of confiscated bushmeat © Wouter van der Vegt, Lomié, 1977.

the CFA in 1993, which weights heavy on the country's already important foreign debt burden.

It is thus understandable that the development of forest resources with a view to increasing the contribution of forest production in Cameroon's GDP has become a major objective of the government's policy. As a result of vastly increased commercial logging operations Cameroon has become one of the tropical countries with the highest rate of forest loss. Already in the early 90's IUCN (1996) estimated that the rate of deforestation in Cameroon's dense forests was 10-11 times higher than the rate of regeneration

About chocolate and gorilla's

Coffee and cacao were and still are the mayor cash crops for the small scale farmers in the southern part of Cameroon. While coffee is cultivated close to the villages, cocoa plantations (one of the model examples of agro-forestry systems) are often situated in forest zones upto 15 km away from the village. Cacao once was an important income generating alternative for commercial hunting. Unfortunately, the price per kilo cacao is at the moment even lower than in the 70's (Pauwel, 1997). Moreover, the plantations in the forest are often a favourite forage place for apes and monkeys, especially in years when the fruit production of the forest itself is low. In these remote plantations gorilla's can easily destroy a whole years cacao production during a one or two day visit. Hence, for a local farmers many animal species are either perceived as source of meat or as a source of trouble. Gorilla's especially are feared and hated all around.

Current developments in Europe[2] regarding eco-labeling and Cameroon's announcement of an export ban for raw logs for 2001 has only increased the rush to harvest Cameroon's valuable timber species in a short as time possible.

Governmental action on paper

Recognising that the forestry practices are far from rational and sustainable, Cameroon's government, with support of the donor community, has started a vigorous institutional and legislative reform in its forest and environmental sector. This has lead to the creation of a Ministry of the Environment and Forestry (MINEF) in 1992, the issuing of new Forestry, Wildlife and Fisheries Regulations in 1994, and the publication of a National Forestry Action Plan (1995).

It should be noted that not all of the new provisions are enhancing sustainable exploitation practices. According to the new forestry regulations "Forest exploitation contracts shall be concluded for a maximum renewable duration of fifteen (15) years. They shall be assessed every three years." (Law No. 94/01 part II chapter III section 46 (2)). Clearly, the maximum of fifteen years exploitation right gives hardly any incentive to foresters to develop a sustainable logging scheme, which would need a much longer rotation cycle.

An even more clear practice of cut, cash and run logging are the so-called "ventes de coupe", small one year lease (two times renewable, thus providing a maximum of three years lease) concessions meant for national citizens. While the contracts are officially issued to Cameroonian citizens, the exploitation rights are in most cases sold through to foreigners. Hardly any forest exploitation is managed by Cameroon's own foresters.

However progressive the new provisions seem to be, they still don't seem to enhance sustainable logging practices in the field. Some blame this to the fact that the new laws have been forced upon the government of Cameroon by the foreign donor agencies, notably the World Bank. In other words, the cry for reform came from outside, and not from within the country. In the country itself there seems to be little leverage to make the new provisions work.

[2] 70% of Cameroon's timber exports goes to Europe (NFAP,1995), especially to Belgium, France, Germany, Greece and the Netherlands (IUCN, 1996).

Links between logging and hunting practices

"Although the populations enjoy usufruct rights, they do not have a substantial share of proceeds from the commercial exploitation of forest resources" (NFAP, 1995).

Money wise, local communities obtain hardly any direct profit from large scale timber exploitation (the 1,000 CFA per m^3 of cut timber that should go directly to the involved villagers hardly ever reaches that level). Forest exploitation contracts are without exception in the hands of allochtones, often foreigners. Also the actual forest operations are effectuated by people from outside the area. In fact, from the viewpoint of the local people, the extraction of timber products in itself is rather a loss than a gain: it often (but not always) results in a decline of forest products, including wildlife, while little or no compensation is provided for this loss. However, important side-effects resulting from the logging activities are the opening-up of new markets and improvement of physical infrastructures which give a significant push to the local economy.

While on paper forest concessions concern only timber and not wildlife it can not be denied that logging activities go together with an enormous increase in hunting activities. There is enough evidence to substantiate the accusation that several logging companies provide easy access to arms, ammunition and steel wire cable to enhance ample supply of cheap protein for their employees; hunters with modern arms go along with the prospectors for the bigger species, while the labourers set their snares for the smaller species (mainly duiker species, pangolins, and river hogs). Logging trucks (which are not always the property of the logging company) also provide the transportation to bring bushmeat to the markets in Yaounde and Douala.

During the last couple of years, new and improved roads and new markets have led to an important expansion of the complex and flexible network of "bayam-sellams" (the francophone translation of: buy them - sell them) in the south-eastern part of the country. Again, as for the timber production of the forest, most profit from the bushmeat trade is made by outsiders and not by the traditional residents of the rainforest zones from which the products originate.

The Dja Wildlife Reserve, a rainforest peninsula amidst logging concessions

The Dja Wildlife Reserve is Cameroon's largest protected area covering 526,000 ha. It is located at the edge of the bordering provinces South and East and is considered to be one of the major protected areas in the Central African rainforest block. The area is characterised by a deciduous and semi-deciduous forest mixed with extensive swamp areas and scattered rock out-crops. It provides the habitats for several severely threatened species like the western lowland gorilla (*Gorilla gorilla gorilla*), chimpanzee (*Pan troglodytes*), leopard (*Panthera pardus*), forest elephant (*Loxodonta africana cyclotis*), bongo (*Tragelaphus eurycerosj*, yellow-back duiker (*Cephalopus silvicultor)* and forest buffalo (*Syncerus caffer nanus*). Because of its floral and particular its fauna richness, it was listed as a World Heritage Site in 1987.

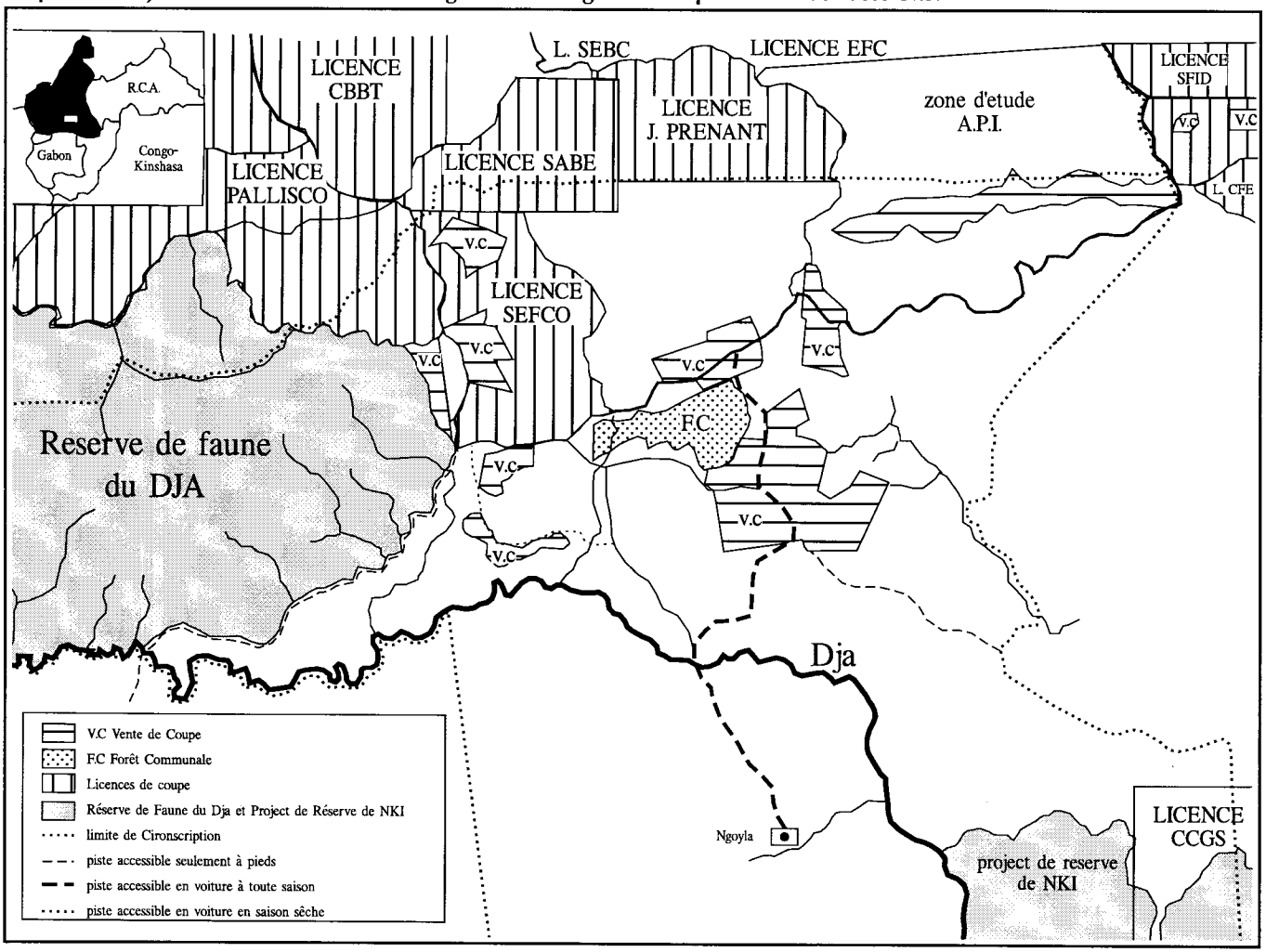
The Dja Reserve is almost entirely enclosed by a loop of the river Dja, one of the major river systems in Cameroon. The river provides an effective barrier for most of its mammal species (with the exception of elephant and some monkey species, who incidentally cross the river in the dry season) along the Northern, Southern, and Western park boundaries. Another main barrier, formed by the road Lomié - Abong Mbang, borders the park on the eastern side. A 90 km narrow stretch of land south of the village of Lomié, in the south east, forms the only possible corridor which allows a free passage for large mammals in and out of the reserve. It is only this narrow strip of land that links the Dja reserve with the projected reserve Nki and other protected areas south and east of the Dja.

The Dja region is inhabited by many different tribes. The Baka people are the traditional inhabitants of the region. The southern Kaka, the northern Badjous, the western Boulous and the Nzime and Djem people in the east,

although they have occupied the area for generations, originally come from other geographic regions. The average population density is estimated between 1 and 32 per km^2, with its main concentration in the west, a zone close by and with easy access to Yaoundé. In the west life is much under influence of Cameroon's main urban centres, Douala and Yaoundé and primary forest is hardly found there. Extensive untouched forest zones are still found in the east and south were population densities are much lower and rural communities mainly live from subsistence agriculture, hunting, gathering and some small scale cacao and coffee production.

Further away from large urban centres, modern developments are also progressing rapidly and the traditional rural society is subject to much change. For

Map of the Dja Wildlife Reserve including surrounding forest exploitation concessions.



example in the surroundings of Lomié, the number of Baka settlements along the road has increased over the last thirty years from one to thirty permanent settlements. These until recently nomadic people, still the experts in natural forest exploration and exploitation, have much difficulties to integrate with modern society with its land rights, market economy and different social structures.

Dja's biological diversity much under pressure

Although set aside as wildlife reserve since 1950, field studies have shown that approximately 80% of the area is used for hunting activities: steel wire snares being the main hunting tool (De Wachter, 1996, pers. obs. van der Wal).

A recent patrol report (unpublished) by the conservation post of Ekom, which falls under the authority of the Park Manager, gives a good impression of the extend of commercial hunting activities inside the Dja Reserve. During a two week survey in the north-eastern and eastern part of the reserve in July 1997, the team encountered no less than 25 hunting camps built within the boundaries of the reserve. In total they have counted approximately 2,000 animal legs being illegally harvested in and around the Dja Wildlife Reserve. In addition they reported 'irregularities' regarding the issuing of permits both on a local and provincial level.

Clearly, these hunting activities do not concern harvesting for local consumption only. Bushmeat is put on sale everywhere and forms a lucrative business for a whole chain of smaller and bigger tradesman. Around the Dja reserve much of the forest is given out as logging concessions. Logging activities have already covered 100% of the northern border, new licences and 'vente de coupe's' are rapidly approaching its eastern border, and already reach up to the south-western part of the reserve. New 'vente-de-coupe's' are mushrooming, it seems with little coordination at the administration level, in the important corridor area between the Dja Reserve and other protected areas like Nki in the south-eastern and licences overlap with protected areas (see map; the licence of CCGS overlaps for a large part with the Nki reserve).

Current projects (starting year and source of funding) in and around the Dja Wildlife Reserve

- ECOFAC (1992, EU):
  Regional Programme on "Conservation des Ecosystèmes Forestiers en Afrique Central", the Dja Reserve is one of the five pilot projects.
- APFT (1995, EU):
  Regional Programme on "l'Avenir des peuples des Forêts Tropicales" of which one of the projects: "Gestion périphérie du Dja".
- IUCN/Projet Dja (1995, Netherlands): "Réserve de Faune du Dja (région de Lomié): conservation and utilisation durable de la diversité biologique".
- SNV/SDDL (1996, Netherlands):
  Soutien au Développement Durable à Lomié.
- De Gouden Ark/UICN (1997, Netherlands): "Large Mammals of the Dja Wildlife Reserve.

It goes without saying that the rapid expanding logging activities have greatly enhanced the observed boom in commercial hunting in the South and East provinces of Cameroon. Unfortunately it seems that the southern forest belt, including the Dja Wildlife Reserve, is treated as an open access zone, with little or no restrictions on the use of the forest fauna.

Seeking ways towards conservation and sustainable use of forest mammals

Since five years, several projects have started in close collaboration with Cameroon's Ministry of Environment and Forestry with one common objective: the conservation of the biological diversity typical of the Dja area and

Hunter trying to locate a group of apes, after just having shot one. © Wouter van de Vegt, Lomié, 1997.

a sustainable use of natural resources in the surroundings of the reserve. As underlined before, bush meat consumption is deeply rooted in Cameroon's culture and it won't be easy to curtail this phenomenon. Besides classic approaches like reinforced repression and developing alternative food and income sources, systems of co-management and the feasibility of developing sustainable hunting practices are being considered. However, in rainforest zones like the Dja region estimation of animal population densities is an extremely tangible work, let alone necessary control and monitoring once sustainable cropping quantities are established. Despite all ongoing efforts to conserve Dja's unique biological diversity we have to fear the future of man's closest cousins like de western lowland gorilla and the chimpanzee.

References

UICN, 1996. **L'atlas pour la conservation des forêts tropicales D'Afrique.**

Baillon, Kornélia,1996. **Etude du flux de viande de brousse dans Younade pour la période Juillet 1995 - Mai 1996**.

De Wachter, Pauwel 1997. **Document de réflexion pour la phase opérationnelle d'UICN/Projet Dja**. Draft Rapport final Mai 1997, UICN/Projet Dja.

De Wachter, Pauwel, 1996. **Rapport intermédiaire des travaux de recherche, ECOFAC - Cameroun.** Janvier 1996.

Horta, Korinna, 1991. **The last big rush for the green gold, the plundering of Cameroon's Rainforests.** The Ecologist, vol. 21 (3).

Ministry of Environment and Forestry (MINEF), 1995. **National Forestry Action Programme of Cameroon.** Forestry Policy Document; MINEF, Cameroon, November 1995.

Ministry of Environment and Forestry, 1994. **Law No 94/01 of 20 January 1994 to lay down Forestry, Wildlife and fisheries Regulation.** Minef Infos - Special Issue, Republic of Cameroon.

Project documents of the various mentioned projects operating in and around the Dja Reserve.

The authors

Martha Klein and Mark van der Wal both studied tropical ecology at the University of Amsterdam where they graduated in 1989. Their study and work has been mainly focused on interactions between people and protected areas and have taken them to many different tropical settings in Africa, South-America and Asia.

At the moment Mark is contracted by the IUCN and the Golden Ark Foundation as the responsible person for the execution of the project "Grands Mamifères du Dja: Protection et Gestion". For the time being Martha assists him with this task.

Urban threats to biodiversity in the Congo Basin

- The future of tropical forest areas in the Congo Basin depends to a large extent on city dwellers. Rapidly growing urban populations tend to use forest resources in ways which are incompatible with sustainable use. The cumulative effects of land clearing and excessive extraction are turning the peri-urban halos into relative biodiversity vacuums. This is directly linked to the negative socio-economic environment which characterizes the region. -

Theodore Trefon[1]

Keywords

Congo Basin; biodiversity; urbanization; urban use of forest resources; peri-urban forest degradation; sustainable development.

Abstract

This paper addresses the problem of biodiversity loss in the Congo Basin from an urban standpoint. It examines urban use of forest products, urban demographic pressure and socio-cultural and socio-economic factors. It argues that city dwellers exploit their forest hinterlands out of economic determinism, because state systems do not provide satisfactory alternatives, and for cultural reasons. As the peri-urban halo expands, they are confronted by resource scarcity and increased costs. Their already precarious standards of living are consequently threatened. It is also suggested that while the international community has a responsibility in efforts to attain environmentally sustainable development, the ultimate responsibility lies with local stakeholders and decision-makers who perceive conservation issues much differently than Westerners.

[1] Projet Avenir des Peuples des Forêsts Tropicales, Université Libre de Bruxelles - CP124, 44 Avenue Jeanne, 1050 Bruxelles, Belgium, Phone: +32-2-650-3798, Fax: +32-2-650-4337, Email: ttrefon@ulb.ac.be

Urban population growth and biodiversity loss

Commercial logging, land clearing for agriculture and cattle breeding, excessive vegetation extraction, as well as over-hunting, are the principal and most commonly articulated threats to biodiversity for the earth's remaining - albeit rapidly shrinking - tropical rainforests (Bryant, et al., 1997). In the Congo Basin, however, another factor, and one which is all-too-often neglected by conservationists, needs to be threaded into the equation.

The region's cities are increasingly gnawing away at a forest mosaic comprised of secondary forests, degraded forests, remnants of primary forest and fallow areas. Demography and the urbanization process can best explain the phenomenon. Sub-Saharan Africa has the fastest growing population in the world and the countries of the Congo Basin have seen their numbers expand 2.5% over the past thirty years. Urban populations, due to continued outward rural migration and strong natural population growth (which is higher in cities than in rural areas) have multiplied by five. Likewise, the number of very large cities is growing rapidly: more than 70 Sub-Saharan cities with one million inhabitants are forecast for 2020 compared with 18 in 1990 (Venard, 1995, p. viii).

These facts also account for Central Africa. Although figures are sketchy, it is estimated that more than fifty percent of Cameroonians and Congolese (at both sides of the river) live in cities. The 1993 Gabon census identified 73% of the population as being urban. Sixty percent of Equatorial Guineans live in Malabo alone.

Why can the urbanization process be considered as a threat to biodiversity? Because urban encroachment takes on many forms. Land is cleared for housing, for commercial and subsistence agriculture, to satisfy needs for fuelwood and construction material and for infrastructure development. Cities which were surrounded by forest throughout the colonial period are now surrounded by expanding halos of seriously degraded forest or savanna-like ecosystems. The halo around Kinshasa extends approximately 150 kilometers. The Forêt Classée de la Mondah on the outskirts of Libreville (a theoretically "protected area") is seriously degraded (République Gabonaise, 1996).

A number of recent studies show that this classic Malthusian[2] analysis of "more people means greater pressure on scare resources" needs to be reconsidered (Ananor, 1994, Lambin, 1994, Binns, 1995, Kandah and Richards, 1996). There is evidence that increasing population pressure can result in greater attention paid to the environment. Moreover, people tend to adopt locally appropriate solutions to maximize their use of land and resources. These findings nonetheless pertain generally to rural areas where the land carrying capacity is less seriously disrupted. While some examples can be found on the urban landscape (e.g. urban farming, raising of game or use of urban sawmill scraps for producing charcoal) they are too few and too insignificant to be able to contribute to reducing the peri-urban halo effect or biodiversity loss.

Why city dwellers use forest products

Wood for cooking or building and bushmeat are the obvious examples of forest products consumed in towns - and the examples which most threaten the environmental equilibrium. There are numerous other examples as well, including medicinal plants, insects, leaves, fruits, oil palm derivatives, or mushrooms. These all constantly flow from forest areas onto urban marketplaces.

There are three principal overlapping causes which account for urban consumption of forest products. One is socio-political and stems from the weakness of state systems. The failure of the state to provide basic goods and services has forced urban masses to adopt alternative survival strategies which in many cases translates into reliance on forest products. These strategies often conflict with the logic of sustainable development and can be environmentally destructive.

While political scientists and economists are struggling to explain the root causes of the weakness of the African state, the urban poor in Central Africa are struggling to survive. The weaker the state system, the greater the need to rely on forest products. In the current context of low levels of development and economic crisis, African governments are increasingly unable or unwilling to provide, for example, modern sources of energy for cooking, intensive agriculture or animal husbandry, adequate transportation infrastructure or other basic goods and services.

Development can, but does not necessarily, diminish the "cultural attachment" city dwellers have for forest products - which is another principal cause of consumption. As the vast majority of city dwellers either migrated themselves or trace their "urban arrival" to parents or grandparents, they remain closely attached to their forest origins. The forest space and its products offer intangible benefits such as symbols, ritual substances and artefacts, and culturally important areas for sacred ceremonies or healings. Forests permeate all aspects of culture: language, history, art, religion, medicine and politics (Falconer, 1990, p. 39) with both positive and negative connotations. Indeed, city dwellers use forest products extensively for daily subsistence.

Access to gas or electricity for cooking does not mean that city dwellers no longer enjoy the smoky taste of food grilled over charcoal. Likewise does the availability of meat from raised livestock not mean that they have less appetite for game. While the choices between traditional or forest products compared with more "modern" or "urban"

[2] Thomas Malthus (1776-1834) said that if not controlled, either by disease and wars or by planning, the population of the world would grow faster than its food supply (ed.).

NTFPs such as cane provide cash and jobs for gatherers, transporters and artisans. Gatherers have to go further and further into the hinterland for their supplies.
© Louis Defo.

Products from the forest are used daily in Central African cities in cooking and in healing.
© Theodore Trefon.

products is often dictated by financial imperatives, the cultural factor can in some cases overrule the financial ones.

Given existing poverty levels throughout Central African urban areas, socio-economic explanations do nonetheless prevail. The urban poor, and poor urban entrepreneurs, turn to the forest for the wide array of products mentioned above. The long chain of exchange from producer, processor/transformer, transporter, wholesaler, retailer and end user is a major provider of jobs. Much needed products thus find their ways onto urban markets. In some cases, relatively modern instruments such as firearms or chain saws are used to satisfy ancient needs: these ostensibly simple examples can have a devastating effect on the environment. Deepening economic crisis, moreover, upsets supply and demand ratios - again to the detriment of the environment. Civil servants whose already meager salaries are paid months late, or former students who can't find jobs in the formal employment sectors are becoming increasingly active in the commercialization of game which is a relatively lucrative business which necessitates little investment.

It is in this context that the forest has been described as "a profane inanimate entity, to be plundered so as to satisfy gross economic demands" (de Garine et al., 1993, p. 530). It has also been referred to as an "economic buffer" providing subsistence and cash-earning products (Falconer, 1990, p. 20). These descriptions have rather equal meaning for both urban dwellers and their forest-based counterparts alike.

The socio-cultural and socio-economic cost of peri-urban degradation

As human activities relating to urban expansion upset the delicate balance between populations and nature, many elements of Central Africa's rich biodiversity find themselves under threat. The relationship between environmental degradation and urban poverty is a dialectical one because poverty is a cause of degradation, while degradation impoverishes.

Game

Game is a traditional foodstuff and the principal source of animal protein in the region. Yet, in many cities of the region, the poor urban householder can ill afford it and consumes it in small quantities or on rare occasions. In other cities, its commercialization is increasingly the work of professionals (hunters, traders, transporters, informal restaurateurs) and has consequently become somewhat of a snack food. In 1984, it was reported that game was rare in Yaoundé (Franceville, 1984, p. 111). In contrast, a recent study of game consumption in the same city reveals that it is relatively abundant and consumed frequently by both the urban working class and by the more well-to-do (Bahuchet and Ioveva-Baillon, forthcoming).

Wild animals are nonetheless more than food: they play important spiritual, symbolic and ritual roles, and are also important for traditional healing. They are also crucial in structuring ecological communities through, for example, grain dispersal and nutrient cycling (Redford, et al., 1995).

Habit loss and over hunting means that game must come from further and further into the forest hinterland. As the distance between game and city increases, eating habits change and cultural values shift.

Fuelwood

Like game, fuelwood use can also be viewed as a social issue in addition to being an environmental problem. While woody biomass resource availability is not a concern on the regional level, there are pinpointed crisis areas in and around some of the major cities - Kinshasa most notably with its 5 million inhabitants. Fuelwood use and procurement has repercussions on gender issues, land tenure and land use practices, eating habits as well as on how household time is spent and how household allowances are allocated. Scarcity and expense, due to peri-urban deforestation, are forcing city dwellers to modify attitudes and behaviors. Paradoxically, use of fuelwood or charcoal which can be purchased in small quantities, costs more in

the mid- and long-term than more modern sources of energy. Nonetheless, many families do not have the opportunities to invest in the even relatively simple material needed to cook with electricity or bottled gas. The social and environmental downside of fuelwood use is partially counterbalanced by its positive job creating capacity.

Non timber forest products

NTFP first sparked the interest of conservationists and developers because of their economic value: they provide cash to gatherers, constitute alternatives to poaching and can be harvested sustainably. Their role, however, extends far beyond their supply-side economic utility. The cultural factor is also capital, essentially in rural areas but in urban areas as well. Numerous NTFP are edible and serve as condiments or in making sauces. Leaves are also eaten, used in cooking or as wrappers. Oil, wine and alcohol are palm derivatives. Cane and rattan furniture is increasingly visible in urban areas. Traditional healing depends on forest products - both animal and vegetal (leaves, roots, bark, etc.). Materials for craft items and household utensils also come from the forest. Without intending to be exhaustive, this simplified inventory is put forward to show that as the peri-urban halo swells, the standard of living of the urban poor is undermined: substances used daily are becoming more rare and more expensive.

Future scenarios: challenges and responsibilities

The relative symbiosis which traditionally characterized relations between people and nature in the forest environment is much different in urban areas. Here the relationship between population density and resource availability is under far greater stress - even though we now know that social systems adapt increasingly well to environmental stress. Much of the problem stems from the fact that for city dwellers in general, life in the city is characterized by a transition from the subsistence activities of hunting, gathering, slash and burn agriculture and fishing to formal or informal service of market activities.

In the post-Rio scramble, numerous NGOs and international and bi-lateral aid agencies have embraced the challenge of attaining environmentally sustainable development with conservation. This challenge, however, must be considered in the much broader context of development in other sectors, such as family planning, public health, education, secure access to land and infrastructure. Pressure on the city is unlikely to lessen until these problems are addressed in rural areas.

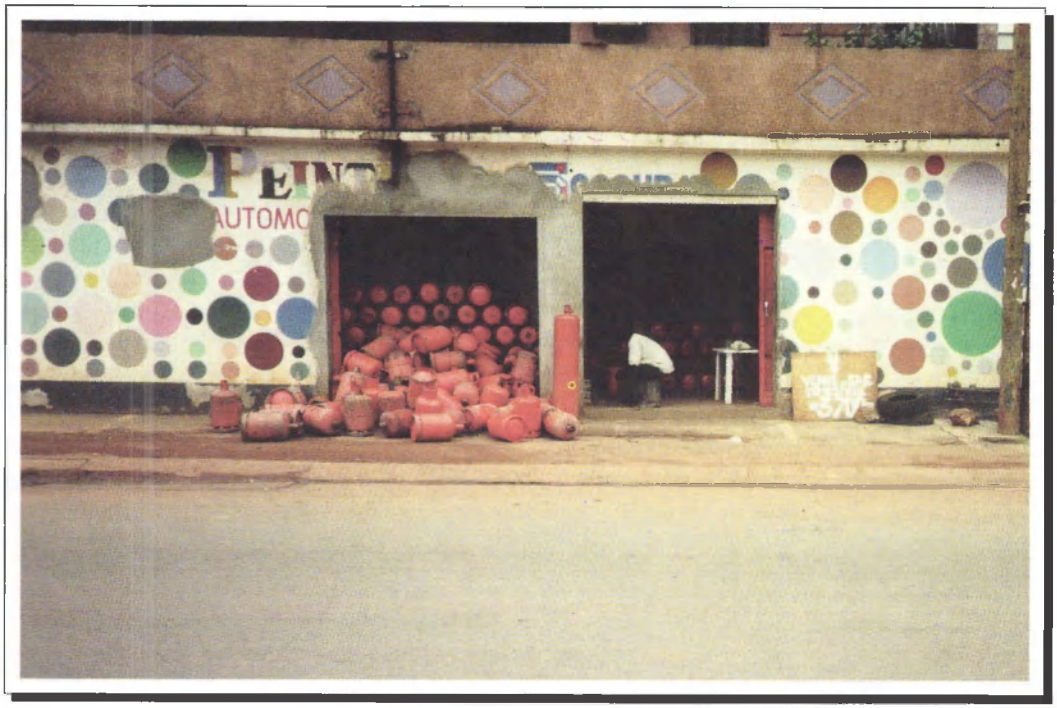
The ultimate responsibility lies with stakeholders (the rural and urban poor) and decision-makers within Central Africa. Indeed, even though the Central African city is at the interface between what remains of remote forest biotopes and global political, economic and cultural fora, locally appropriate solutions have to be found on the local level. Understanding attitudes and influencing behaviors from the socio-economic and socio-cultural perspectives is a first step (Byers, 1996). African decision-makers however, who are themselves urban-based, do not always consider conservation issues in the way Westerners do. Their real or perceived short-term political and economic imperatives are incompatible with forest conservation which is a long-term enterprise. Due to the fragile nature of African political systems, they have opted for quick-fix alternatives which are often taken to the detriment of the environment. Excessive timber exploitation is the most vivid example.

Even if some harmonization can be attained in addressing these combinations of factors, it will be a major challenge to slow down or reverse the process of urban pressure on the environment.

References

Amanor, K., 1994. **The New Frontier: Farmers' Responses to Land Degradation: A West African Study.** UNRISD, Geneva. pp. 244.

Bahuchet, S. and Ioveva-Baillon, K. Forthcoming. **Le rôle de la restauration de rue dans l'approvissionnement des villes en viande sauvage: le cas de Yaoundé (Cameroun)**. Conference proceedings of the VIIIémes Journées Scientifiques de la Société d'Ecologie Humaine, held in Orléans, France, 7-8 June 1996, Urbanization et Environnement dans les pays en développement.



Paradoxically bottled gas in Yaoundé is cheaper than fuelwood, but many households can't afford the prerequisite setting-up costs. © Theodore Trefon.

Binns, T., (ed.), 1995. **People and the Environment in Africa**. Wiley, Chichester. pp. 274.

Bryant, D., Nielsen, D. and Tangley, L., 1997. **The Last Frontier Forests: Ecosystems and Economies on the Edge.** World Resources Institute, Washington, D.C. pp. 43

Byers, B., 1996. **Understanding and Influencing Behaviors in Conservation and Natural Resources Management**. African Biodiversity Series, No. 4. Biodiversity Support Program, Washington, D. C. pp.125.

De Garine, I., et al., 1993. **"Cultural Factors in Food Choices - Background".** Iin Hladik, C. et al., (eds.) 1993, Tropical Forests, People and Food: Biocultural Interactions and Applications to Development, UNESCO, Paris.

Falconer J., 1990. **The Major Significance of 'Minor' Forest Products: the local use and value of forests in the West African humid forest zone.** FAO, Rome. pp. 232.

Franqueville, A., 1984. **Yaoundé: Construire une Capitale**. ORSTOM, Paris, pp. 192.

Kandeh, H. B. S. and Richards, P., 1996. **"Rural People as conservationists: querying neo-Malthusian assumptions about biodiversity in Sierra Leone"**. In Africa, vol. 66, no. 1, (The Shaping of Biodiversity), Edinburgh University Press, Edinburgh.

Lambin, E., 1994. **Modelling Deforestation Processes: A Review.** La Commission Européenne, Luxembourg. pp. 113.

Redford, K. H., Godshalk, R., Asher, K., 1995. **What about the Wild Animals? Wild Animal Species in Community Forestry in the Tropics**. FAO, Rome, pp. 96.

République Gabonaise, 1996. **Forêt Classée de la Mondah: Interface populations locales/forêt classée.** Intermediary report prepared by Pierre Débouvry for the Projet Forêts et Environnement, unpublished, Libreville, pp. 80.

Venard, J. L., **Urban Planning and Environment in Sub-Saharan Africa, Building Blocks for Africa.** Paper No. 5, The World Bank, Washington, D.C., pp. 43.

The author

Dr. Theodore Trefon is Research Associate at the Centre of Cultural Anthropoly at the Université Libre de Bruxelles and coordinates research on Forest-City Relations in Central Africa for the European Union (DGVIII) financed project Avenir des Peuples des Forêts Tropicales.

A Bantu woman and child in Southern Cameroon, the region that will be affected by the Chad-Cameroon oil- pipeline.
© Korinna Horta.

La Nuit Coloniale continue a porter son Ombre Immense sur ce Vaste Continent

Cameroon's war against subsistence. A socio-economic and ecological analysis against the background of the Chad-Cameroon oil-pipeline

- The rapid depletion of Cameroon's forests serves as a paradigm for a broader situation in which human rights and the consequences of environmental degradation are largely ignored. -

- It is in this context that an international consortium consisting of Exxon, Shell and Elf is seeking public support through loans from multinational development banks, primarily the World Bank, for a major oil and pipeline project in the region. -

Korinna Horta[1]

Abstract

International economic pressures combined with lack of democracy and accountable government in Cameroon is leading to the rapid depletion of Cameroon's forests. The crisis of deforestation is seen as a paradigm for the broader situation in the country in which human rights and the costs of environmental degradation are largely ignored. Substantial investments in biodiversity projects over the past decade have had little impact in stemming forest loss in part because centralized power opposes the rights of communities to manage their traditional forest resources.

It is in this context that three of the largest oil companies in the world, Exxon, Shell and Elf, are seeking support from the World Bank for a multi-billion dollar oil development in southern Chad and an 880 km pipeline through Cameroon. African NGOs call for the consideration of alternative World Bank investments that would have a direct impact on poverty alleviation and environmental protection.

[1] Environmental Defense Fund, 1875 Connecticut Ave., N.W., Washington, DC 20009, Phone: +202-387-3500, Fax: +202-234-6049.

Introduction

La nuit coloniale continue a porter son ombre immense sur ce vaste continent (Jean-Marc Ela, 1993). The shadow of the colonial night to which theologian Jean-Marc Ela makes reference reflects his observations of his native Cameroon. What he sees is a country where the national elite is allied to foreign companies while the majority of the country's population lives on the very edge of subsistence (Ela, 1993). The rapid depletion of Cameroon's forests serves as a paradigm for a broader situation in which human rights and the consequences of environmental degradation are largely ignored.

The destruction of the country's forests continues unabated, although international agencies have poured considerable amounts of funding for biodiversity protection into Cameroon over the past decade. It is against this background of lack of enforcement of environmental protection and of absence of an effective judicial system that the ecological and social risks of a proposed 880 kilometer long oil pipeline must be evaluated. Three of the world's largest oil companies, Exxon, Shell and ELF, plan to develop oil fields in the south of landlocked Chad and build the pipeline through Cameroon to export the Chadian oil by sea. Since the oil consortium is seeking public support through loans from the multilateral development

banks, primarily the World Bank, serious questions must be raised about the wisdom of using scarce public funding intended for poverty alleviation and sustainable development programs for such a questionable project.

Cameroon is a rich mosaic of landscapes as well as people of different ethnic groups and proud musical traditions. World Bank publications describe Cameroon as a country richly endowed with natural resources, a diversified production base and well-developed infrastructure(World Bank, 19950. Yet despite the country's human and natural resources, economic statistics and social indicators confirm that a majority of Cameroonians faces an increasingly desperate economic situation.

The population in the countryside, feeling the brunt of a severe decline in producer prices for agricultural products, rarely has access to minimal government services. Over half of the country's population is estimated to lack access to safe water and sanitation (UNDP, 1997). Malnutrition is widespread and the rates of maternal and infant mortality are growing (World bank, 1994). In urban areas, growing shanty towns without basic infrastructure have become the breeding grounds for epidemics. Survival is a day-to-day struggle for many of the 13.2 million people in Cameroon. GNP per capita has declined by about 55% between 1987 and 1994, hitting the poorest population groups hardest. At the same time, the country's external debt skyrocketed to US $ 9.2 billion in 1996 (EIU, 1996). Nonetheless, government spending on defense was about double its spending on health between 1990-1995 (UNICEF, 1997). "La crise" as this difficult social situation which began in the mid-1980s is commonly called, became further aggravated with the devaluation of the Franc CFA in January 1994, which overnight cut the value of the country's currency in half. As a result the already limited purchasing power of the increasingly urban population in Cameroon was severely eroded.

The country's promised democratic opening has stalled as evidenced again by the country's parliamentary elections in May 1997, which were rigged to ensure a comfortable majority for the ruling party, the Cameroon People's Democratic Movement. In talks with ordinary citizens in both urban areas and the countryside, it becomes clear that people have become tired of not being able to express themselves freely. The potential for social unrest and violence is growing and the Government itself appears to be promoting ethnic divisions in an effort to keep itself in power[2]. Transparency and fairness in the presidential elections scheduled for October 1997 will be essential if the country is not to move further towards political turmoil.

Violence is already a daily occurrence in the country's forest regions as local people have begun to block the roads that are primarily being used by logging trucks. Villagers, who have access to neither schools nor hospitals, see their livelihoods threatened as valuable timber is taken from their regions without any benefit for their communities. The confrontations with the logging trucks and their armed guards usually lead to severe beatings and imprisonment of the villagers, who have little recourse to a legal system that would defend their rights (Nde, 1997). A recent study by François Ekoko on Cameroon's 1994 Forestry Law describes the situation in the forest sector as one of "decrees and laws that protect the interests of some foreign companies, juicy contracts, shares in privatized companies and logging concessions for allies (Ekolo, 1997).

Deforestation

For almost a decade Cameroon has been one of the country's with the highest rates of deforestation in the world. In recent years this trend has intensified greatly as logging, the principal catalyst for deforestation, has increased and expanded into new areas. European companies, many of which have moved into Cameroon and other central African forest regions after depleting the West African forests, are now joined by an increasing number of Asian, predominantly Malaysian, companies. Almost ten years ago, in 1988, the ill-conceived Tropical Forestry Action Plan (TFAP) for Cameroon, which was jointly

[2] An example is the distinction that the Government is now drawing between "Autochtones" and "Allogenes", which helped promote violence in the capital at the time of the legislative elections in May 1997.

The Lobe Falls near Kribi, where the terminal for the proposed pipeline is to be built.
© Korinna Horta.

Logging trucks are the most common sight on Cameroon's roads.
© Korinna Horta.

Baka people near the town Abong Mbang.

What once was a small, narrow dirt road between the regional center of Abong-Mbang and the small town of Lomié near the Dja Wildlife Reserve, has turned into a vastly improved thoroughfare with funding from the European Union.
© Korinna Horta.

their trading products disappearing, the indigenous forest peoples are increasingly forced to become what they themselves describe as slave-laborers on Bantu fields[5].

Exceeding national borders

Forest loss in Cameroon has significance that reaches beyond the country's national boundaries. Cameroon is a country on the frontier of the world's second largest bloc of tropical moist forest. The West African countries to its north are largely deforested and are now increasingly affected by droughts and even the possible collapse of the West African monsoon (Pearce, 1997). Cameroon is also among the countries with the greatest diversity in species and habitats in Africa. The country is home to many endemic species. Mount Cameroon alone is estimated to have 45 plant species that can be found nowhere else in the world (Sayer, et al., 1992). This extreme wealth in biodiversity is due to the large remaining tracts of relatively undisturbed lowland moist tropical forest, the broad range of ecological habitats resulting from differences in elevation and rainfall and biogeographical relationships with both west and central Africa (Alpert, 1993).

International donors and biodiversity

In recognition of the global importance of Cameroon's biodiversity, an estimated US $ 100 million have been invested in biodiversity conservation in the country over the last ten years (Sunderland, et al., 1997) with funding provided by both bilateral and multilateral agencies, including a major World Bank project financed through the Global Environment Facility (GEF). Yet despite this massive investment and the work of dedicated individuals, the destruction of Cameroon's forests has accelerated. The large amounts of foreign funding for biodiversity conservation appear to have made little headway in building institutional, human and logistical capacities at the local, regional and national levels to deal with the crisis of deforestation.

The lack of open and accountable institutions is creating a situation where the discovery of commercially valuable biodiversity is leading to its depletion instead of providing an incentive for its sustainable use. This is the case, for example, with the discovery of the Pygmeum (*Prunus Africana*), whose bark is exported and used overseas for the treatment of prostate cancer, and which is now rapidly being depleted (Sunderlan et al., 1997).

...and politics

A key factor behind the limited impact of most conservation projects has been reluctance to address conservation as a political issue for local communities and thereby help provide the means by which local people can be empowered to protect the biodiversity of their lands. According to one international conservation organization in Cameroon, its efforts to work closely with local people and reflect their priorities resulted in the organization being expelled from the project area. It was, however, immediately replaced by a competing conservation organization more inclined to work with centralized power, which often considers local groups and initiatives as a potential source of subversion[6]. Research by social scientists indicates that supporting national level structures in this fashion may actually undermine traditional resource management and thereby be counterproductive for biodiversity conservation (Bailey, 1996).

It is unfortunate that organizations whose goals are biodiversity conservation will allow themselves to engage in turf battles instead of joining forces to address underlying political issues, mainly the critical need for the recognition of land rights for indigenous peoples and local communities. What is at stake is more than simply a legal provision. Reinforcement of traditional land tenure represents the framework within which communities regulate their use of the forest through their own local political institutions (Colchester, 1994).

[5] Author's interviews with Baka people, who wish to remain unnamed, in the Lomié region, May 1997.

[6] Interview with representative of a large northern conservation organization in Cameroon, who wishes to remain unnamed, May 1997.

Forest clearing for roads, pipelines, railways, urban expansion, mining, logging and for agricultural purposes are putting an increasingly heavy burden on the Congo Basin's natural and cultural diversity.

At present, all forests continue to be owned by the state, i.e. the ruling elite. This precludes local people from having the right to defend forest lands from poaching and uncontrolled logging. Cameroon's 1994 Forestry Law, which was written with support from the World Bank, promised at least a partial solution by containing a provision for the establishment of community forests. According to non-governmental sources in Cameroon, this provision is not being implemented and the Government's recent granting of three community forests hardly disguises the fact that these are, effectively, timber concession areas granted to members of the national elite who sell to the large international logging companies.

Context of the pipeline

It is in this context that the international oil consortium led by Exxon plans to develop three major oil fields in the Doba region of southern Chad which are to produce 225,000 barrels of oil per day. The political situation in Chad appears to be even more volatile than the one in neighboring Cameroon. Human rights advocates in Chad fear that fighting over control of oil revenues may endanger the fragile peace that the country is presently enjoying after a 30-year old civil war between the largely Muslim north of the country and the Animist and Christian populations of the south.

Signs of trouble are already evident. Security forces to protect the oil consortium are largely recruited from President Idriss Deby's ethnic group, who speak Arabic and not the local languages of the south. One peasant was shot to death and there may be more violence when villagers express their discontent about the negligible compensation they are receiving for the expropriation of land and trees. A mango tree, for example, which may represent a family's most important source of cash income over the course of many years, is compensated for with a one-time payment of about ten US dollars (Forelli, 1997). Recent press reports in France seem to confirm that Chad's president Idriss Deby is tightly controlling the project and that only members of his family are receiving training by the oil consortium (LNO, 1997).

International participation

The political volatility of both Chad and Cameroon explains why the consortium has decided to condition the realization of the US $ 2.5 billion project on participation of the World Bank (Exxon Paper, 1996). The World Bank's financial contribution serves as political risk insurance since it will make the World Bank a direct project participant with which developing countries can ill afford to be on bad terms if they do not wish to risk access to both public and private international finance. The World Bank plans to contribute to the financing of the pipeline and the marine facilities from where the oil will be exported. As currently planned, the World Bank would contribute US $ 120 million through the International Development Association (IDA), its branch for lending to the poorest countries and an additional US $ 250 million through the International Finance Corporation (IFC), its branch for private sector operations. The IDA portion of the funds is to finance partial state ownership of the pipeline, a rather surprising investment strategy since privatization of state enterprises has been at the center of World Bank structural adjustment programs in Cameroon.

Ecological and social consequences

"Watersheds, protected forest areas and biodiversity are severely threatened by the planned oil and pipeline project," says Louis Djomo, who coordinates the African Forest Action Network (AFAN), a network of 60 West and Central African NGOs. The Dendeng forest area, the Campo and Douala-Edea Wildlife reserves and other biodiversity-rich areas stand to lose from the large influx of migrants in search of work who will cut down forests and poach wildlife. Since the pipeline will traverse several of the largest rivers in Cameroon, which local people rely upon to meet all their water needs, water pollution is an important concern. The loss of land, crops and homes to construction activities will affect thousands of people. Cameroonian NGOs have little faith that there will be fair compensation for these losses.

Construction of the 880-kilometer pipeline and related infra-structure such as roads, pumping stations and construction camps is a gigantic undertaking. Public health experts fear a large increase in malaria and the rapid spread of AIDS in remote areas as convoys of construction trucks and an outside workforce move with the construction activities.

Fishermen in Kribi, the Atlantic port from which the oil is to be exported, fear losing their livelihoods as oil pollution will eliminate fish in the areas they can reach with their small dug-out canoes. Local hopes of developing small-scale ecotourism activities on the coast are now less likely to be realized. The off-shore oil facilities apparently will be located near the Lobé waterfalls, a uniquely beautiful site where a waterfall drops directly into the sea. According to WWF Cameroon, the Kribi coast may also be one of the rare sites on the West African coast where there are corals[7].

The ecological and social consequences of the project are being examined in an environmental impact assessment commissioned by the oil consortium. There have been no consultations with affected communities in Cameroon and Chad during the EIA process and no public debates about possible mitigation measures. A three member environmental panel is accompanying the EIA process, but its members are sworn to confidentiality.

Transparency or secrecy

The oil and pipeline project has been shrouded in secrecy. Only recently have efforts been made to inform communities that will be affected by the pipeline. But reports from the field indicate that the information consists of promises of jobs and one account from Lolodorf in southern Cameroon stated that villagers were told "large numbers of white men will come into the region and if you are lucky, you can marry your daughters to the whites[8]."

[7] Information from Steve Gartlan, director of the WWF office in Cameroon.

[8] Report from Cameroonian NGOs which wish to remain unnamed. August 1997.

According to a respected French publication, the routing of the pipeline, which is accompanied by improved roads, reflects French military logic to ensure rapid mobility of French forces should their political allies lose their grip on power (LLC, 1995). Providing security for the pipeline will be a big business and has already been described as the "Contrat du Siècle" as the world's large security companies are vying for the multi-million dollar contracts to guard the pipeline with what could be para-military units on the ground supported by helicopters (Jeune Afrique, 1997).

Conclusion

The World Bank justifies its planned involvement in building the pipeline by emphasizing that the income generated by the pipeline will be used for poverty programs. Under present circumstances, the likelihood of a trickle-down effect is not convincing. The Bank's own assessment of Cameroon's government is that it has a very weak commitment to poverty alleviation (World Bank, 1995). Transparency International, an international coalition fighting corruption in business transactions, classifies Cameroon as one of the most corrupt countries in the world. Cameroon's own crude oil exports suffer from what a British publication calls "historic lack of transparency (EIU, 1997)."

In separate letters to World Bank President Wolfensohn, the African Forest Action Network (AFAN) and a coalition of Cameroonian NGOs led by the Center for Environment and Development, request that the World Bank reconsider funding for this project (AFAN, 1997).

They deserve to be heard. Alternative investment scenarios with direct positive impacts on people's livelihoods and environmental protection ought to receive serious consideration before a decision on World Bank-financing of an Exxon, Shell and ELF project is taken.

References

Ela, J.M., 1993. **Le Cri de l'Homme Africain.** Editions l'Harmattan, Paris. 173pp

The World Bank, 1995. **Trends in Developing Economies.** Vol. 3. Washington, D.C. 215pp.

United Nations Development Programme, 1997. **Human Development Report 1997.** Oxford University Press. 245pp.

The World Bank, 1994. **Memorandum and Recommendation on Proposed Economic Recovery Credit.** Washington, May 25, 1994.

The Economist Intelligence Unit, 1996. **Country Report. 3Rd Quarter 1996.**

UNICEF, 1997. **The State of the World's Children.** Oxford University Press. 107pp.

Nde Patrice Ateh, 1997. **Forest Fight back on 'Spineless' Exploiters'.** Gemini News Service Report, 27 March 1997.

Ekolo, F., 1997. **The Political Economy of the 1994 Camerooninan Forestry Law.** Mimeo. 7pp.

FAO/ UNDP, 1988. Vol. I, FAO, Rome

The Economist Intelligence Unit, 1997. **Second Quarter Report for Cameroon.**

Vansina, J., 1990. **Paths in the Rainforest. Towards a History of Political Tradition in Equatorial Africa.** The University of Wisconsin Press. Madison, Wisconsin. 428pp.

Pearce, F., 1997. **Lost Forests Leave West Africa Dry.** New Scientist, 15 January 1997, 218.

Sayer, J.A., Harcourt, C.S. & Collins, N.M., 1992. **The Conservation Atlas of Tropical Forests.** Africa. Simon & Schuster, New York, 288pp.

Alpert, P., 1993. **Conserving Biodiversity in Cameroon.** Ambio. Volume XXII, No. 1, 44-49.

Sunderland, T.C.H., Jaff, B., Ndam N., Jato, J., 1997. **Conservation through Utilization - A Case Study: Capacity Building and the Institutional Context for Biodiversity Conservation in Cameroon.** Paper presented to the UK Tropical Forest Forum Workshop, Lime Botanic Garden, 17-24 January 1997. 25pp.

Bailey, R.C., 1996. **Promoting Biodiversity and Empowering Local People in Central African Forests.** In: Sponsel, E.E., Headland, T.N. & Bailey, R.C. (Ed). Tropical Deforestation. The Human Dimension. Columbia University Press.316-341.

Colchester, M., 1994. **Salvaging Nature. Indigenous Peoples, Protected Areas and Biodiversity Conservation.** United Nations Research Institute for Social Development. Geneva. 76pp.

Fondation pour le Respect des Lois et de Libertes (Forelli), N'Djamena, Chad. Statement of July 30, 1997.

Le Nouvel Observateur, 1997. **Pauvres Petroliers.** 3-9 Juillet 1997.

Exxon Paper, 1996. **Exxon's Chad Doba Project.** August 15, 1996.

La Lettre du Continent, 1995. **Cameroun- un Pipeline Politico-Militaire.** No. 228. 9.2.1995.

Jeune Afrique, 1997. **Le <contrat du siècle>.** No. 1895. 7 Mai 1997.

The World Bank, 1995. **Implementation Completion Report. Republic of Cameroon. Social Dimensions of Adjustment Project.** June 16, 1995.

Economist Intelligence Unit, 1996. **Cameroon Country Report.** 3rd Quarter 1996.

African Forest Action Network, 1997. **Letter to World Bank President Wolfensohn.** August 11, 1997. Center for Environment and Development et al. 1997. Letter to World Bank President Wolfensohn. Sept. 1997.

The author

Korinna Horta is an environmental economist at the Environmental Defense Fund, a non-profit organization in Washington, D.C. EDF links science, economics and law to create environmental solutions. She works closely with civil society organizations in Europe and in developing countries to promote policy changes in international financial institutions and private corporations to help ensure that their operations are environmentally sustainable.

Forestry in Equatorial Guinea

- This trend of increasing production levels continues until present days and coincides with the arrival of Asian timber companies.
The new forest law (Ley No. 1/1997 of 18 February) has made it clear that the government has put a ceiling on the production level of 450,000 m^3yr^{-1} of roundwood. It will be interesting to see how they will be able to reduce the production levels since this years production levels will surpass this level by far. -

Michiel van Breugel[1] & Marc Parren[1]

Keywords

Equatorial Guinea; forest management; timber production; land use planning; conservation.

Abstract

Equatorial Guinea has an unique flora and fauna which is under threat since commercial logging operations resumed in the 1980s. Recent increased interest in the forest sector by Asian parties could lead to serious overharvesting and degradation of the natural stock. This is presently counterbalanced by projects aimed at land use planning, conservation and sustainable forest management. New regulations and forest legislation have been introduced by the government. It is still to early to say whether these new initiatives to regulate land use will be effective.

Introduction

One of the least known countries in the Congo Basin is probably Equatorial Guinea. The country consists of the island Bioko, with the capital city Malabo, the continental region called Rio Muni and three smaller islands (see figure 1). In this paper we will limit ourselves to the developments in the continental region since commercial logging is confined to Rio Muni. Some 2 million ha or about 80% of the land surface is under forest cover (FAO, 1994). The coastline of Rio Muni is in general bordered by a narrow fringe of *Terminalia catappa* and palm trees, while in the estuaries of the rivers, mangroves are found (Fa, 1991). The coastal vegetation is followed by a natural savannah belt of about two km broad, which gradually merges into moist evergreen forest. These forests are characterized by a high biodiversity and contain many commercially interesting timber species.

Okoumé (*Aucoumea klaineana*) is one of the dominant species in the forests of Rio Muni and by far the main timber species. The distribution of this valuable species is confined to the forests of Rio Muni, Gabon and Congo-Brazzaville (Groulez, 1963; Leroy-Deval, 1973). The dominant feature of the light demanding okoumé species found all over Rio Muni might partly be explained by extensive human activity in the moist forest zone in the past. At the beginning of colonial times migrations of the 'Pahouin' people, originating from present central Cameroon, were still in progress. These 'Pahouin' migrations took a long time and became stable not until the first decade of this century (Vansina, 1990; Perrois & Sierra Delage, 1991).

Colonial interest in Rio Muni has started relatively late at the beginning of the 20th Century and was restricted mainly to timber exploitation. Nowadays the forestry sector is still one of the main economic sectors of Equatorial Guinea. The contribution to the countries export earnings, tax income and labor is relatively higher than in most other

[1] Wageningen Agricultural University, Department of Forestry, P.O.Box 342, 6700 AH Wageningen, The Netherlands.

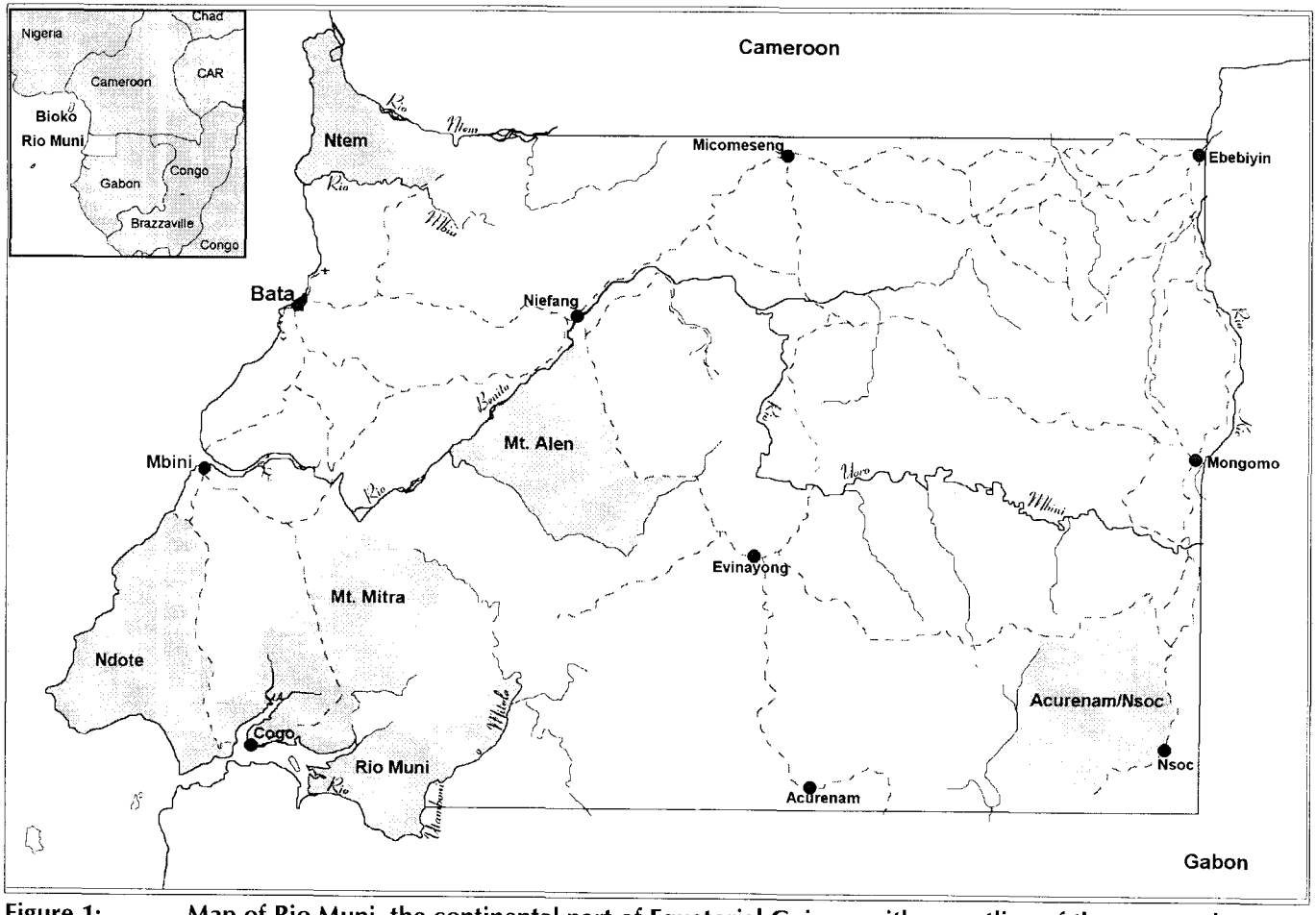


Figure 1: **Map of Rio Muni, the continental part of Equatorial Guinea, with an outline of the proposed protected areas.** (Gabinete de Planificacíon Forestal, 1994).

African countries. In 1987, timber surpassed cocoa, the main commodity of the plantation economy on Bioko, as single most important export product. Since 1993 timber lost this position to oil export revenues, but is still the main source of tax income to the state. Despite being a major contributor to the GDP, only about 1% of the earnings from forestry taxes is channeled back into the forest administration (FORINDECO, 1993).

Timber production shows a spectacular increase since 1993 when the government of Sabah, Malaysia no longer allowed the export of roundwood. New parties, mainly from Asian origin, have been able to obtain new concessions and started operating since early 1996. Logging activities are no longer restricted to the coastal region but spread all over Rio Muni. The annual deforestation in Equatorial Guinea is estimated to be 0.5% (FAO, 1997). Although this deforestation holds a threat to the forests of Equatorial

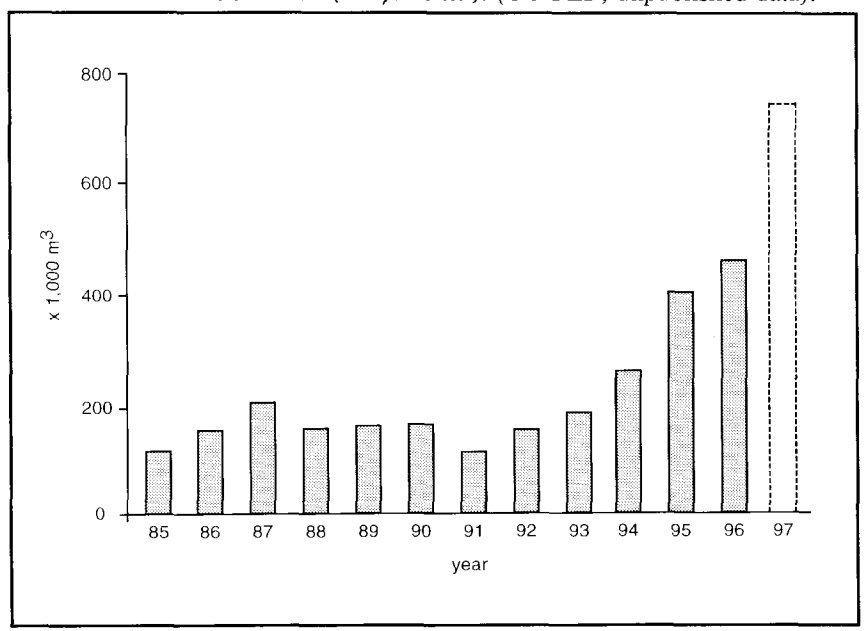
Guinea, it is still not yet as alarming as in other (West African) moist forest regions (see e.g. Parren & de Graaf, 1995). So far forest management is still on the threshold of its development. Slowly progress is made, such as the development of a forest policy and an adequate forest legislation. Efforts are made to come to a system of rational and sustainable use of the natural resources and conservation of the rich biodiversity of Equatorial Guinea. Ever since two major EC funded projects, the so-called ECOFAC (Conservation and Rational Utilization of Tropical Ecosystems in Central Africa) and CUREF (Conservación y Utilización Racional de Ecosystemas Forestales de Guinea Ecuatorial) projects, are to guide and assist this process.

Forest exploitation

In Rio Muni commercial timber exploitation started in the 1920s and was restricted to the coastal region. Eventually concessionaires were granted eastwards from Bata to Niefang and southwards from these two towns to the border with Gabon. To the north of this region, there were no navigable rivers on which to transport logs, while the area east of Niefang was inaccessible. In the 1930s timber exports averaged 61,000 m^3yr^{-1} (Capdevielle, 1949) and over the years increased to over 550,000 $m^3 yr^{-1}$ (Fa, 1991) in 1969, the year of independence. The commercial volume extracted was high with an average of 25 m^3ha^{-1} in comparison to 10 m^3ha^{-1} in Gabon (FORINDECO, 1993).

During the first decade after independence, under the dictatorship of the Macias regime, the country became internationally isolated. The whole economic infrastructure and public administration collapsed. Most timber companies were foreign owned and left Equatorial Guinea, so timber exploitation virtually came to a stand still (Sundiata, 1990; Fa, 1991). In 1980 foreign timber companies, mainly Italian and Spanish owned, started operating again. The production fluctuated around 150,000 m^3yr^{-1} until 1994 when the timber production surpassed an annual output of 200,000 m^3 (see figure 2). At that time the government of Sabah introduced a ban on the export of roundwood. Export of timber to Asia increased since this market accepted tree species considered formerly as mere softwoods and even stems of a relative lower quality. The fact that the required stems could still be found in the coastal zone (30-40 km from the harbor) boasted the export as well. This trend of increasing production levels continues until present days and coincides with the arrival of Asian timber companies. Almost all wood is exported as logs, only about 15% of the roundwood is processed in Equatorial Guinea where sixty percent is required to be transformed according to the forest law (OCIPEF, unpublished data). Since processing adds additional revenue and generates employment, this is an important issue to be tackled.

Figure 2: **Annual timber production of Equatorial Guinea during 1985-1997 (in 1,000 m^3).** (OCIPEF, unpublished data).



Production levels will surpass the level before independence and reach up to between 700,000 to 800,000 m^3 at the end of 1997. One Asian concessionaire alone has set his production objectives at 60.000 m^3 per month. The new forest law (Ley No. 1/1997 of 18 February) has made it clear that the government has put a ceiling on the production level of 450,000 m^3yr^{-1} of roundwood. It will be interesting to see how they will be able to reduce the production levels since this years production levels will surpass this level by far.

We estimate the total forest surface without aberrant site conditions and available for exploitation over a long time-span at not more than 1 million ha based on the FAO inventory of 1990 (Marini, 1991). The recent permanent sample plot data of Ghana show us that an average annual production level of 0.5-1 m^3 ha^{-1} for all commercial timber species is realistic (Parren & de Graaf, 1995). This implies that in case the forest dynamics of Ghana and Equatorial Guinea are thought to be comparable a conservative upper limit on the annual production level of 450,000 m^3 would indeed be realistic. With a felling cycle set at 25-40 years sustainable timber production could be reached in case proper silvicultural management would be applied and the entire range of commercial timber species would be harvested. In reality both are most often not the case so the production levels have to be set at a lower level.

Okoumé has always been the main timber species. Between 1920 and 1963, the share of okoumé in the total harvested volume fluctuated between 50 and 99 percent. In subsequent years until independence diversification of exploited species increased and as a consequence the proportion of okoumé decreased. Not just the demand for other timber species was responsible for this new trend, but also the depletion of okoumé in the more accessible coastal zone. However since the mid 1980s production depends largely on okoumé again despite the goal set by the government to come to diversification of timber species. During the first half of 1997 over 90% of the total harvested volume consisted of only four species, and the share of okoumé alone in the total volume was 77% (OCIPEF, unpublished data).

Timber exploitation has been mainly confined to the coastal regions in cycles of 20 to 40 years which are now undergoing their third felling cycle. Nowadays an important part of the okoumé logs is still coming from this region, in spite of the smaller diameters and stems of lesser quality. The cause is an increase in the demand for okoumé, especially from the Asian market. The Asian companies, operating since the mid 1990s, believed also to have markets for lesser known species and therefore felled almost all commercial species above the minimum felling limits. This was a major difference with European concessionaires, which apply selective logging and in general extract about 10 m^3ha^{-1} (Fa, 1991). However, the market for these lesser known species proves to be restricted even in Asian markets, forcing the Asian companies to become more selective. At this moment they take about 20 species.

Forest management

In Equatorial Guinea, the new law of 1997 sets a maximum size to concessions of 50,000 ha effective harvestable area - this means that concessions in e.g. mountainous areas can be larger - and the concession attribution is valid for fifteen years. Figure 3 shows the development of concession areas in Rio Muni between 1945 and 1988. Since good timber quality in the coastal zone is declining and the number of enterprises is increasing, concessions in the hinterland are handed out covering 1.4 million ha. As a consequence all potential land has been handed out by now. This surface includes other land use types apart from forest lands. Of the present concessions about 960,000 ha are exploited or have been exploited, while at the same time logging takes place in community forests ('reservas de poblados') and on private land, even increasing this figure.

In the forest law the government has stressed the need for forest management directed to sustained yield and maintenance of the original standing timber volume through

natural regeneration, total or partial reforestation and enrichment planting. Although a sound concept, implementation seems to be impossible at the short or even medium term. The forest administration is understaffed and does not have the means nor knowledge for monitoring and planning of forest management and exploitation. Control mechanisms to prevent overexploitation and guidelines for sustainable forest management have been mostly limited by just applying the primitive instrument of minimum harvestable diameters. A felling interdiction exists for fruit trees useful for human consumption.

The forestry services in Malabo and Bata lack engineers, technicians and field equipment to prescribe exploitation regulations and effectively control exploitation activities in the forest. Though each timber company is required to have a controlling forest officer, this is often not the case. The only effective control is at the port of Bata, where OCIPEF controls the species and volume of the timber for the purpose of calculating the taxes to be paid.

The forest law obliges concessionaires to submit an adequate forest management plan for sustainable timber exploitation before ratification of the concession agreement. Concessionaires in Equatorial Guinea elaborate such plans but it is a mere paper exercise. Concessionaires can violate many legal requirements and regulations without risking suspension of their concession agreement. This situation, but also the short duration and relative small size (50,000 ha) of the concessions will lead to a low commitment of concessionaires towards sustainable forest management. One could encourage concessionaires to undertake an active role in management activities, by giving options for long term concessions. Then measures like reduced impact logging techniques and silvicultural interventions for e.g. natural regeneration will be in their own interest.

Land use planning

The absence of forest management plans with applicable regulations and effective control of exploitation activities, combined with strongly increasing production levels, can mean a major threat to the long term productivity potential of the forest resource of Rio Muni. In recent years the forest administration is in the process of developing new systems of forest management in order to deal with these problems. Some new initiatives during the 1990s from the FAO and the EC funded CUREF project are meant to design and implement new forest policies. Main objective of the last project is to develop plans for rational and sustainable use of the forest resources, based on the production capacity of the forest resources and preserving the equilibrium of the ecosystems. A dominant feature forms the land use planning component in this project.

An important result of the CUREF project will be the determination of the permanent forest domain, with the production forests, protection forests and the protected areas. For such result information is required on topics as climate, topography, geology, soils, present land use, potentials for agricultural and other uses, fauna and vegetation. In 1990 a national inventory was made by the FAO with aid of radar images and a limited number of temporary sample plots (Kometter, 1991). Within the CUREF project floristic and faunal inventories covering the entire continental part are undertaken. For mapping purposes radar, SPOT and Landsat images are used. Furthermore social studies are conducted to find out the present extend of human activities and the future needs of the local population.

According to criteria based on site conditions, vegetation type and forest resources, the production forests will be divided in management units. A provisional division of the total land surface in areas of 5,000 - 50,000 ha has already been undertaken by the forestry planning's office (Gabinete de Planificación Forestal, 1994). Blocks are delimited according to rivers and roads, which can be identified in the field and can be more easily controlled. Within each management unit, forest inventories and permanent sample plots should provide information such as species composition, density and basal area and growth figures. Finally for each management unit a management plan,

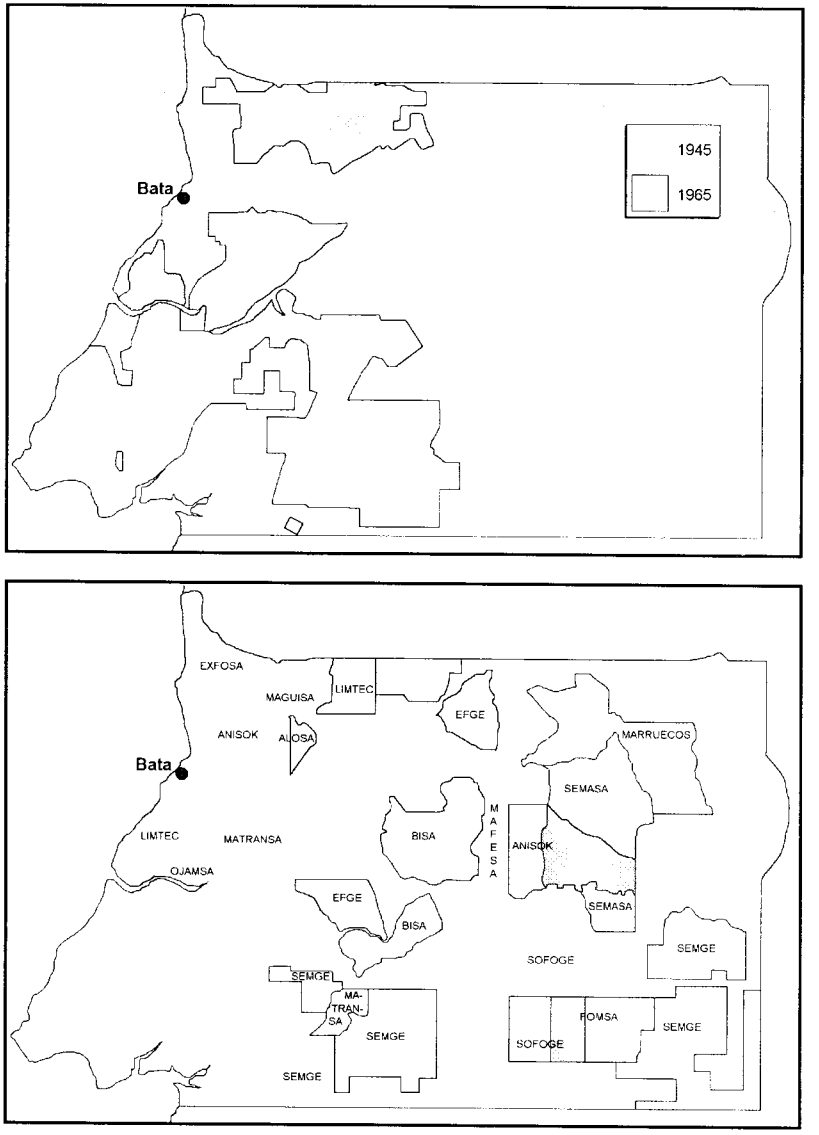
including exploitation regulations and silvicultural measures, will be elaborated, based on this information.

Protected areas

The division of Rio Muni in management units includes six proposed protected areas, the Ntem Estuaries at the north, The Rio Muni Estuaries at the south, Mt. Alen and Mt. Mitra at the central mountain ridge and Ndote and Acurenam/Nsoc at the coast and interior respectively (see figure 1). These reserves do not all comprise unexploited forests, several areas now designated to be reserved, have been under concession in the past or even recently (compare figure 1 and 3). Apart from Mt. Alen these reserves have no legal status and most are not actively protected. Two proposed area's, Ndote and Acurenam/Nsoc, are already reduced in size in favor of exploitation. Within the CUREF project it is aimed to identify the specific values of each protected area, to come to a final classification and delimitation and to develop management plans for each of them.

Presently Mt. Alen is the only protected area that has effective protection by presidential decree. Mt. Alen lies in a mountainous area, it has various climates and harbors many rare and typical animal and plant species. It is thought to have been a Pleistocene refuge, and is considered to be of great scientific interest (Fa, 1991). Since 1992 the ECOFAC program, supported by the European Union, has been established. Main objectives are to study biodiversity in the area and to reduce hunting pressure through the development of sustainable alternatives for the local population. In the park poaching on endangered species as monkeys and forest elephants is strictly forbidden, hunting pressure on other species must be diminished. To lower the pressure

Figure 3: **Extension of exploited forests in 1945 and 1965 (upper map) and handed out concessions in 1988 (lower map).** (Fa, 1991).



from the local population measures are taken to offer alternatives. Ecotourism is promoted and stores are opened which provide the local population with low priced goods. Until now the project has been successful in lowering the hunting pressure (Garcia & Mba, 1997).

Recently a decision was taken to upgrade the status of Mt. Mitra and to establish a corridor between Mt. Alen and Mt. Mitra. This would enable migration of large animals between the two mountain ranges and the Rio Muni estuaries. Faunal and botanical inventories as for Mt. Mitra are still to be implemented. Ecological studies in Rio Muni have so far been limited to Mt. Alen, where studies are conducted in the framework of the ECOFAC project. The CUREF project has also proposed to reserve a total of nine protected areas, including two areas with rock outcrops (inselbergs).

Conclusions

Even though forestry activities are quite recent in Equatorial Guinea, compared to other West- and Central African countries, they play a major role in the national economy. The situation is comparable with one such as Liberia where forestry was becoming important before a civil war broke out, than halted and is expected to be booming in the near future. Forest activities in Liberia were often of a nature that they were hardly controlled even though legislation was in place. In Equatorial Guinea a big gap can be noted between forest policy, legislation and the actual situation in the forest.

Because of the situation in which several regulations according forestry matters do exist but are not effective, implementation of forestry and conservation policy and control over the implementation of forest laws will be extremely important. The forestry administration will have to be strengthened, which should imply that more funds by the government should be channeled back into the forest sector.

An interesting instrument not yet implemented in Equatorial Guinea might be certification of forest operations. This can help in implementing good conduct by concessionaires but will have to include the consultation of Asian markets and actors operating in Equatorial Guinea.

The forests of Equatorial Guinea are unique for the Central African setting as they can be considered to belong entirely to a Pleistocene refugium. Biodiversity of both plants and animals are believed to be high, so far very few studies have been made to confirm this, and many surprises of new species to be discovered are still to be made. The alarming increase of timber production is a serious threat if no appropriate action will be taken. It is encouraging to see that recent projects like the EC funded ECOFAC and CUREF projects are aiming at rational utilization of the natural forest resources.

Acknowledgments

We like to thank Vicente Micha Ondo and Frits Horsten from the Gabinete de Planificacion Forestal in Malabo, the people of the Departemento Regional Forestal and of OCIPEF in Bata, Frank Stenmanns of the CUREF project, Bata and Tieme Wanders, Department of Forestry, Wageningen Agricultural University, The Netherlands for their assistance, information and discussions.

References

Capdevielle, J.M., 1949. **Tres estudios y un ensayo sobre ternas forestales de la Guinea continental espanola**. Inst. Estudios Africanos (CSIC), Madrid, España, 235 pp.

Fa, J.E., 1991. **Conservación de los ecosistemas forestales en Guinea Ecuatorial.** IUCN, Gland, Switzerland and Cambridge, U.K., 221 pp.

FAO, 1994. **Manejo y conservacion de recursos naturales, informe de preparacion**. FAO, EQG/92/001, intern document.

FAO, 1997. **State of the world's forests 1997**. FAO, Rome, Italy, 200 pp.

FORINDECO, 1993. **Forestry and environmental policy, forest legislation and fiscality, forest concession policy**. First draft, Malabo, Guinea Ecuatorial, 108 pp.

Gabinete de Planificación Forestal, 1994. **Bloques de manejo forestal de la Region Continental**. Intern document, Malabo, Guinea Ecuatorial, 22 pp.

Garcia, J.E. & J. Mba 1997. **Distribution, status and conservation of primates in Monte Alen National Park, Equatorial Guinea.** Oryx 31(1): 67-76

Grouler, J., 1963. **L'okoumé dans le sud de son aire.** Bois et Forêts des Tropiques, 89: 37-42.

Kometter, R., 1991. **Inventario forestal exploratorio de la Region Continental**. PNUD/FAO, EQG/87/005, Documento de Campo No. 2, Malabo, Guinea Ecuatorial.

Leroy-Deval, J., 1973. **Note sur la limite de l'aire de l'okoumé dans le nord-est du Gabon.** Bois et Forêts des Tropiques, 151: 57-62.

Marini, C. M., 1991. **Evaluacion y manejo de los recursos forestales de la Region Continental**. FAO, FO/EQG/87/005, Documento de Campo No. 4, Bata, Guinea Ecuatorial, 24 pp.

Parren, M.P.E. & N.R. de Graaf, 1995. **The quest for natural forest management in Ghana, Côte d'Ivoire and Liberia**. Tropenbos Series No. 13. The Tropenbos Foundation, Wageningen, The Netherlands, 199 pp.

Perrois & Sierra Delage, 1991. **Art of Equatorial Guinea. The Fang tribes**. Fundación Folch, Ediciones Poligrafa, S.A., Barcelona, España, 177 pp.

Sundiata, I. K., 1990. **Equatorial Guinea. Colonialism, state terror, and the search for stability**. Westview Press, Boulder, USA, San Francisco, USA, Oxford, UK, 179 pp.

Vansina, J., 1990. **Paths in the rainforests. Towards a history of political tradition in Equatorial Africa.** James Currey, London, U.K., 428 pp.

The authors

Michiel van Breugel graduated in Tropical Forest Ecology and Silviculture in 1997 at the Wageningen Agricultural University and did research in Cameroon and Equatorial Guinea.

Marc Parren graduated in Tropical Forest Ecology and Silviculture in 1992 and is presently conducting a PhD research studying the ecological effects of logging within the Tropenbos Cameroon Programme. Most of his former experiences are in the moist forests of West Africa.

A Critical Analysis of Different Approaches to Rainforest Conservation in Central Africa based on the Dzanga-Sangha Experience

- Conservation work means fighting a losing battle, we are at best only slowing down a runaway truck.-

Allard Blom[1]

Keywords

Central Africa; Dzanga-Sangha; rainforest conservation; development.

Abstract

Three different approaches to rainforest conservation are introduced and their effectiveness discussed in the context of the Dzanga-Sangha region. In most area's of central Africa some form of an integrated approach of protection and rural development is judged to give the best hope for a long-term approach to conservation.

Introduction

The Dzanga-Sangha Special Dense Forest Reserve (3159 km^2) and Dzanga-Ndoki National Park (sector Dzanga 495 km^2; sector Ndoki 726 km^2), in the southwestern region of the Central African Republic (CAR) (Figure 1) have been recognized as protected areas of international importance. Besides a diverse rainforest flora and fauna (Fay, et al., 1990; Blom, 1993 a,b; Harris, 1994) the area contains one of the highest densities of western lowland gorillas (*Gorilla g. gorilla*) and forest elephants (*Loxodonta africana cyclotis*) known in Africa (Carroll, 1986 a,b,c, 1988, 1994; Fay, 1989, 1991; Blom, et al., in prep. a,b,c)

The human population density in this area is low and concentrated in small settlements along the roads (Carroll, 1986 a,b). Since their gazetting both the park and the reserve have been managed by the Dzanga-Sangha project. This project is a collaborative effort between the Centralafrican Government, the German Technical Cooperation (GTZ/LUSO) and the World Wildlife Fund/World Wide Fund for Nature (WWF), with financial and technical assistance from the Governments of Germany and the United States, the World Bank as well as several private organizations and donors.

The Dzanga-Sangha project started in 1988 as a more or less conventional conservation project with an emphasis on anti-poaching. This was entirely justified by the fact that the area was being overrun by elephant poachers and action was needed. The fact that one can still encounter large numbers of elephants in brought daylight is largely due to the continued anti-poaching effort. However from the start of the project it was felt that collaboration with the local population was essential. They claimed - rightly so - direct benefits from the project. With increasing funding becoming available in the early 90s, the project started expending into rural development and adopted a strategy now often referred to as "Integrated Conservation and Development Project" or ICDP.

The Dzanga-Sangha project includes a wildlife protection program, tourism development, research and education and rural development. The Dzanga-Sangha area is managed in an integrated manner, allowing limited traditional hunting, agroforestry development and commercial logging in buffer

[1] World Wildlife Fund, Inc., BP 1053, Bangui, Central African Republic, Tel: +236-614299, Fax: +236-611085.

zones, as well as total preservation of the natural forest ecosystem in the core area (Carroll, 1992).

The Dzanga-Sangha project has been successful in its main objective which is the protection of the core area, the Dzanga-Ndoki National Park (Blom, et al., in prep.,a,b). Also the rural development program has been fairly successful in changing attitudes of local people towards a more positive and collaborative relation with the project. Although the project has not been entirely successful, it is generally considered a model project and one of the few really successful ICDP's.

But can these success in the short term be extended into the future? Is the ICDP approach the right one, or would a traditional conservation approach be at least as effective? These are essential questions for the future of the area and conservation in general.

The theory

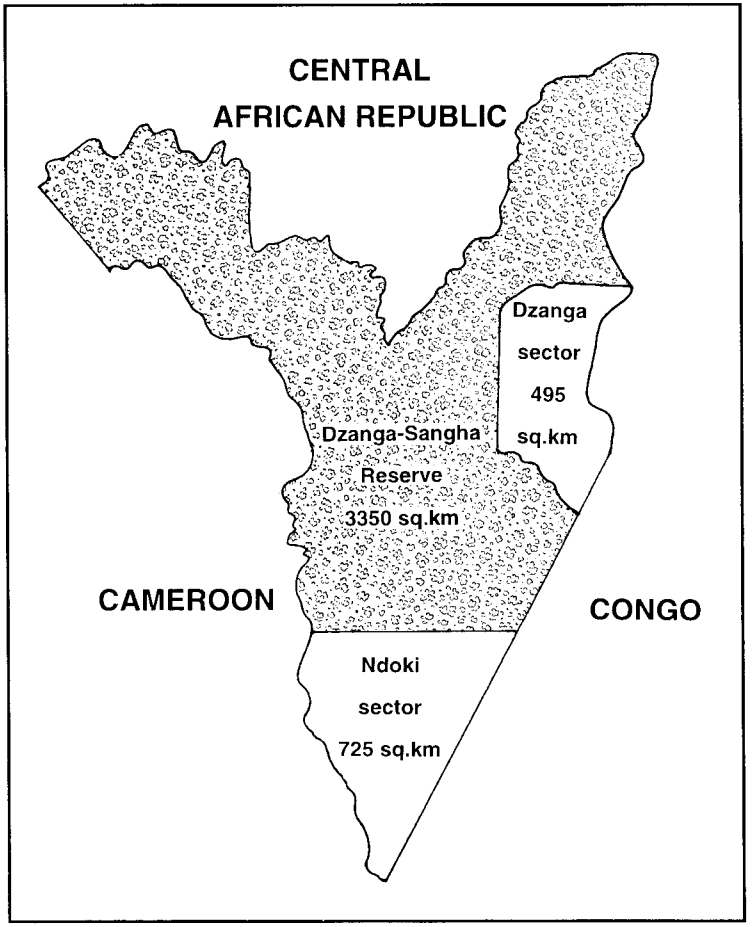
Conservation in Africa has basically seen two main approaches to conservation. The first is what I would call "protection" conservation, by which usually an area is declared off limits for the local people and protected. Most of the wildlife reserves and national parks in Africa are a result of this approach. The second approach is what I would call the "development" approach by which local people are expected to manage their own resources sustainably. These are the two extremes and in reality most projects nowadays operate somewhere in between. The two approaches are also often referred to as "conservation for the people" versus "conservation by the people".

Both approaches have clear draw-backs. It has become increasingly difficult to justify the removal of people from their traditional lands to make place for "nature". It is now considered by many to be morally wrong, politically difficult and practically impossible. This approach however, has given us almost all of the protected areas in Africa.

The second approach is a totally naive concept. People almost invariably want to increase their standard of living. This clearly means an increase in the use of natural resources, which leads to overexploitation.

The ICDP approach as used in Dzanga-Sangha finds itself somewhere in the middle between these two extremes. One could refer to it as "Conservation with the people". It tries to combine the advantages of both, without to much of its problems. In fact it combines all the problems as well, but

Figure 1: **The Dzanga-Sangha Special Dense Forest Reserve and Dzanga-Ndoki National Park.**



to a much lesser extent. By trying to find compromises it can navigate through the problems.

An additional serious problem that many ICDP's have come across is immigration. The fact that many ICDP's do contribute to some extent in rasing the standards of living or at least expectations there of, has often led to migration towards these project sites. This is particularly so in poor countries like the Central African Republic.

The practice

The Dzanga-Sangha project is an interesting case study to look at the effectiveness of ICDP's. As mentioned in the introduction at first glance it looks like a successful program. But ICDP's should not be judged on their short-term successes, or failures for that matter, but at their long-term impacts. Of course it is impossible to tell what will happen in say 20 years from now, but I would like to point out some obvious problems the project will have to deal with if it wants to remain effective:

- Population increase;
  Although our data from demographic studies carried out are not yet available, it is safe to assume that the population in the area is increasing, both from immigration as well as from local population growth. The last two years have shown a dramatic increase in deforestation for agricultural land.

- Diamond mining;
  Diamond mining, with its associated poaching, is extremely destructive for the environment. The ecosystem of the riverbed being mined is destroyed and a relative small area of forest is clear-cut. A large area, in some cases a 40 km radius around the camps, is depleted of wildlife to feed the hungry miners.
  Several large camps, counting thousands of inhabitants each, are just north of the Dzanga-Sangha Reserve as well as just inside its most northern boundaries. Recent socio-economic studies have indicated an increase of mining in the Reserve, as people are desperately trying to make a living in a worsening economical situation.

- Unsustainable logging;
  Commercial forest exploitation or logging has been carried out in the area since the 70th. The present company has one of the worst records in Africa when it comes to sustainable forestry (e.g. SGS, pers. comm.), paying taxes and wages and providing social services. The CAR Government has recently even suspended its activities on grounds of mismanagement. Seen the fact that the Government is so strapped for money it is certain that some form of exploitation will resume in the near future.

- Poaching;
  Although poaching for elephants and apes has been successfully brought under control in a major part of the area, the overexploitation of bush meat remains a major challenge (see also Noss, 1995). It must be pointed out that hunting by traditional means or with registered guns is allowed in the Reserve. However hunting by snares or for trade outside the Reserve is strictly forbidden.

- Unsustainable financing of project activities;
  At present the Project is almost entirely financed by outside donors. A maximum of 5% of its costs is at present being covered from Government funds and tourism combined. In my recent analysis of the tourism potential I have estimated that in the present setting tourism could cover a maximum of 30% of the basic protection costs of the area (Blom, in prep.). It is unrealistic to expect the Government to come up with the remaining funds. Much of the donor funding is tied to political constraints and can be easily cut in these politically unstable countries for one reason or the other.

The project is dealing with these problems in the following way:

- Population increase:
Probably the hardest of all. We are at present studying ways to limit migration, by first of all analyzing the phenomena and its underlying causes. We hope to develop a regional land-use plan as well as village level land-use plans to limit migration. We are also studying the possibilities of some sort of resident permits linked to socio-economic benefits.

- Diamond mining:
In this area we have had some noted success by simple law enforcement. This was possible after a long campaign of lobbying and information dissemination at all Government levels, as well as an extensive information campaign in the diamond camps. However some of the camps in the north where in the area before the reserve was gazetted and are in anyway to large to move: here we are negotiating a southern limit of their activities as well as looking at ways to provide alternatives outside the Reserve.

- Logging:
We are in negotiations to buy the company and turn its infrastructure into a forestry school, with or without commercial logging under our control.

- Poaching:
Increasing law enforcement by doubling our guard force to 60 men, as well as increasing their effectiveness by intensive training. Furthermore by explaining the importance of wildlife for the local economy, people are slowly becoming aware of the importance of its conservation and sustainable management. Wildlife is important as a source of protein for a large part of the local population. Furthermore, wildlife being the major tourist attraction, it contributes substantially to the local economy, an estimated $ 18,400 /year (figures for 1995: Blom, in prep.) including direct employment and 40% of the tourist revenue which is going to a local NGO for community development.

Poaching is also one of the negative side-effects of logging. Guard showing a poacher's snare in Parc National des Virunga (Congo-Kinshasa).

- Unsustainable financing:
  One of the problems with ICDP projects is that they are expensive. I estimate the costs of simply maintaining the park and reserve, which means basic protection and upkeep of infrastructure, at $ 800,000/year. An ICDP will cost at least 3 times that much. Our approach to this problem is based on several points:

- privatize the project and turning it into a foundation or para-statal, run along business principles responsible for the overall management of the Dzanga-Sangha area, while leasing it from the Government.
- generating and optimizing income from tourism, safari hunting and logging, while taking into consideration ecological and social parameters.
- creating a trust fund and using the generated income to finance basic operations of the foundation (Blom, 1996).
- gradually turning over much of the rural development to local NGO's, who are usually more cost effective.
- increasing the amount of funding going towards these NGO's, by increasing tourist revenue and attracting direct donations.

If the Dzanga-Sangha project would have chosen for only a "protection" conservation approach we could have saved at least 5 million US$, which were pumped into the rural development component. Had this money been put into a trust fund we would by now have accumulated sufficient funding to guarantee sustainable funding for basic operations. A very strong argument indeed from a conservation point of view. However it would have been impossible to carry through, seen the very strong opposition against the project in the past. The fact that the project has shown consideration for local people's ambitions has dramatically changed the atmosphere in Dzanga-Sangha. On the other hand had we turned to the other side and only concentrated on rural development without any law enforcement, I'm convinced that poaching would have gone completely out of control, as has happened in many areas of central Africa.

Conclusions and recommendations

The following table summaries in my opinion the reality of the three approaches in the central African context:

Type of approach	Protection	Integrated	Development
Conservation:	"for the people"	"with the people"	"by the people"
Morally justifiable	no longer	yes	yes
Political feasibility	very difficult	difficult	easy
Local perception	negative	mixed	positive
Local input	virtually none	variable, usually more over time	high
Costs	low	high	variable but usually high
Long-term conservation potential	low to medium	medium to high	low

In my opinion in most cases some form of integrated approach would be best. However, I do have some strong words of caution. First of all not all areas will be suited for such an approach. For example areas with little or no population pressure are obviously better off with a "protection" approach. Secondly, the cost of an integrated project are high and must be guaranteed for a long time (20 years minimum). If no such commitment is available such a project should not start. Thirdly, in areas with high population pressures the costs of an ICDP will also be high: in many cases too high. The majority of the households in the area must benefit substantially to make an impact.

Last but certainly not least: ICDP's like any other approach are not the solution. We should not forget that conservation work means fighting a losing battle, we are at best only

slowing down a runaway truck. We have to think carefully which brake to use before it is too late. But we will have to brake, we do not yet have the means to get off.

Acknowledgments

The main contents of this article was presented as a paper at the "Trinational Sangha River Region Conference", Yale University, New Haven, September 25-27, 1997. I want to thank my colleagues Daniella Renner, Urbain Ngatoua, Christoph Oertle and Guy Rondeau for their comments.

References

Blom, A., 1993 a. **List of the large mammals of the Dzanga-Sangha Dense Forest Reserve and the Dzanga-Ndoki National Park.** World Wildlife Fund - CAR.

Blom, A., 1993 b. **List of the birds of the Dzanga-Sangha Dense Forest Reserve and the Dzanga-Ndoki National Park.** World Wildlife Fund - CAR.

Blom, A., 1996. **Proposal for the creation of an environment trust fund for Dzanga-Sangha.** World Wildlife Fund - CAR.

Blom, A., in prep. **The impact of tourism on protected area management and the local economy in Dzanga-Sangha (Central African Republic).**

Blom, A., Kpanou, J.-B., Otto, K., Mbea, E., Godobo, P. & Almasi, A. In prep. a. **Elephant surveys of the Dzanga sector of the Dzanga-Ndoki National Park, Central African Republic.**

Blom, A., Kpanou, J.-B., Otto, K., Mbea, E., Godobo, P. & Almasi, A. In prep. b. **Antelope survey of the Dzanga sector of the Dzanga-Ndoki National Park, Central African Republic.** Gnusletters

Blom, A., Kpanou, J.-B., Otto, K., Mbea, E, Godobo, P. & Almasi, A. In prep. c. **A survey of the diurnal primates in the Dzanga-Ndoki National Park, Central African Republic.**

Carroll, R.W., 1986 a. **Status of the lowland gorilla and other wildlife in the Dzanga-Sangha region of southwestern Central African Republic.** Primate Conservation, 7: 38-41.

Carroll, R.W., 1986 b. **The creation, development, protection, and management of the Dzanga-Sangha dense forest sanctuary and the Dzanga-Ndoki National Park in southwestern Central Africa Republic.** Unpublished report. New Haven: Yale University.

Carroll, R.W., 1986 c. **The status, distribution, and density of the lowland gorilla (Gorilla gorilla gorilla (Savage and Wyman)), forest elephant (Loxodonta africana cyclotis), and associated dense forest fauna in southwestern Central African Republic: research towards the establishment of a reserve for their protection.** Unpublished report. New Haven: Yale University.

Carroll, R.W., 1988. **Relative density, range extension, and conservation potential of the lowland gorilla (Gorilla gorilla gorilla) in the Dzanga - Sangha region of southwestern Central African Republic.** Mammalia, 52: 309-323.

Carroll, R.W., 1992. **The development, protection, and management of the Dzanga-Sangha Dense Forest Special Reserve and the Dzanga-Ndoki National Park in southwestern Central African Republic.** Dzanga-Sangha Reserve Project and World Wildlife Fund, Washington.

Carroll, R.W., 1994. **Feeding ecology of the western lowland gorilla (Gorilla gorilla gorilla) in the Central African Republic.** Thesis submitted for the degree of PhD. University of Yale.

Fay, J.M., 1989. **Partial completion of a census of the lowland gorilla (Gorilla g. gorilla (Savage and Wyman)) in southwestern Central African Republic.** Mammalia 53: 203-215.

Fay, J.M., 1991. **An elephant (Loxodonta africana) survey using dung counts in the forests of the Central African Republic.** Journal of Tropical Ecology 7: 25-36.

Fay, J.M., C.A. Spinage, B. Chardonnet and A.A. Green, 1990. **Central African Republic.** In Antelopes global survey and action plans (R. East, ed.) pp.: 99-109. Gland, IUCN.

Harris, D., 1994. **Interim check-list to the vascular plants of the Dzanga-Sangha Project Area Central African Republic.** University of Oxford, Unpublished report: 31pp.

Noss, A.J., 1995. **Duikers, cables, and nets: a cultural ecology of hunting in a central African forest.** PhD. Dissertation. University of Florida. P. 415.

The Author

Allard Blom has worked more then 10 years as an ecologist in most of the countries of the Congo basin. He is currently Principal Technical Advisor of the Dzanga-Sangha project as well as National Coordinator for World Wildlife Fund/World Wide Fund for Nature in the Central African Republic.

Netherlands Support to Forest Management in the Eastern Congo Basin

- It has been proven in the past that mere policing and patrolling did not succeed in keeping people out of the protected areas and instead created a lot of mistrust between local people and park management.-

Alfred C. Smiet[1]

Keywords

Uganda; Rwanda; Congo; Virunga; National Park Management; Forest Ecosystem; Congo Basin; Central Africa; Human Impact; Netherlands Support; Ecotourism.

Summary

The eastern edge of the Congo Basin forest ecosystem consists of various fragmented forest areas that are situated along the borders of Rwanda, the Democratic Republic of Congo and Uganda. These forests have in the past been affected by clearing, exploitation and encroachment, but still have great biodiversity values and other ecological values. Although not far apart, they are in effect separated from each other by densely populated areas. These forests are now managed as National Parks in their respective countries, but problems persist in spite of their protected status.

In recent years this region was affected by civil wars resulting in mass population movements. These events caused direct damage to the forest ecosystems, as well as indirect damage by weakening management structures and organizations, particularly in Rwanda and Congo. The Netherlands government funds two ongoing projects in western Uganda and considers a regional project in the Virunga Mountains. If the latter is approved, The Netherlands will provide total funding of more than US $ 11 million to support the management of six National Parks in the eastern Congo Basin.

Introduction

The Eastern Congo Basin is part of the Great Lakes Region of Central Africa, which has been affected by political upheaval, civil strife and mass movements of refugees in recent years. The eastern edge of the Basin is a mountainous, volcanic region that straddles the boundaries between Uganda, Rwanda and the Democratic Republic of Congo (Congo-Kinshasa, former Zaire). Some of the richest forest ecosystems of Africa can be found here with important biodiversity values, amongst others characterized by primate populations such as the Mountain Gorilla (*Gorilla gorilla beringei*) and the Chimpanzee (*Pan troglodytes*). A narrow and much-threatened corridor in Eastern Congo forms a weak link between the last remaining afromontane forests of west- and southwest Uganda, northern Rwanda and Eastern Congo. Once these forests were part of the huge equatorial rainforest that stretched from present-day Uganda westward across Congo to the Atlantic Ocean. These remaining forests are now scattered throughout the border regions of these countries and are separated from each other by densely populated areas, where population density may reach as high as 400 people per square kilometer.

The areas that are dealt with here (Figure 1) are recognized as important conservation areas by both national legislation (all areas have a National Park status in their respective countries), as well as by international standards (Sayer et al., 1992). The areas are:

[1] Environmental Adviser, Netherlands Embassy, P.O. Box 41537 Nairobi, Kenya, Phone: +254-2-227111, Fax: +254-2-339155.

- Semuliki National Park, Uganda;
- Kibale National Park, Uganda;
- Bwindi Impenetrable Forest National Park, Uganda; World Heritage Site;
- Mgahinga Gorilla National Park, Uganda;
- Parc National des Virunga, Democratic Republic of Congo; World Heritage Site;
- Parc National des Volcans, Rwanda; Biosphere Reserve.

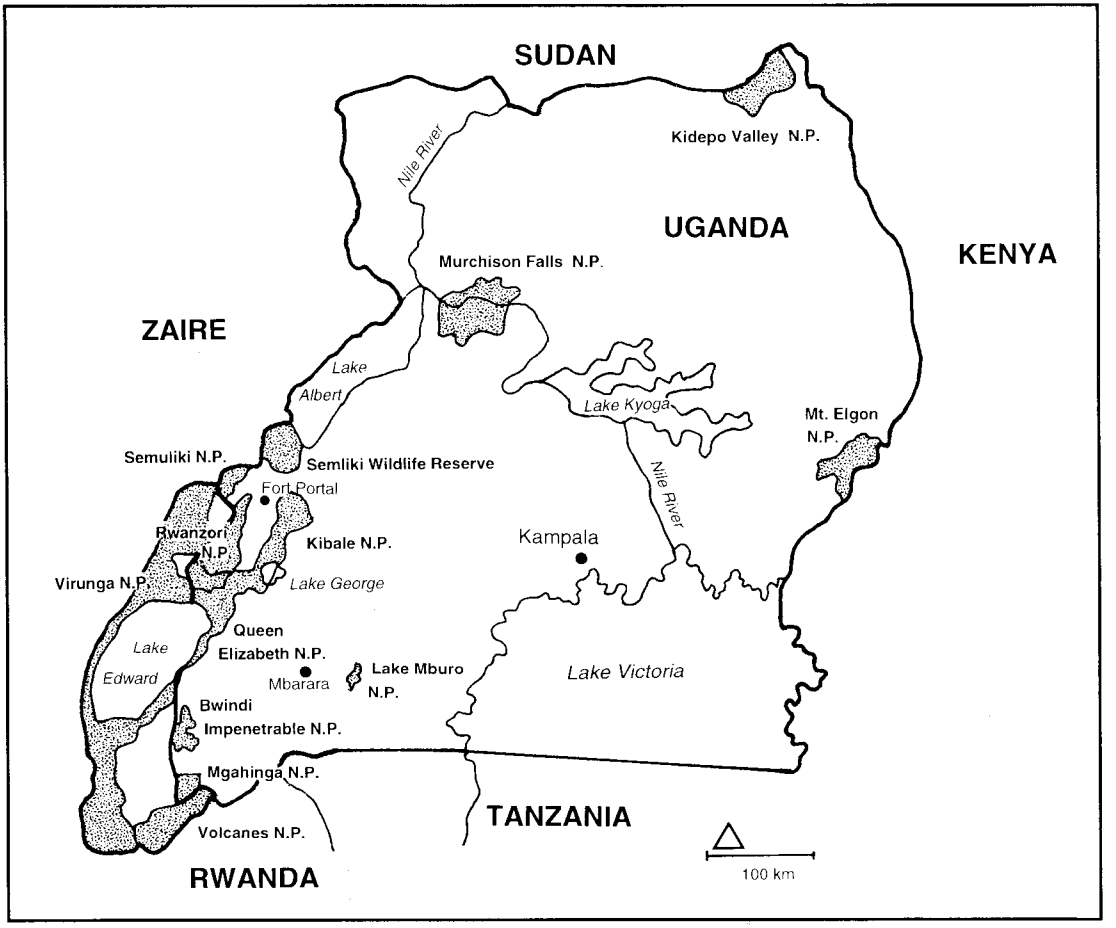
The last three parks are essentially part of one ecosystem, which covers the Virunga Mountains.

Human impact and management problems

The tropical rainforest of the eastern Congo basin remained relatively undisturbed by human activity until the beginning of this century. Exploitation of forest products took place by hunter-gatherers, including pygmee tribes, that still roam the forest. Large scale forest clearing for agricultural purposes started late last century and continued unabated until the present day. Remaining, unprotected forests were (and still are) exploited for timber.

The protected forests that remain today have largely escaped clearing because of inaccessibility and rugged topography. Nevertheless, the presently protected national parks generally do have a history of exploitation and encroachment that in the past have affected their natural ecosystems to some degree.

Figure 1: **The geographical setting of the forests and the National Parks in south-western Uganda, northern Rwanda and eastern Congo-Kinshasa.**



Even at present, with the highest possible protection status, these areas are subject to illegal activities. Pressure on the forests is high because of the shortage of land and because of poverty, inducing many locals to exploit forests to make a living. Unregulated and illegal, this type of exploitation, albeit small-scale, is carried out by thousands of people entering the forests every day and affects the relatively accessible areas most (forest fringe; borders). Problems that confront conservation and management efforts affect different areas in varying degrees, but are by and large the following:

- Pit-sawing for timber extraction;
- Fuelwood collection (dead wood, but also live branches and poles);
- Game hunting (poaching for selected species);
- Mining of gold and other minerals;
- Wildfires (usually man-induced);
- Livestock grazing and smuggling;
- Encroachment for cultivation;
- Collection of fruits and honey;
- Crop raiding of surrounding agricultural land by animals.

These problems have recently been exacerbated by the socio-political upheavals in Rwanda and eastern Congo. The 1994 civil war and genocide in Rwanda led to large-scale population movements throughout the region. About 3 million people fled Rwanda to refugee camps in eastern Congo-Kinshasa (and to Tanzania and Burundi), while about 2 million of former refugees returned to Rwanda. In the first half of 1997 dismantling of refugee camps took place, prompting the repatriation of another 2 million refugees into Rwanda. While these mass movements of people generally skirted around the forests, some refugee and rebel activities affected the Virunga Mountains, as well as the Bwindi and Semuliki areas. Rebels shelter in the forest and generally cause insecurity for park personnel and the surrounding population. A direct impact is caused by the rebels because of tree felling, poaching and the placement of land mines, which may hurt people and animals alike.

It is still too early to estimate the damage that has been done to these forests in recent years. Preliminary surveys indicate a substantial amount of damage caused by tree cutting, encroachment and poaching, particularly in the Virunga Mountains on the Rwanda and Congo-Kinshasa sides. Forests have been degraded or completely stripped along the edges and large mammal populations have been reduced (elephants, hippo's, buffaloes). It seems that primate populations have suffered only minor losses.

These problems have to be faced by park management organizations, that have been weakened by war (Congo-Kinshasa) and genocide (Rwanda). Park management in these countries suffers from a lack of ecological knowledge, lack of trained personnel, lack of equipment, while their facilities have been destroyed by war or rebel activities. There is presently very little outside support to these countries to rehabilitate and upgrade national park management.

The situation is different in Uganda, where, at the moment, park management performs relatively well (Uganda Wildlife Authority = UWA) and functions at acceptable levels, in spite of high population pressure and rebel activities. Support from donors helps UWA to sustain and improve its management efforts.

Regional cooperation and coordination between the three governments has so far not materialized. Although there have been contacts at field level, political animosity between the countries has prevented a systematic transboundary approach to ecosystem management. It is still uncertain whether such cooperation will develop, but it seems that relations are improving fast after the recent take-over of government in former Zaire.

Ecotourism

The areas are potentially very attractive to tourists. While civil war was going on in Uganda from 1970 - 1986, the then Zairean and Rwandese governments stimulated tourism development to the Virunga Mountains with "gorilla tracking" as the main attraction. This proved to be

very successful and brought these countries millions of dollars in foreign exchange. Tourism in these countries then collapsed because of the wars. Meanwhile, Uganda has built up a tourism industry in recent years that centers on ecotourism with "gorilla tracking" in Bwindi and Mgahinga National Parks and "chimpanzee tracking" in Kibale as major attractions. Some groups of gorilla's and chimpanzees in these areas have been habituated for this goal. This multi-million dollar industry has the potential to become Uganda's top foreign exchange earner and its profits can be used to further upgrade the UWA.

Because of their own past experiences and because of the current Uganda example, the present governments in Congo-Kinshasa and Rwanda are attempting to rapidly reintroduce ecotourism on their side of the Virunga range.

This type of tourism, however, needs professional guidance and careful preparation and monitoring in order to prevent damage to ecosystems and animal populations.

Forested protected areas

Semuliki National Park

Semuliki National Park (SNP) has a total area of 219 km^2 and is situated in western Uganda along the Semuliki River, which forms the boundary between Uganda and Congo-Kinshasa. The forest in this area has received some form of protection since 1932 and was gazetted as a National Park in 1993. The area is now managed by the Uganda Wildlife Authority.

SNP belongs to the most eastern part of the Congo Basin Forests. The park occupies a flat to gently undulating land formation at the bottom of the Great Western Rift Valley at altitudes ranging from 670 - 760 m above sea level. Although detailed inventories are lacking, it is known that the lowland forests of SNP support at least 60 species of mammals, including elephant, buffalo, leopard and 10 primate species, a.o. the chimpanzee. In preliminary surveys 390 bird species and more than 200 tree species have been identified. This forest ecosystem strongly resembles that of lowland forests further west in the Congo Basin. Many species of this ecosystem reach their eastern limits in Semuliki (Howard, 1991).

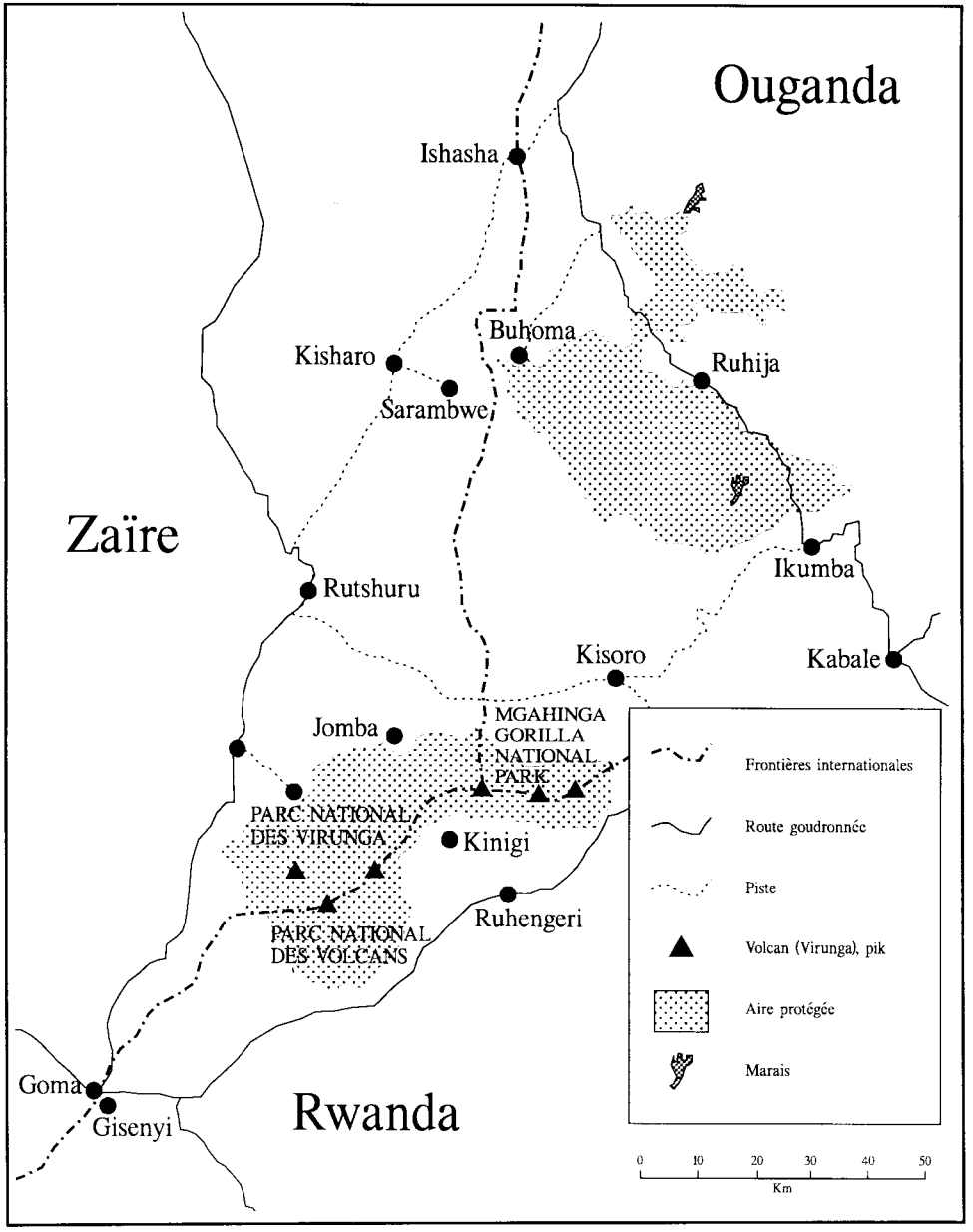
SNP also houses a population of pygmees (local name: Batwa), who range back and forth into the adjacent Ituri Forest of neighboring Congo-Kinshasa. Cultural heritage, folklore and traditional medicines are important features of the park to the Batwa, together with traditional hunting and food gathering. Agricultural encroachment (slash and burning) and extraction of forest products such as timber and fuelwood have taken their toll on the forest fringe. But, although affected by human activities, the natural vegetation is still largely intact in about two-thirds of the area. Besides important roles for biodiversity conservation and water catchment, SNP has potential for tourism as non-consumptive use (UWA, 1996a).

Kibale National Park

The Kibale National Park (KNP) is situated in western Uganda and has a size of 560 km^2. The area lies just to the east and northeast of Semuliki and Ruwenzori National Parks and was connected to these and other eastern Congo Basin forests in the past. Kibale forest is now separated from these by cultivated areas, which are densely populated. Presently, only a long and narrow corridor connects Kibale National Park, via Queen Elizabeth National Park (which has a savanna ecosystem) to the Congolese Parc National des Virunga. The area was a forest reserve prior to 1993, when it was gazetted as a National Park under management by the Uganda Wildlife Authority.

The Kibale forest occupies undulating terrain on the main Uganda plateau and lies at altitudes between 1110 and 1590 m above sea level. The forest ecosystem has been well researched due to the presence of a research station. Seventy-seven percent of the forest is occupied by various types of forest vegetation, characterized as medium altitude moist evergreen rainforest in the north and moist semi-

Figure 2: **The National Parks of the Virunga Mountains and their location vis à vis Bwindi National Park.**



deciduous forest at lower altitudes. The remaining 23% consist of grassland and swamp, part of which has been planted with exotic conifer species. More than 200 tree species have been recorded here, as well as more than 177 birds and 8 primate species. A small elephant population occurs in the forest as well. Biodiversity includes some endemics that do not occur outside this forest (Howard, 1991).

Past agricultural encroachment has affected about 100 km^2, but most of the encroachers were evicted and resettled outside the forest in 1992. The Kibale National Park has a good accessibility and attracts a good number of tourists every year. Some facilities for tourists are being developed: visitor center, camp site, walking trails etc. (UWA, 1996b).

Bwindi National Park

The Bwindi Impenetrable National Park (BINP) is located in the Kigezi highlands of south-western Uganda. The Park lies on the border with Congo-Kinshasa and is separated from other Ugandan National Parks (Mgahinga N.P. and Queen Elizabeth N.P.) by densely populated areas. It is essentially a forested "island" in a "sea of cultivation". BINP has a size of

331 km^2 and spans a wide altitudinal range, from 1106 m at the northern tip to 2607 m on the eastern edge of the park.

The forest of BINP forms a major water catchment area and is a source of many rivers. The hydrological balance of the region depends to a large extent on this forest.

BINP has in the past been relatively undisturbed by climatological and geological changes that have affected the continent and it is likely that BINP functioned as a Pleistocene refugium for many rainforest species. As a result, the Bwindi forest is characterized by a great many plant and animal species with a number of regional endemics, and certainly has the greatest biodiversity of the areas mentioned here. At least 120 species of mammals have been recorded, a figure that makes Bwindi one of the most important African forests for mammalian biodiversity. Half of the total population of mountain gorilla's (estimated at about 600 animals) occur here, while the other half lives in the Virunga Mountains (see below). The Bwindi forest also harbors a rich diversity in birds (about 346 species), reptiles, amphibians and insects (202 species of butterflies in particular). Botanical surveys are still incomplete, but preliminary results indicate a rich diversity of tree species, as well as of other plant species (Howard, 1991; UNP, 1995).

BINP is surrounded by fertile farming areas, where average population density reaches as high as 300 inhabitants per km^2. It is estimated that about 90,000 people live within easy reach of the forest. The local population increases by approximately 2.7% annually. As is the case in Semuliki National park, also Bwindi houses a resident pygmee population, making a meager living from the forest as hunter-gatherers.

Virunga Ecosystem

The Virunga Mountains are a volcanic range, consisting of active as well as dormant volcanoes. The boundaries of three countries meet here: Uganda, Rwanda and Congo-Kinshasa. Each of the three countries has designated a conservation status to its part of the range, and, in effect, the whole upper part of the range with an approximate size of 8000 km^2 is now protected by contiguous National Parks (Figure 2): in Uganda the small Mgahinga Gorilla National Park (34 km^2), in Rwanda the Parc National des Volcans (125 km^2), and in Congo-Kinshasa the Parc National des Virunga (7800 km^2). The latter stretches northward away from the Virunga Mountains and forms a thin forested corridor along the Congo - Uganda border, which connects the Virunga ecosystem with Semuliki National Park and almost (but not quite) with the Bwindi National Park.

Like Bwindi, which is 60 km to the north, the Virunga ecosystem comprises afromontane forests with great biodiversity. The altitudinal range is from 800 m till more than 5000 m above sea level and the area has a very rugged and varied topography. Part of the range has been affected by volcanism, which has contributed to an even greater variety of habitats. The area is best known for its population of Mountain Gorilla's, which, together with those of Bwindi, make up the entire world population (Sayer et al., 1992).

The Virunga range is of extreme importance for the hydrological balance in all three countries. Many rivers originate in the range. The forest cover protects the steep slopes against erosion and ensures a balanced flow of good quality water.

Many hundreds of thousands of people live in the surroundings of the Virunga Mountains. Population density is highest in northern Rwanda, where it reaches a density of 400 people per km^2. Population increase is amongst the highest in Africa and approaches 3% on an annual basis.

Netherlands support

The Netherlands government has acknowledged the great biodiversity, ecological and economical values of these last remaining forest areas in the eastern Congo Basin. Through its Development Cooperation arm (DGIS), the Netherlands presently supports the management of the

Kibale-, Semuliki-, Bwindi- and Mgahinga National Parks through 2 ongoing projects in Uganda:

The Kibale-Semuliki Conservation and Development Project (KSCDP) started in 1993 and is implemented by the IUCN (International Union for the Conservation of Nature). The main objective of the project is to support the Uganda Wildlife Authority to sustainably manage the two national parks. Institutional development, capacity building, the preparation of management plans for each of the parks and community outreach are important aspects. Up to the end of 1997 a total amount of US $ 2.7 million will be spent through this project.

The second project is a contribution to the Mgahinga and Bwindi Impenetrable Forest Conservation Trust (MBIFCT). This Trust is a local initiative and was initiated with a US $ 4.3 million endowment provided by the Global Environmental Facility (GEF; one of the World Bank Organizations). This endowment fund came into being in 1995 and is being managed by a professional asset manager. The annual interest and proceeds of this

"Gorilla tracking", a cash generating activity for both local people and authorities, may well prove to be of major importance to nature conservation. Tourists, guards and Gorilla's in Parc National des Volcans (Rwanda).

investment will in the future be used to finance the management of the two national parks by the Ugandan Wildlife Authority. In order to allow growth of the principal capital, bilateral donors came in to support the administrative organization of the Trust Fund and to temporarily support management of the two parks. From 1995 to 1997 this type of funding was provided by USAID. As of 1997 the Netherlands government has provided a grant of US $ 2.6 million to continue this support to the trust for a period of five years. It is expected that this type of bilateral funding will equip and upgrade the Uganda Wildlife Authority and the Trust to adequate levels, while the capital of the endowment fund increases. It is expected that after five years the annual earnings (the principal amount may not be touched) will be sufficient to finance sustainable management of the two parks in the long run, without any external support.

A third project is presently under consideration and still needs approval by the Netherlands government. The proposal concerns the management of the three parks of the Virunga ecosystem and was drafted by the International Gorilla Conservation Programme (IGCP; a consortium of the African Wildlife Foundation, Worldwide Fund for Nature and Flora and Fauna International). This proposed project builds on the work that IGCP has done in the area since the early eighties and aims at rehabilitation and management support for the three National Parks, with the main emphasis on Rwanda and Congo-Kinshasa (in view of other donor support to Mgahinga Gorilla National Park).

This programme will have a regional perspective and aims further at stimulating transboundary cooperation between the three park management organizations. One of the objectives is to coordinate and facilitate ecotourism to the Virunga Mountains (in particular in Rwanda and Congo-Kinshasa) on the basis of "gorilla tracking", which may grow into a major source of funding for future park management. The requested amount for the five-year programma is about US $ 6 million.

Community involvement

Community participation and community outreach are major components of all three programmes and is regarded as an essential feature of modern park management. It has been proven in the past that mere policing and patrolling did not succeed in keeping people out of the protected areas and instead created a lot of mistrust between local people and park management. Forced to make a living on the basis of forest products by a shortage of land and by poverty, local people continue to exploit forest resources, thereby creating management problems.

The ongoing Netherlands supported projects in Uganda experiment with various ways to involve local communities in park management and to make people less dependent on forest products. One strategy aims at creating employment opportunities and to support income generating activities outside the forest, for example through community forestry and agroforestry interventions on private land.
A second strategy is to provide alternatives for forest products outside the protected areas, for example timber and fuelwood from plantations or agroforestry systems.
A third strategy aims at regulating exploitation of forest products through zoning (buffer zones) and concessions (or user rights) aimed at sustainable exploitation.
As a fourth strategy the relation between park management and local people is to be improved by establishing discussion fora and to share the benefits of the park. Both projects in Uganda test the concept of "collaborative management" to implement these strategies. The MBIFCT in particular has developed elaborate mechanisms for involving local communities and the sharing of benefits.

The proposed project in the Virunga Mountains aims to build on these experiences and has an extensive component to deal with the needs of the local population in relation to park management.

Conclusion

It is not completely clear to what extent the fragmented forests in the eastern Congo Basin have suffered from the recent political disturbance. Substantial damage to the Virunga ecosystem seems likely in northern Rwanda and eastern Congo-Kinshasa. Park management organizations are weak and cannot cope with increased threats by local population refugees and rebels. The Netherlands' government support to six National Parks in the area is vital for the rehabilitation and sustained management of these forest ecosystems.

References

Howard, P.C., 1991. **Nature Conservation in Uganda's Tropical Forest Reserves.** IUCN Tropical Forest Programme - WWF/IUCN/Forest Department.

Sayer, J.A., C.S. Harcourt and N.M. Collins (Eds.), 1992. **The Conservation Atlas of Tropical Forests in Africa.** IUCN-WCMC.

UNP, 1995. **Bwindi Impenetrable National Park Management Plan 1995 - 1999.** Uganda National Parks (now Uganda Wildlife Authority).

UWA, 1996a. **Semuliki National Park Draft Management Plan 1997 - 2001.** Uganda Wildlife Authority.

UWA, 1996b. **Kibale National Park Draft Management Plan 1997 - 2001.** Uganda Wildlife Authority.

Poaching is one of the problems conservation efforts are confronted with. During the recent socio-political upheavals in Rwanda and eastern Congo-Kinshasa the Virunga Mountains as well as the Bwindi and Semuliki areas were affected by refugee and rebel activities. Confiscated poaching equipment like machetes and snares in Parc National des Virunga (Congo-Kinshasa). © African Wildlife Foundation, Nairobi.

Promotion of Sustainable Forest Management and Certification in Timber Producing Countries of West and Central Africa

- For several decades, logging permits were given exclusively to European concessionaires and nationals. For more than two years, and at a continuously growing pace, Asian logging companies have been moving into the Congo Basin to buy logs and obtain large concessions. -

Dominiek Plouvier[1] & Jean-Luc Roux[2]

Introduction

By the end of 1995 the European Commission (DG VIII) approved a one-year project proposal from WWF-Belgium to provide information and create awareness on certification of forests and labelling of timber as a potential tool to promote the sustainable management of forests in West and Central Africa. Certification and its links with sustainable forest management had been identified as a priority field of action by the European Council Regulation guiding the Budget-line Tropical Forests (20/12/95) and the Protocol Number 10 on Sustainable Management of Forest Resources of the Lomé IV-bis Convention.

Since 1993 WWF-Belgium has been very active in the promotion of certification as a tool to improve the management of the world's forests through constructive partnerships with engaged timber industrialists in Belgium and their suppliers. In this respect negotiations were held with the Belgian Timber Federation (BTF) and in 1994, a Belgian Buyers Group (Club 1997) was formed comprising more than 60 timber importers, retailers and timber processing firms. This led to the joint WWF/BTF promotion of timber as an environmentally friendly product if coming from well-managed forests. In this regard, an official joint WWF/BTF mission was carried out to Cameroon in the beginning of 1996.

[1] Kloosterstraat 9, 9860 Oosterzele, Belgium or WWF-Belgium.

[2] WWF-Belgium, Phone: +32-2340-0950, Fax: +32-2340-0954, Email: jeanlucroux@compuserve.com

The mandate of the EC-project was to support a pilot project of creation of awareness on sustainable forest management (SFM) and certification in some key-countries of West and Central Africa and analyse the potentialities of certification as a tool to promote SFM in the African context. Furthermore, it had to improve the understanding and commitment for timber certification among European importers and industrialists of African timber. The project's results were analysed by an external expert committee at the beginning of 1997. Meanwhile, a second follow-up phase - for another 3 years - has been approved by the European Commission.

In Africa, the project started in Cameroon as a pilot-country with a clear signal from Belgian timber importers demonstrating their interest in good forest management and independently certified timber for their markets. In January 1996 Government officials, main concessionaires and NGOs were contacted during an official mission. A National Seminar on SFM and certification was facilitated in Yaounde by April 1996, and a National Working Group was supported. This National Working Group was comprised of members of different stakeholder-groups (3 from Government, 3 from logging companies, 3 from NGOs, 3 representatives of local people and 3 scientists. The Group met several times during the course of 1996 and 1997 and produced a draft set of standards for SFM and certification for Cameroon;

Furthermore the project started the creation of awareness in Gabon, where a National Seminar, organised by the Ministry of Water, Forests and Environment (eaux, forêts et l'environnement) was facilitated at the end of January

1997. In Ghana a similar process was facilitated by the International Institute for Environment and Development (IIED) in London with which close contacts and exchange of information was set up.

At a regional African level several consultations were held with all key-stakeholders. In cooperation with IIED a regional seminar on certification was facilitated in Accra in November 1996 together with the IIED which was hosted by the Ministry of Lands and Forests, Ghana. The regional seminar stressed the need to support the on-going National Working Groups in Ghana and Cameroon, and create new initiatives in other countries of the region. Furthermore participants stressed the need for improved market information for these initiatives and the need to share information on a regional level.

In Europe, several consultations were held with different stakeholder-groups and two seminars were organised (Brussels, June 1996 and Madrid, December 1996) in order to bring NGOs, timber industrialists, federations, donor agencies and scientists together to provide information on and discuss sustainable forest management and certification. The seminars brought industries and NGOs together in a constructive approach and led to the creation of a Buyers' Group in Spain.

This article is too short to present analyses of forest management situation in the different countries concerned nor can it go into depth on the evaluation of the activities of the project in the different countries (see final report). However, we will present an overview of the potentialities of certification as a tool to promote good forest management in West and Central Africa.

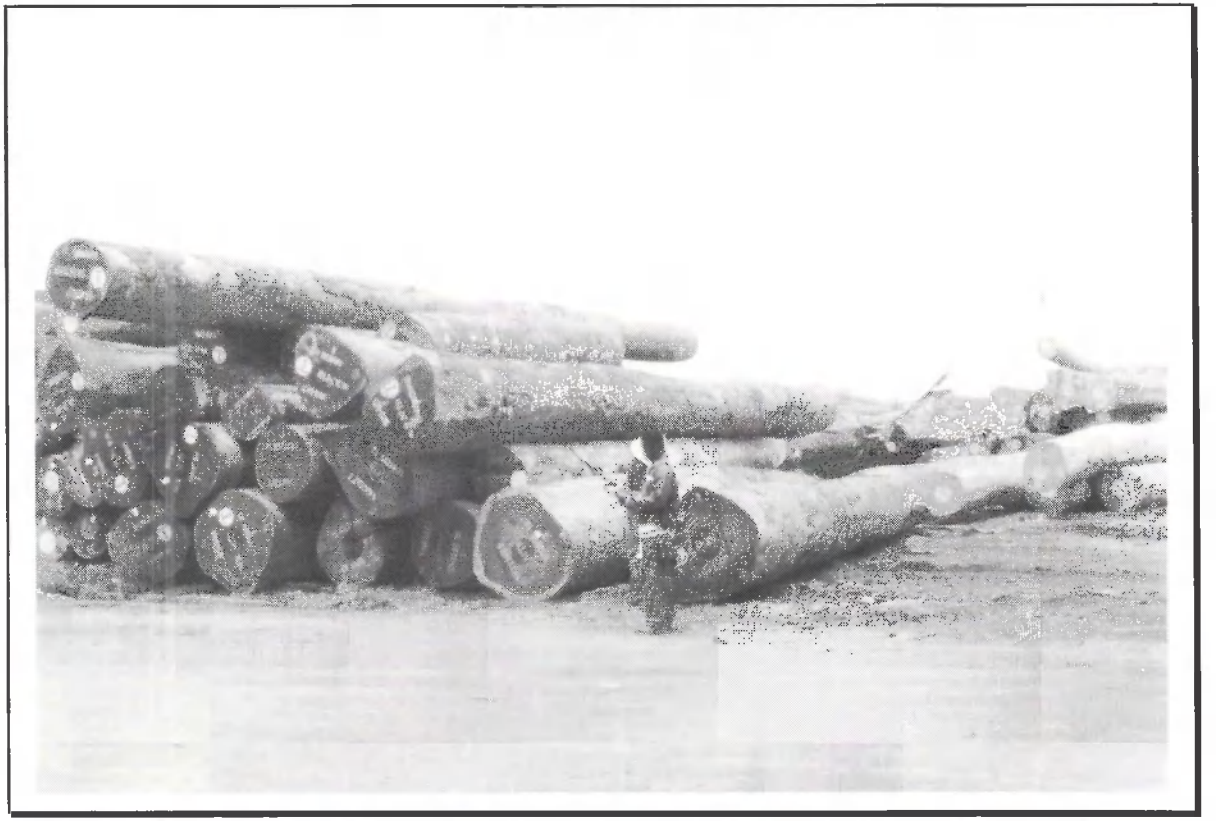
Situation of forest management in West and Central Africa

The situation of forests and forest management in the region is complex and equally problematic. In Africa most of the forested land is nominally under government control. Good forest management depends therefore on the effective implementation of appropriate government policies. But, although some countries have committed themselves to -at least- sustained-yield policies in their forest legislation, little of this commitment can be traced in the field. In general, forest legislation is poorly applied and forest protection not enforced. Few of the concession areas in Africa have been classified as "permanent production forest".

Apart from some exceptions, African governments tend to treat their countries' forests as a source of revenue and foreign currency. They may have little alternative given their high external debts and the pressure of structural adjustment programs, imposed by the international financial organisations. Declining prices of other export commodities, particularly oil, cocoa and coffee have recently exacerbated the situation. Yet African governments have often failed to obtain a reasonable percentage of the financial benefits accruing from timber harvests ; certainly not enough to offset the ecological, economic and social costs of logging.

Logging companies act as private businesses in a free-market environment. Few companies have set up a long-term strategy: logging in the Congo Basin is unfortunately still too often equal to "mining": lobbying for concessions, identify marketable species/diameters, extract and move on to new logging areas. Although logging is selective (because European markets are extremely selective both to species and quality), it leads to genetic erosion, considerable waste of timber and a long-term decline in the quality of the resource. Long-term vision and management plans are generally lacking, with the exception of a few companies that have started the implementation of decent forest management plans. It is remarkable that -although some companies work with several hundred people-, hardly any forestry engineers are employed. Concession areas are negotiated at the highest level, generally with the President or Prime Minister of the respective countries.

For several decades, logging permits were given exclusively to European concessionaires and nationals. For more than two years, and at a continuously growing pace,



Control of logs, destined for export from the port of Douala, by employees of SGS-Cameroon. © D. Plouvier.

Asian logging companies have been moving into the Congo Basin to buy logs and obtain large concessions. Markets for tropical timber in Asia are substantially different: they are much bigger than in Europe (annual consumption of roughly 75 million m^3 compared to some 15 million m^3 in Europe) and can absorb much more species and lower quality timber as well. Furthermore, Asian logging companies generally are part of large multinational groups with investments in other sectors as well and a high capital mobility. All these factors combined suggest that the impact of logging will increase substantially in the coming years.

Local people are largely excluded from the decision-making process regarding forests, as this is an exclusive right of the State. Local populations have no land rights (except in Ghana), only some limited "rights" defined in the "cahier de charge" (concession contract) with the logging company. Until local people are better involved in management of the forest resource, both on a local and national level, it is difficult to see how "sustainable forest management" can be implemented.

Fundamental changes needed

Key-elements for fundamental changes in the forestry sector in the Congo Basin are :

- a clear commitment from the highest authorities in the respective countries to effectively support SFM and involve all stakeholder-groups;
- coordination of action between key-influence players in (and even outside) the forestry sector: African Governments, World Bank, EU, IFIA, ATO, European donors (GTZ, French Cooperation, DGIS, ODA), and ACDI;
- a clear commitment from the international community to invest not only in national parks but also in upgrading of commercial forestry (outside conservation zones) in the Congo Basin (through support of serious governments and serious logging companies).

For each of the countries in the region, serious investments are needed to attain a minimum level of forest management. Investments are needed in the following areas (not exclusive):

- Institutional strengthening:
  Forest Services lack sufficient financial resources and do not possess decent equipment (vehicles, etc.) to carry out field work : delimitation of forests, inventories, control of management plans, control on logging, hunting, etc.
- Support for planning:
  definition of a permanent forest estate and delimitation of the forest in the field, in co-ordination with the local people, living in or at the boundaries of the concessions.
- Community forestry:
  involvement of local people in the set-up and management of community forests.
- Support for industries:
  Logging companies are required to invest in inventories, elaboration and execution of management plans, control of hunting and shifting cultivators, apart from their current investments (road building, machinery, village building, etc..). Costs become too heavy for both European and certainly for local loggers/foresters. External support is needed, especially for the following aspects : research, inventories, management plans, monitoring. The Caisse Française de Développement (CFD) is currently the only bank providing support (loans) for forest industries in the Congo Basin (however with no environmental/social restrictions/control).
- Strengthening of local NGOs:
  both social and environmental African NGOs play an important role in forest stewardship, at the national, regional and international level, as they generally represent the views and needs of the marginalized stakeholder-groups.

Potentials of certification in the West and Central African context

Certification as a market tool to influence forest management can only work under certain conditions:

- systems and structures for certification need to be developed;
- costs need to be less than the expected benefits for the companies;
- and there needs to be a clear rationale for private companies to invest in certification.

This rationale can be either demands for certified timber by a substantial number of their clients, or the need to improve the image of the company (towards the general public, towards bankers, or towards governments in order to obtain long-term concession areas).

Markets for certified timber

For the moment, markets for certified timber exist in the Northern part of Europe and the United States. A recent

study of the World Bank estimates that there is a consumer potential of some 20% of the total timber consumption in countries like UK, Netherlands, Germany, Austria and Belgium and up to 10% in the United States. In other countries the consumer's willingness to pay a premium price for timber "coming from well-managed forests" and "independently certified" is assumed to be almost non-existent (Crossley, 1995).

Of course, markets are not static but in constant evolution. Apart from looking from the perspective of the consumers, certification also has to be looked at on the level of the industries. In the UK, for instance, more than 50 companies have signed up together with WWF-UK and formed the Group 1995 Plus. These industries want to phase out all timber that is "not coming from sustainable sources". They represent much more than 20% of the total timber consumption in the UK. In Belgium the Club 1997 was formed together with WWF-Belgium, comprising more than 70 importers and retailers and representing more than 50% of total timber trade.

Although markets for certified timber are for the moment still rather small, more than 30 countries have started eco-labelling programmes and organisations like the World Bank and the European Commission are visibly increasing their support for such programmes. Therefore there is an indication that the market for certified timber will continue to increase over time.

African timber is mainly exported to Southern Europe, and more recently to Japan, Korea, China, Taiwan, Thailand and the Philippines. These markets are largely insensitive to "environmental awareness" and are -at least for the moment- not interested in certified timber.
However, in this context two factors need to be taken into consideration. A substantial part of the products manufactured in France, Italy such as okoume plywood and furniture are re-exported again to North-European, "sensitive" countries. Certification can definitively enhance the sale potential of these products in an already extremely competitive market. Secondly, although African products are not exported in great quantities to Northern Europe, certified timber products can regain a lot of markets that have been lost over the last few decades. In the Netherlands for instance, the use of tropical timber has been reduced by more than 50% due to several factors such as environmental boycott actions in the 80's. Most municipalities have banned the use of tropical timber. Offering certified products "coming from well-managed forests" can reopen a lot of possibilities that were formerly lost.

However, for the moment, markets for certified African timber remain limited. As only 10 to 20% of the exports go to sensitive markets (mainly Northern Europe), it can be estimated that certification as a "market tool" to improve forest management will -for the moment- only have a limited impact on the forest sector in Africa (this might change as more markets are "sensitised" to certification). The actual (limited) demand from some European consumers, industries and some Member countries (Germany, Netherlands) can probably lead to some "good examples" but will not be sufficient to convince a relevant number of concessionaires to invest in better forest management and certification.

Costs and benefits

The costs of SFM and certification can be divided into:

- costs of upgrading forest management, including information costs of certification; and
- direct costs to the certifier (certification of forest management and chain of custody).

It is extremely difficult to give estimates on the costs of upgrading forest management. Under conditions of West and Central Africa, the incremental costs of forest management may derive from the following sources :

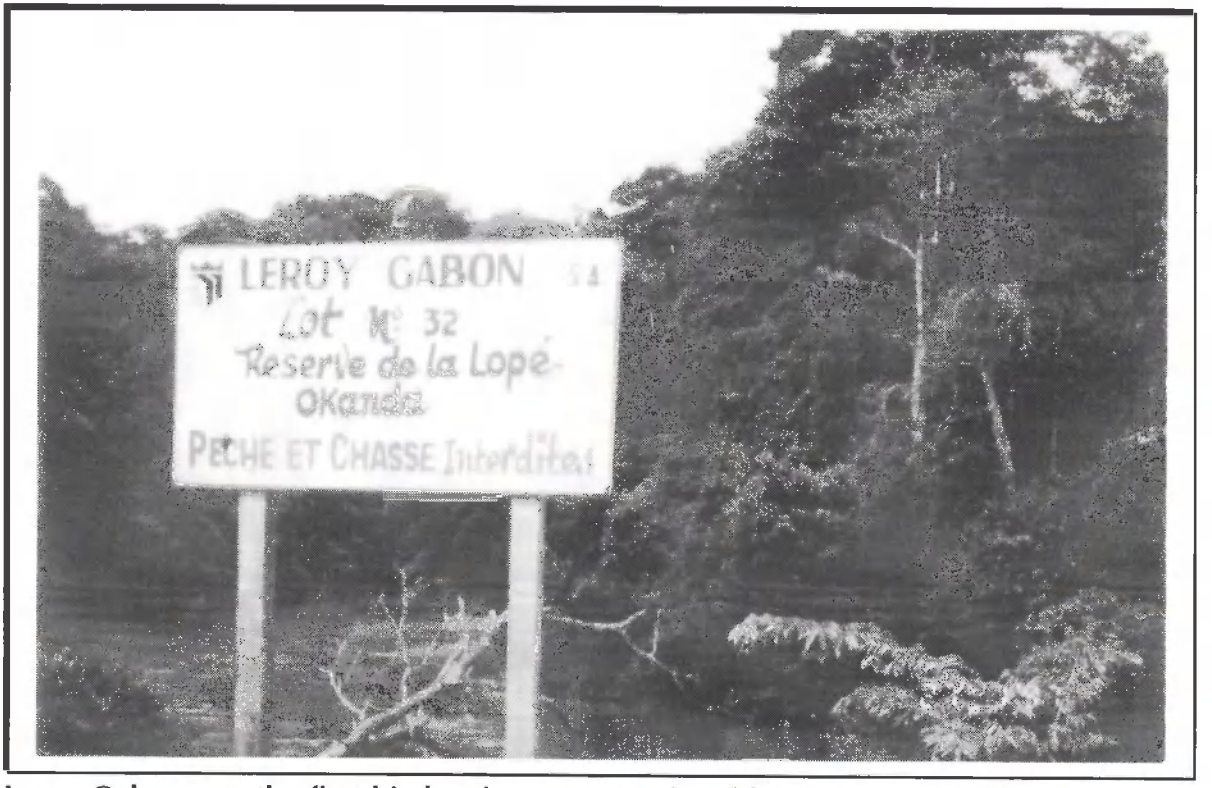
- additional costs of planning and monitoring;
- additional silviculture and harvesting costs, including training;

- additional costs for social improvement/ development;
- additional costs of control/management of hunting;
- and additional costs for set-aside areas (if necessary).

An accurate assessment of the above costs would require site-specific analyses in relation to the current government regulations and the certification criteria to be applied in those conditions. Theoretically (assuming government regulations were all applied) the difference between the two could then be attributed to the incremental costs of forest management due to certification.

Additional costs for planning and monitoring may be substantial, especially in the initial phase. The necessary activities typically include mapping, inventory, management planning, road planning, sample plots establishment, post-harvest inventory, and environmental impact studies. On the other hand, it is obvious that improved planning can reduce costs, especially in road construction and overall harvesting rates.

Within the West and Central African context, SGS-Silviconsult provides data on additional costs of upgrading forest management and information costs. According to SGS, for a new operation extra costs can be



Leroy-Gabon was the first big logging company in Africa to start a certification procedure. SGS's certification of two forest areas for Leroy-Gabon/Isoroy is still handled under the FSC's disputes procedure. © Jean-Luc Roux.

estimated at a 2.6% extra in capital costs (costs of planning, inventories, etc.) and a 12% extra in operational costs (training staff, setting operational guidelines, monitoring etc.).

There is not enough information yet (practical examples) to suggest that these extra costs will lead to sufficient extra benefits in the form of better harvesting rates, fewer losses in road construction, etc.. As logging companies face already substantial initial investment costs (road building, machinery,..) only a few companies will be willing -for the moment- to invest in extra costs for "good forest management", especially not in unstable countries where the political and economic environment is hardly favourable towards SFM. Furthermore, it is not expected that major changes will come from traditional logging companies that have a long experience in the region and generally do not believe in the increased benefits of better planning, etc..

As to direct costs of forest management certification, Simula and Ghazali (ITTO TFUpdate 1/97) give estimates of as much as US$ 1.50/m^3, depending on local conditions and the size of the forest area. In addition, up to US$ 1.20/m^3 may be incurred in the process of certifying origin. However, current costs of certification may not be valid in the future, if certification grows into a major activity.

There is not enough market information so far to predict the incremental revenues of certification (green premium, new markets). The main problem might be that the majority of profits do not return to the forest owner (in order to upgrade forest management) but stay at the end of the chain of custody.

Institutional framework for certification

Setting up a certification scheme generally requires significant investments in the establishment of the institutional framework (accreditation and certification), definition of criteria and indicators, human resource development, etc.

There is a general consensus that an adequate international institutional framework is desirable to enable the harmonisation and mutual recognition of certification systems. Three options have been identified for an international framework (Simula and Ghazali, 1996), namely:

- the FSC, through the provision of global principles and criteria and centralised accreditation;
- ISO, through the provision of a generic environmental management system standard to be implemented by national standards bodies; and/or
- through an intergovernmental agreement on global forest management standards and certification procedures.

Each option has its strengths and weaknesses which have not been analysed in depth. For the moment, the FSC is the only workable scheme for forest management certification and timber labelling, and the one most demanded in the marketplace. However, apart from some exceptions, most governments are not very keen to support the FSC as they are excluded from membership. This poses a lot of problems as to acceptability of the scheme, especially in a region like Africa. While the FSC has developed quite rapidly (too rapidly according to many observers) other schemes are particularly slow to develop.

Certification has gathered momentum worldwide, but on the other hand a lot of key-issues still need to be addressed, such as an international agreement on the framework for certification. Other issues include potential inequalities towards tropical countries, and towards small and community forest owners. Furthermore there is the growing concern about the credibility of the assessments with respect to transparency and stakeholder participation in the drafting of the standards, coupled with the scarcity of well-qualified human resources for certification.

In the African region, ATO in 1993 started with the Green Label - approach. ATO has been working with CIFOR for the testing of a regional set of critera and indicators in two

countries and plans to continue this approach over the next years. However, little progress has been made as to the negotiation of these standards with other stakeholders (apart from governments) and the acceptability of the Green Label- approach within the existing international framework for certification (FSC, ISO).

Conclusions

In the context of West and Central Africa, certification is and will only be one of the tools which can help achieving the goal of SFM in the region. A lot of issues regarding certification need to be resolved, especially regarding the institutional framework, and the definition of criteria and indicators on local and FMU-level. Furthermore, for the moment, demands for African certified timber remain limited due to limited sensitive markets.

There is still too little practical field experience to evaluate the positive and potentially negative aspects of certification in the world and more specifically in Africa. Therefore it is still too premature to give an overall analysis of certification in the region. However, as the evolution of certification world-wide might cause potential inequalities towards tropical countries and small producers, -simply because of costs and access to information- (also see Viana et al., 1996), it is important that both promoters of certification and donor agencies pay sufficient attention to these aspects. Furthermore, it is important that -in the further development of certification systems- mechanisms can be built in so that benefits return to the forest and do not stay exclusively at the end of the chain of custody.

Logging companies, operating in the Congo Basin are confronted with various problems, like: a difficult political and economic environment, high investment costs, fluctuating markets for tropical timber, and competition of tropical timber with PVC, and aluminium on the European markets. The environment is interesting for adventurers and mining companies, however not for serious investors that want to stay in the countries on a long-term basis.

Few companies will invest in better forest management, if they are not forced to do so. Most importantly in this context, is the application of well-elaborated forestry regulations within the countries themselves, coupled with sufficient control by the Forest Services. Demands for certified timber can help to increase the pressure on the companies, and the need for investments in SFM. Of course, these extra investments cannot be borne exclusively by either the companies nor the governments alone. The international community and the donor agencies have a high responsibility to help these players achieve SFM.

Although certification will not be able to resolve the forest problems in the Congo Basin, it should however be seen as a potential "catalyst" for change in tropical forest management in the region, namely for the following reasons:

- certification assumes a process of setting standards, involving all stakeholder-groups. The participatory processes of consultation with multiple stakeholder groups has provided a new dimension in the perspective of SFM. In this sense, the creation of the National Working Groups in Ghana and Cameroon are important assets. They are excellent fora through which fundamental stakeholders in forestry such as local populations, NGOs can be taken into consideration.

- certification draws attention to the importance of "good forest management" and is a potential driving force for "setting good examples". These examples are crucial, especially in areas like the Congo Basin where they are almost non existent. Certified examples of good forest management practices can have various important roles, with educational, political and scientific ramifications. The most important role is to demonstrate the viability of tropical forest management and its advantages over other competing land uses such as shifting cultivation and plantations. After examples are in place, national governments, donor agencies, NGOs

and international organisations may become more effectively involved in promoting policies to support management of African tropical forests.

- certification leads to an increased awareness of industries on "good forest management" and is a driving force for the formation of potentially constructive partnerships between industries and NGOs. These partnerships lead to the promotion of timber as an environmentally friendly product if coming from well-managed forests. Certification in this sense can open up new markets for African timber.

- certification includes a system of external repetitive audits. For a company investing in certification, a plan is developed to improve the forest management performance step by step. It is a potential tool for the company to continue its efforts for better forest management, and not withdraw prematurely from the process (as has been seen with so many failed donor-driven experiments of implementation of forest management plans in Africa, where -in most cases- the real interest of the economic operator in SFM was non-existent).

- In Europe, certification provides a potential tool for consumers and citizens to act constructively for a better management of the world's forests. Through a conscious purchase behaviour, the consumer can help influence forest policies world-wide.

It is clear the importance of "certification" will grow in the future and it is important that African countries be prepared. Investments in follow-up of the project have been perceived as very important by major stake-holders in the region. A second phase for this project has been approved recently by the EC.

It may be clear that certification is only a tool within the process to come to sustainable forest management. Certification is still in development and the results of the first phase of the project are to be consolidated during the second phase. In this respect e.g. the actual start of the national working groups, discussions on national criteria and indicators, the undertaking of a number of pilot projects on certification and sustainable forest management, national and international political commitment, coordination between projects/initiatives and corruption are important items that have to be dealt with.

Following the evaluation of the first phase (a.o. by the EC working group, headed by S. Bass) the EC has recently approved the second phase of the project. Attempts are undertaken by the National Reference Centre for Nature Management (IKC-N) to also raise the interest of DGIS, the Dutch Directorate General for International Cooperation, for the second phase. The executing responsibility of the second phase will be in the hands of WWF-International.

Acknowledgements

This article was written in close collaboration with A. Schotveld of the IKC-N, Wageningen, The Netherlands. The authors want to thank him for his constructive support.

This article is a summary of the final report of the EC-project B7-5041/95.8/VIII. Copies of the final report can be obtained at WWF-Belgium offices, as well as copies of the proceedings of the different seminars held during the project period.

References

Bass, S. and Upton. C., 1995. **The Forest Certification Handbook**. Earthscan Publications Ltd., London.

Besong, J., 1995. **Cameroon Forest Assessment.** Consultancy Report for WWF-PO Cameroon.

Boateng, P., Odoom, F.K. and Abu, A., 1993. **Forest Stewardship Council ; Country Assessment in Ghana.**

CIFOR, 1995. **Final Report Test Cote d'Ivoire June 2-30, 1995.** CIFOR, Bogor, Indonesia.

CIRAD-FORET. **Bois et Forets des Tropiques.** Several numbers 1995-1997.

Crossley, R., et al., 1995. **Is there a case for tropical timber certification ?** The World Bank, Washington DC, USA.

EC-Directorate General for Development, 1996. **Forests in Sustainable Development: guidelines for forest sector development co-operation.** Volumes I and II.

EC-The Courier, 1996. **Lomé IV Convention as revised by the agreement signed in Mauritius on 4 November 1995.** The Courier Number 155 Special Issue.

Environmental Strategies Europe, 1995. **Aménagement forestier durable, enregistrement international des forêts et Éco-certification du bois.** Rapport soumis au Ministère Français de la Coopération et a la Commission Européenne DG-XI.

Forest Stewardship Council. Several documents.

Ghazali, H.B. and Simula, M., 1996. **Study on the development in the formulation and implementation of certification schemes for all internationally traded timber and timber products.** Report to ITTO, Yokohama.

Ghazali, H.B. and Simula, M., 1996. **Timber Certification in transition.** ITTO Tropical Forest Update, 4/1996.

IIED, 1995. **Forest Certification and the European Union.** A Discussion paper. IIED, London, UK.

IIED, 1995. **European Commission Development Cooperation for forests; a strategic approach.** Discussion paper for the EC-DG VIII.

ITTO, 1994-1997. The ITTO Tropical Forest Update, several numbers.

IUCN, 1996. **Les Écosystémes de forêts denses et humides d'Afrique Centrale.** Actes de la conférénce inaugurale, Brazzaville 28-30 mai 1996.

Marches Tropicaux. French Bi-Monthly Review. Several numbers 1995-1997.

Nii Ashie Kotey et al., 1996. **Options for effective certification and labelling in Ghana.** Part II : Conditions and Options for Ghana. Proceedings of the FORIG/MLF/FD Certification Seminar, Kumasi, June 12-13 1996.

ONF, 1996. **Etude de faisabilité et d'engagement d'un projet d'aménagement, exploitation et transformation - Société Leroy-Gabon.** Office National des Forêts, France.

Viana, V.M., Ervin, J., Donovan, R.Z., Elliott, C., Gholz, H., 1996. **Certification of forest products : Issues and perspectives**. Island Press, Washington D.C.

WWF-Belgium, 1996. **Promotion of sustainable forest management and certification in timber producing countries of West and central Africa.** Interim report of EC-project B7-5041/95.8/VIII.

WWF-International, 1996. **WWF-Guide to forest certification.** WWF, Gland.

List of abbreviations

ACDI	Agence Canadienne de Développement International
ATO	African Timber Organisation
CFD	Caisse Française de Développement
CIFOR	International Forestry Research Center
DGIS	Directoraat Generaal Internationale Samenwerking - Netherlands
EC	European Commission
FMU	Forest Management Unit
FSC	Forest Stewardship Council
GTZ	Gezellschaft fur Technische Zusammenarbeit - Germany
IIED	International Institute for Environment and Development
IFIA	Interafrican Forests Industries Association
ISO	International Standards Organisation
ITTO	International Tropical Timber Organisation
IUCN	International Union on the Conservation of Nature
MLF	Ministry of Lands and Forests - Ghana
NGO	Non Governmental Organisation
NWG	National Working Group
ODA	Overseas Development Assistance - UK
SFM	Sustainable Forest Management
SGS	Société Générale de Surveillance
WWF	World Wide Fund for Nature

BOS News

Cameroon Conservation Projects

The BOS Foundation has recently been granted a project by the Overseas Development Institute. Within the Forestry Programme of ODI and in connection with its EC Contract "EU Tropical Forestry Information Consolidation, Networking and Dissemination" BOS will be executing a desk study of conservation projects funded by international donor agencies in the last decade in the Republic of Cameroon. Emphasis is being laid on the implications of recent experiences of donor cooperation.

The EU Member States are committed to the aims of greater communication and coherence, complementarity and collaboration on tropical forestry issues, both among themselves and with their developing country partners. The need for more European collaboration on a variety of developments issues was recognized in November 1994 request from the Council and the Parliament to the Commission for further briefing on the complementarity between Community and Member States' policies, as mentioned in Article 130U of the EC Treaty, as well as in the resulting Council Resolution on Complementarity, Coordination and Coherence of June 1995.

The Republic of Cameroon offers an important case study of the progress of donor cooperation to date, and of the potential for donor collaboration in the future. Donor involvement in Cameroon covers a wide range of interventions in which development activities are linked to protected area management. The Cameroon case may offer important pointers as to the likelihood of the success of conservation with development projects in delivering real benefits to local communities through the channel of international aid.

The technical report (in English and French) will be presented at the Informal Donor Coordination Meeting on Forestry and Biodiversity in the Congo Basin at the ETFAG meeting in Florence, Italy from 17 - 21 November.

Of course the participants will also be presented the BOS NiEuWSLETTER theme issue on the Congo Basin.

Bata, Equatorial Guinea - Congo Basin Conference

Within the framework of the "Brazzaville Process", the Conference on Central African Rainforest Ecosystems held from 28-30 May 1996, the governments of the Burundi, Rwanda, Congo-Brazzaville, Congo-Kinshasa, Gabon, Cameroon, the Central African Republic, Equatorial Guinea and São Tomé et Príncipe will meet in Bata, Equatorial Guinea in May 1988.

The process is found an important political appointment for governments of the region, international donors and NGOs supporting endogenous regional initiatives. Since NGOs may not be invited to the conference, the IUCN intends to organize a parallel meeting.

As a follow up of the BOS NiEuWSLETTER theme issue on the Congo Basin and in preparation of the conference and the parallel meeting the Netherlands Committee to the IUCN and the BOS Foundation will in close collaboration be preparing a book on the Congo Basin.

Short News

Meetings

1997

• 9-10 December, Kuala Lumpur, Malaysia.
Tree Management in Urban Areas.
Contact: Secretariat Workshop, FRIM, Kepong, 52109 Kuala Lumpur, Malaysia; Fax: +60-363-67753; Email: philip@frim.gov.my

• 9-10 December, Haikou, Hainan, China.
International Symposium on Sustainable Management of Tropical Forests: efforts by means of differentiated management.
Contact: Mr. Lu Wenming, Institute of Scientific and Technological Information, Chinese Academy of Forestry, Wan Shou Shan, Beijing 10091, China; Fax: +86-10-6258-2317; Email: luwenmin@public.bta.net.cn

• 9-12 December, Samarinda, Indonesia.
2nd Symposium on the Asian Tropical Rainforest Management.
Contact: The organising committee, c/o PUSREHUT-UNMUL, PO Box 1165, Samarinda 75123, Kalimantan, Timur, Indonesia; Fax: +62-541-39894.

• 9-12 December, Vitoria, Brazil.
Timber Harvesting and Transportation.
Contact: Amaury de Souza, Dep. De Engenharia Florestal, Univ. Fed. de Viçosa, Minas Gerais, Brazil; Fax: 55-31-8992478; Email: apsouza@

• 11-13 December, Chiang Mai, Thailand.
Regional Seminar on Emerging Institutional Arrangements for Forestry Research.
Contact: Dr. Apichart Kaosa-ard, Forest Resources Department, Chiang Mai University, Chiang Mai 50200, Thailand; Fax: +66-53-225221; Email: apichart@chiangmai.ac.th

1998

• ?
New Approaches to Integrated Management of Primary and Secondary Forests for the 21st Century.
Contact: Dr. Natilio Silva, Brazilian Agricultural Research Corp., C.P. 48, CEP 66240 Belem, Pará, Brazil; Phone: +55-91-2266622; Fax: +55-91-2269845; Email: natalino@marajo.secom.ufpa.br

• 9-14 February, Hanoi, Vietnam.
Leucaena - Adaptation, Quality & Farming Systems.
Contact: Dr. R.C. Gutteridge and Assoc. Professor H.M. Shelton, Department of Agriculture, University of Queensland, Brisbane Qld 4072 Australia; Phone: +61-7-3365-2807; Fax: +61-7-3365-1188; Email: r.gutteridge@mailbox.uq.edu.au

• 16-19 February, Kumasi, Ghana.
Value Added Processing and Utilization of Lesser Used Timber Species.
Contact: Dr. A Addae-Mensah, VAPU-LUS, University Box 63, Kumasi, Ghana; Fax: +233-51-60121; Email: USTLIB@ust.gn.apc.org

• 16-20 February, Bangalore, India.
International Conference on Medicinal Plants Conservation, Trade and Cultural Traditions.
Contact: National Institute of Advanced Studies. Indian Institute of Science Campus, Bangalore - 560012, India.

• 10-13 April, New Delhi, India.
Micropropagation and Spread of Genetically Superior Material of Forest Trees.
Contact: P K Khosla, Dr. YS Parmar University of Horticulture and Forestry, PO Nauni, Solan 173 230 HP, India; Fax: +91-1792-52242; Email: dext@yspuhf.ren.nic.in

• 18-21 August, Dharwad, India.
3rd International Congress on Allelopathy in Ecological Agriculture and Forestry.
Contact: Dr. G.R. Radder, Director of Research, Organising Secretary, University of Agricultural Sciences, Dharwad 580 005, Karnataka, India; Fax: +91-836-3348349.

• 24-28 August, Sault Ste. Marie, Ontario, Canada.
Third International Forest Vegetation Management Conference.
Contact: IFVMC # 3, Ontario Forest Research Institute, Ontario Ministry of Natural Resources, 1235 Queen St. E., Sault Ste. Marie, Ontario, Canada P6A 5N5; Phone: (705) 946-2981; Fax: (705) 946-2030; Email: ifvmc3@epo.gov.on.ca

• 21-23 September, Edinburgh, UK.
Forest Growth Responses to the Pollution Climate of the 21st Century.
Contact: Lucy Sheppard, Institute of Terrestrial Ecology, Bush Estate, Penicuik, Midlothian EH26 0QB, Scotland, UK; Fax: +44-131-4454343.

• 12-17 October, Seoul, Korea.
Forest Ecosystem and Land Use in the Mountain Areas.
Contact: Don Lee, Seoul National University, College of Agriculture and Life Sciences, Dep. Of Forest Resources, 103 Seoodoondong, Suwon 441-744, Korea; Email: leedk@plaza.snu.ac.kr

• 22-28 November, Valdivia, Chile.
Sustainable Management of Forest Resources: Challenge of the 21st Century.
Contact: secretaría de CONAF, Avenida Bulnes 286, 6e piso; Phone/fax: +56-2-6972273; Email: dejecuti@iusanet.cl

1998

• 12-15 January, Leusden, The Netherlands.
Environment and Sustainable Development.
Attention is paid to recent developments in the field of sustainable development in developing countries. The course tries to link policy, analysis and development, and concrete projects.

The four days course starts from an environmental angle, the Netherlands policy towards sustainable development, and visions on the relation between men, nature and economy. The second day is focussed on the analysis of environmental problems at project level. Day three focusses on the development of guidelines for design and implementation of projects and activities aimed at environment and sustainable development. On day four a plan of action is designed integrating all aspects of sustainable development within ones one working situation.

Language: Dutch. Location: Leusden, The Netherlands. Costs: f. 3000,- Guilders. Contact: ETC Foundation, Verona Groverman or Ellen Radstake, ETC, PO Box 64, 3830 AB Leusden; Phone: +31 (0)33-4943086; Fax: +31 (0)33-4940791; Email: office@etcnl.nl
Deadline for application: 7 July 1997.

• 5 January-18 December, Wolverhampton, UK
Msc and postgraduate Diploma in Forestry: People and Participation.
These are programmes designed as part of the Modular Professional Development program of the University, building on the short course 'Forestry: People and Participation' and the Msc in Development Training and Education. The programme consists of four core modules and four optional modules. The core modules are: rural development forestry; investigation techniques for training and development; studies in effective communication; and social perspectives in development planning. A dissertation requiring a period of field work is part of the programme.

Contact: Programme Coordinator, CRDT, University of Wolverhampton, Gorway Road, Walsall, WS1 3BD, UK; Phone: +44-(0)1902-323219; Fax: +44-(0)1902-323212; Email: in4746@wlv.ac.uk

• January-March, Edinburgh, United Kingdom.
Tree Improvement.
This specialist short course is designed to meet the needs of those who are involved in tree improvement programmes. It provides postgraduate level expertise in topics relevant both to tree improvement programmes and related areas. The structure of the programme is such that participants have the opportunity to pursue private study in areas raised in the module.

The course aims to provide:

- an understanding of the nature, extent and expression of variation within forest trees and the appropriate techniques to evaluate and utilise the variation.
- the means to implement tree improvement strategies to maximize productivity while maintaining cumulative gain over generations.
- an appreciation of the need for genetic conservation and its relationship with tree improvement.
- recognition of the importance of planting stock quality and optimal silvicultural treatments to enhance production of desired end-products.

Language: English. Location: University of Edinburgh, Institute of Ecology and Resources Management, Edinburgh, United Kingdom. Costs: course fee: £4,886, accommodation: £1,440. Contact: Vikki Hilton, Schools of Forestry and Ecological Sciences, Institute of Ecology and Resources Management, Darwin Building, The King's Buildings, Mayfield Road, Edinburgh, EH9 3JU; Phone: +44 (0)131-6506439; Fax: +44 (0)131-6620478; Email: vikki.hilton@ed.ac.uk

•30 March-3 July, Wolverhampton, UK.
Forestry and Participation.
This 12 week programme is designed to assist forestry personnel in the implementation of sustainable forest management and agroforestry initiatives. The programme aims to enable participants to implement people-sensitive policies using effective communication methods in the forestry sector. Units offered are: rural development forestry; issues of participation; communication skills; participatory learning; management of change; study visits and field tours.

Contact: Contact: Programme Coordinator, CRDT, University of Wolverhampton, Gorway Road, Walsall, WS1 3BD, UK; Phone: +44-(0)1902-323219; Fax: +44-(0)1902-323212; Email: in4746@wlv.ac.uk

• 29 June-18 September, Edinburgh, United Kingdom.
Tropical Forest Management and planning.
This 12 week course provides in-service training in modern management methods for foresters with experience in government or commercial forestry. The management of both native and plantation forests are considered in the course, together with fuelwood plantations and woodlots. The social dimensions of forest management form a part of the course, as do extension techniques and financial management. The course is designed for those already involved in tropical or subtropical forestry. It is anticipated that graduates in forestry, biological subjects or economics would have at least two years and holders of forestry diplomas at least four years field experience.

The objectives are to develop understanding of the functioning of tropical forest and forest plantations; to develop competence in successful indigenous and plantation management in tropical and subtropical

countries; to introduce modern planning and monitoring methods and their applications in forest management and to include the concepts of participatory forestry.

Location: University of Edinburgh, Institute of Ecology and Resources Management, Edinburgh, United Kingdom. Costs: course fee: £4,886, accommodation: £1,440. Contact: Yvonne Kinnaird, University of Edinburgh, South College Street, Edinburgh, EH8 9AA, United Kingdom. Phone: +44 (0)131-6509017; Fax: +44 (0)131-6509019; Email: yvonne.kinnaird@ed.ac.uk

• 29 June-18 September, Edinburgh, United Kingdom.
Tropical Agroforestry.
This 12 week course combines four major components: agroforestry, forestry, agriculture, and extension methods. It provides vocational training for the introduction or improvement of agroforestry systems, participatory forestry, farm woodlands, silvopastoral systems, and other compatible mixtures combining trees, crops and also farm animals. The course provides training for holders of Degrees or Diplomas in forestry, agriculture, and allied subjects, preferably with at least two years experience in government, commercial or private forestry, farming or advisory activities.

The course objectives are to examine the economic and environmental benefits of agroforestry systems; to understand the ecological principles and management related to integrating tree cultivation and farming practice; extension programmes for introducing or improving agroforestry schemes; communication and presentation skills and project preparation, implementation, management and appraisal.

Language: English. Location: University of Edinburgh, Institute of Ecology and Resources Management, Edinburgh, United Kingdom. Costs: course fee: £4,886, accommodation: £1,440. Contact: Yvonne Kinnaird, University of Edinburgh, South College Street, Edinburgh, EH8 9AA, United Kingdom. Phone: +44 (0)131-6509017; Fax: +44 (0)131-6509019; Email: yvonne.kinnaird@ed.ac.uk

• 2 November-11 December, Queensland, Australia.
5th International Course on Fodder Tree Legumes - Multipurpose Species for Agriculture.
The 6 week course provides a program of lectures and field visits to commercial properties and experimental stations in tropical and sub-tropical Australia. The course aims to inform participants of the range of fodder tree species available to agriculture, to review their environmental adaptations, and to examine their role in animal production, soil fertility improvement and erosion control.

Language: English. Location: University of Queensland, Brisbane, Australia. Costs: A$ 12.000. Contact: Fodder Tree Legumes Course Secretariat, Dept. Of Agriculture, University of Queensland, St. Lucia, Queensland 4072; Phone: 617-3365 2062; Fax: 617-3365 1188; Email: r.gutteridge@mailbos.uq.edu.au

Publications

• Whose reality really counts? Putting the first last.
Chambers, R. (1997), London. Intermediate Technology Development Group. ISBN: 1 85339 386 X.
Reviewed by Peter Gerritsen, Instituto Manantlán de Ecología y Conservación de la Biodiversidad, Apartado Postal 64, 48900 Autlán, Jal., Mexico.

Whose reality really counts? is the latest book in Robert Chambers sequel on rural development, rural poor and professionals. As in his earlier books, the central issue is the argument that, for a great number of practical and theoretical reasons, crucial issues in rural development have been overlooked by professionals and wrong or deficient analysis have been made. Thus, Robert Chambers states that the time has come (and begun) to looking for a new paradigm, or as he calls it: for a new high ground.

As part of his argument, he stresses the need for new methods and approaches for interacting with, learning from and knowing of poor people. Participatory rural appraisal (and related methodologies), which have emerged during the last two decades, can be and has proven to be a very helpful methodological tool in doing so, and which has had amazing results in relation to rural poor´s ability to analyse, monitor, evaluate, plan, etceteras.

In his book Robert Chambers describes and analyses the different features of the above argument and presents several alternatives. Contrary to *Rural Development. Putting the last first*, the book he wrote in 1983, in *Whose reality counts?* the point of departure is not so much the rural poor, but above all the professionals: practitioners, scientists, and policy makers, and the various ways how they (miss)perceive the local, complex, diverse, dynamic and unpredictable reality of poor people. Besides, according to Robert Chambers self-critical awareness and changes in concepts, methods and behaviour must be developed in order to be able to explore the new high ground of participation and empowerment.

The ten chapters of the book are relatively easy to read, and a lot of valuable and interesting practical information and experience is presented. While Chapter 1 till 5 analyses present difficulties of professionals to understand the situation of the poor, from Chapter 6 onwards PRA (and related methodologies) is presented and described as a possible solution to the shortcomings of normal professionalism. The whole has been woven together into a practical and resourceful book, not

only for practitioners or academics, but also for policy makers or other people involved in rural development.

Chapter 1 starts with analysing and describing the accelerated change in the world, and the widening of the gap between the poor and the rich, between the lowers and the uppers. Besides, it is stated that a consensus is evolving on where to go and what to do. It finishes indicating that the new challenge lies in the personal, professional and institutional world in order to be able to better respond to uncertainty and change.

Chapter 2 outlines the importance of learning from mistakes, leading to personal and professional overcoming. By learning from (or, in his words: embracing) our errors, new and quicker ways can be found to be better respond to the needs of the needed.

Chapter 3 analyses normal professionalism, stating that current way of doing the job impedes to properly understand and serve the complex local conditions. farming systems and livelihood strategies of poor people.

Chapter 4 criticises the dominant professional paradigm (the so-called normal professionalism) in which powerful professional uppers reproduce their reality through teaching, centralised bureaucracy and career plans, with tendencies to simple, standardised packages transferred top-down, and misfitting the realities and needs of the lowers.

Chapter 5 proceeds with the line of thought set out in the foregoing chapters and claims that the issue of power is one of the most important brakes on really understanding what is happening with the less powerful.

Chapter 6 introduces the reader in the other ways of seeing and understanding the poor. Special attention is given to participatory rapid appraisal, as a new set of approaches and methods to enable local people to share, enhance and analyse their knowledge of life and conditions, and to plan, act, monitor and evaluate.

Chapter 7 goes into some of the methodological and practical issues of PRA and summarises the lessons learned and the challenges ahead, illustrated with a lot of interesting field material.

Chapter 8 describes the complexity of local peoples livelihood and describes some of the aspects involved. Besides, it shows the different perceptions professionals and local people can have of the specific local conditions.

On basis of the foregoing chapters, in Chapter 10 a new, people-oriented, paradigm is constructed ("the new high ground"), while Chapter 11 returns to the basic statement of the book that change is only possible if we, the professionals, are willing to change and start to see the poor as our partners.

Reading the book, it becomes clear that Robert Chambers does not pretend to have fixed answers on the issues raised by him, on the contrary he rather leaves it to the judgement of the reader. A beautiful example of this humble attitude is the PostScript of *Whose reality count?*, in which he asks himself and the readers, if things would have been different when rural poors situation would have assessed in a participatory manner. Probably every reader can contribute to this basic question from his or her working experience.

Robert Chambers book is an eye-opener for those not familiar with his work, permitting a positive and constructive reflection of one's work, and probably leaving the reader with more questions than answers. For those already familiar or those convinced that something must change, *Whose reality counts?* is an another confirmation of both the necessity and possibilities of change, as well as an update on the matter.

• Missing a Moving Target? Colonist Technology Development on the Amazon Frontier.
Michael Richards

The study brings together recent literature and the author's regional experience to assess the problem of rapid land turnover in colonisation zones in the Amazon Region. It particularly assesses various land use alternatives, including "slash and burn" farming, by observing field or project experience. The study indicates that institutional factors and market incentives are more powerful determinants of colonist farmer stability than land productivity, and discusses why development efforts need to pay particular attention to the dynamic nature of the frontier. Farmer response to economic and institutional incentives changes as the frontier matures, and projects/technologies have often missed their "moving target". Greater success has come when policy, institutional and technical strategies have been more integrated.

ODI Publications, Portland House, Stag Place, London SW1E 5DP, UK; Phone: +44-(0)171-393-1600; Fax: +44-(0)171-393-1699; Email: publications@odi.org.uk. 88 pages. ISBN: 0850033012. £ 10.95

• People, Park and Plant Use. Recommendations for multiple-use zones and development alternatives around Bwindi Impenetrable National Park, Uganda.
A.B. Cunningham

This report focuses on resource use and management issues relating to wild plants and multiple-use zoning in Bwindi Impenetrable Park. Foresters usually group products into two categories for forest management purposes: major forest products (such as timber, fuelwood or other wooden products) and minor forest products (all non-wooden products). The results and recommendations of this report are presented first for the latter category, involving mainly specialist users of non-wood products, including wild plant resources, honey, basketry and bamboo use. The various uses of wood, the major forest products, (e.g. blacksmiths, carved wooden handcrafts, beer boats, building poles, bean stakes) are then considered.

These recommendations need to be seen as part of an ongoing process of interaction between the rural community surrounding Bwindi Impenetrable National Park and the park management, with DTC (Development Through Conservation) project staff at the interface between the two groups.

Specialist user groups within communities surrounding Bwindi Impenetrable National Park, having a good knowledge of plant resources, can form an important interface between the National Park or DTC staff

and the rural community in general. They also represent groups of resources users with a common interest in beekeeping, traditional medicines, basketry or other uses. All of these are recognized for their skills within communities and by the Resistance Council (RC) system. Many are already members of organizations established either on community initiative or through the combined interests of the community and the Ugandan government departments.
Recommendations for forest product use by specialist groups within multiple-use areas fall into four categories:

1) open access to specialist users (e.g. bee-keepers, non-commercial harvesting of medicinal plants);
2) seasonal access to popular plant resources with limited distribution by harvesters elected within user groups (e.g. Marantaceae used for basketry);
3) seasonal and rotational management by specialist harvesters (e.g. bamboo), with potential users involved in resource assessments and setting of quotas;
4) continued closed access to resources where sustained use is not possible, due either to complexity, high demand or slow growth rates and where the emphasis needs to be placed on providing alternatives outside the National Park.

Additional recommendations are made for future research and monitoring, including the involvement of resource users and traditional experts as research partners. Special mention is made of the valuable role that Batwa people can play in research on forest ecology and in inventory work as "parataxonomists".

People and Plants Working Paper no. 4. People and Plants initiative. Division of Ecological Sciences, UNESCO, 7 Place de Fontenoy, 75352 Paris CEDEX 07 SP, France. Fax: +33-1-4568-5804.

• Conservation through community use of plant resources. Establishing collaborative management at Bwindi Impenetrable and Mgahinga Gorilla National Parks, Uganda.
R.G. Wild and J. Mutebi

Biodiversity conservation in Uganda has strengthened as the country has emerged from political instability. From 1991-1993, six new forest national parks were declared, adding to the four existing savanna parks. The Uganda Wildlife Authority is actively exploring local participation and benefit sharing with communities for effective park management.

Since 1988, the Development through Conservation (DC) project has been attempting to reconcile local needs with forest conservation at Bwindi Impenetrable and Mgahinga Forests, wich were declared National Parks in 1991. Given the acute need for forest resources it was decided to allow the use of resources from within the protected areas as one way of benefit sharing. Implementation of this decision required a process of working with communities to plan and effect collaborative management of forest resources between UWA and civil parishes surrounding the forests. Allowing resource use from within the park boundaries is in part a recognition that local communities should not have to bear all the costs of conservation; at Bwindi and Mgahinga, the collaborative management process revealed that the designation as National Parks entailed considerable costs borne by the communities which needed to be addressed if forest conservation was to be effective.

Although it is too early to evaluate the long-term impact of resource use within Bwindi Impenetrable National Park, the lengthy process of sharing information and negotiating agreements should improve the chances of success. Negotiating resource use from within these protected areas has returned a measure of equity to local people, and better relations between the parks and adjacent communities are likely to reduce the risk of political instability. Collaborative management of resource use is likely to prove a more sustainable long-term strategy than the previous 'no use' approach.

The lessons learned from applying this collaborative management approach at Bwindi Impenetrable and Mgahinga Gorilla National Parks contribute to the ongoing debate about what is effective and appropriate conservation. This experience suggests that co-management has great potential for effectively including local communities in the management of protected areas in Uganda and elsewhere in Africa, and can also be of value for resolving natural resource use conflicts beyond those engendered by protected areas.

People and Plants Working Paper no. 5. People and Plants initiative. Division of Ecological Sciences, UNESCO, 7 Place de Fontenoy, 75352 Paris CEDEX 07 SP, France. Fax: +33-1-4568-5804.

New Forest Project - World Seed Program

The New Forest Project (NFP) is a people-to-people, direct-action program established in 1982 by the International Center in an effort to curb deforestation in developin countries. Since its inception, NFP has worked to educate communities threatened by deforestation about the importance of forest and natural resource protection. Over the last 15 years NFP has helped farmers begin tree-planting projects in more than 3,500 villages in over 100 developing countries. Utilizing a number of strategies, NFP seeks to provide self-help tools for individuals or communities to produce forest products necessary for their survival.

Through the World Seed Program, NFP promotes the planting of fast-growing, nitrogen fixing tree species like Leucaena, Gliricidia and Cajanus. In conjunction with tree seeds, NFP distributes technical assistance, training aids, and educational materials. With proper management, these trees can sustainably produce fuelwood, animal forage, organic fertilizer and building materials while regenerating degraded soils and increasing agricultural yields. In recent years NFP has been working in reforestation and agroforestry in Guatemala, El Salvador, Ethiopia, Honduras, Haiti and the Philippines.

The World Seed Program offers packets of tree seeds, technical information and training materials free of charge to groups worldwide who are interested in starting reforestation projects with fast-growing, nitrogen-fixing trees.

For more information please contact: NFP, Stuart Conway (Director) or Felicia Ruiz (Coordinator), World Seed Program, 731 Eighth Street, S.E., Washington, D.C. 200003; Phone: +202-547-3800; Fax: +202-546-4784;
Email: ic-nfp@clark.net.

Artistic Biodiversity

German colonist proudly smoking his pipe in front of a part of a huge trunk. Cameroon, early this century.
© Private Collection Wolfgang Herterich, Germany.

Bombax sp. overgrown by climbers. Victoria, Cameroon Botanical Garden. The picture was taken during the Valdivia Expedition, 25-9-1898.

Advertisements

Advertising in the BOS NiEuWSLETTER and BOS Consultancies

Advertisements

The BOS NiEuWSLETTER offers good opportunities for advertisements. Based on the size of the BOS NiEuWSLETTER the following options are available:

Full page

19 cm height
x
18 cm width

Half page I

9.5 cm height
x
18 cm width

Half page II

19 cm height
x
9 cm width

Quarter page

9.5 cm height
x
9.5 cm width

For information on advertising costs please contact the secretariat.

Consultancies

The BOS Foundation offers consultancies and services on various topics in the field of sustainable use and management and conservation of tropical forest, like:

- Forest ecology and management;
- Conservation of biological diversity;
- Reforestation/plantation forestry;
- Social forestry;
- Nurseries;
- Sustainable forest management and certification;
- Forest products, processing and marketing.

Consultancies and services include e.g.:

- Literature surveys;
- Literature information service;
- Desk studies;
- Advising.

For more information contact:

Bert van der Linden

BOS Foundation
PO Box 23
6700 AA Wageningen
The Netherlands
Phone: +(317) - 477883
Fax: +(317) - 424988
Email: stichting.bos@ibn.dlo.nl

Changing Personal Circumstances?

Surname: **DATE OF CHANGE:**
Forename(s):
Initial(s):
Title:
Country in which you work:

Please indicate your mailing address ↓

HOME Address: ☐
Code + City:
Phone: Fax: Email:

WORK Organization: ☐
Department:
Address:
Code + City:
Phone: Fax: Email:

Koeriersdienst BuZa, PO Box 20061, 2500 EB Den Haag ☐

CONTACT ADDRESS Name: ☐
Address:
Code + City:
Phone: Fax: Email:

Please indicate if your contact address should be used for payment of subscription → → → ☐

TYPE OF EMPLOYER (tick only one)

☐ 01 International or national development agency
☐ 02 Government
☐ 03 NGO
☐ 04 University/Research institute/etc.
☐ 05 Library/Documentation/Publication
☐ 06 Consultancy
☐ 07 Other, namely.....

TYPE OF EMPLOYMENT (e.g. fieldworker, researcher, manager, etc.)

Do you have/know possibilities to accommodate stagiares?
☐ Yes (We will send you a separate questionnaire for more information) ☐ no

Subscription to the BOS Foundation

Individuals*:	Dfl. 30,-/US$ 20	for students,
	Dfl. 60,-/US$ 40	others in Europe,
	Dfl. 75,-/US$ 50	others outside Europe.
Organization*:	Dfl. 75,-/US$ 50	local organizations in the tropics,
	Dfl. 125,-/US$ 80	other organizations.

* Subscription fees for 1997. Individuals and organizations without bank/giro account in The Netherlands should add an extra 15 Dutch Florins (US$ 9) for bank charges and taxes. Subscription can be made by cheque or money order to the BOS Foundation.

Withdrawal for the next calendar year should be done with a month's notice.
The BOS NiEuWSLETTER is provided free of charge to organizations with reciprocal agreements.

The Secretariat

Visiting address:	IBN-DLO, "De Dorschkamp", Bosrandweg 20, Wageningen, The Netherlands.
Postal and editorial address:	BOS Foundation, PO Box 23, 6700 AA Wageningen, The Netherlands.
Telephone:	+ (0)317-477883.
Fax:	+ (0)317-424988.
Email:	stichting.bos@ibn.dlo.nl
Giro account:	4296433.
Bank account:	539024414 - ABN/AMRO Bank, Wageningen, The Netherlands.

The secretariat members are Wiebe Kloppenburg (office manager), Peter Sips (editor and project coordinator) and Bert van der Linden (project coordinator).

The Board

Ir. N.W.J. Borsboom (Chairman)*	* The Daily Board
Vacant (Secretary)*	
Ir. J.D. Lemckert (Treasurer)*	International Agricultural College Larenstein (IAHL), Velp.
Ir. E.M.C. Groenendijk	International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede.
Ir. P.J.M. Hillegers	Institute for Forestry and Nature Research (IBN-DLO), Wageningen. (Advisor of the Board).
Ir. C.H. de Pater	National Reference Centre for Nature Management (IKC-N), Ministry of Agriculture, Nature Management and Fisheries, Utrecht. (Advisor of the Board).
Dr. Ir. J. Hendrison*	Department of Forestry, Wageningen Agricultural University (WAU), Wageningen.
Ir. G.J.B. Renes	International Agricultural Centre (IAC), Wageningen.
Vacant	Students of the WAU.
Vacant	Students of the IAHL.

Honorary Member of the Board: Prof. Dr. Ir. R.A.A. Oldeman. The originators of the BOS Foundation are Cor von Meijenfeldt, Cathrien de Pater, Herman Savenije and Fred Wouters. Date of foundation: 16th of December 1981.

Guidelines for contributions to the BOS NiEuWSLETTER

Articles

- not more than **2500** words;
- text should be delivered on **disk** in at least Word Perfect 5.1 (or in flat ASCII) and preferably on **paper**;
- articles should be written in **English**;
- articles should include at least 2 clear **illustrations** and/or **photos** (with a minimum of 3 in total);
- please state full **caption** and names and dates of illustrator or photographer;
- photos should preferably show interactions between man and nature;
- specify all **references** in text by author and year of publication. In the list of references please state author, year of publication, title, publisher and number of pages;
- **tables** and **figures** should be numbered according to their sequence in the text. Please fully state the source if necessary;
- please include **keywords** and an **abstract** (not more than 150 words);
- please include short information on the **author** (not more than 150 words);
- please include a **lead** (on a separate sheet): three or four especially interesting excerpts that draw the attention of the reader (this is not an abstract).

Comments/opinions

- not more than 500 words;
- please include 1 illustration and/or photo;
- please state full caption and names and dates of illustrator or photographer;
- always include name, address, occupation and telephone, fax and e-mail numbers.

For further information please contact the editor.

The editor is entitled to make changes. As regards content this will only be done after consulting the author(s).

The final responsibility lies with the author!

Disk, illustrations and photos will always be returned to the author.

You are cordially invited to send your contribution to:

Peter Sips
The Editor
BOS NiEuWSLETTER
PO Box 23, 6700 AA Wageningen, The Netherlands.
Phone: +(0)317 - 477883; Fax: +(0)317 - 424988; Email: stichting.bos@ibn.dlo.nl