

CONGO BASIN

Information S E R I E S



#1

Central African Regional Program for the Environment

Summary of Results and Lessons Learned from the First Phase

Key Concepts

➤ **Environmental Governance** CARPE takes as a basic premise the idea that forest management in the region should reflect societal values and priorities rather than individual interests alone, and that benefits from forest use should be shared as equitably as possible. Strengthening weak civil society institutions in Central Africa, and expanding access to information about resource allocation and misuse, can serve as a counterbalance to over-centralized and unaccountable governments, and to the *de facto* authority over resource access and use wielded by private sector companies, who often operate in non-transparent and unsustainable ways. Small grants to Central African NGOs, individuals, and university faculty and students have proven to be an effective mechanism for building the human capital and conservation constituency that together form the foundation of effective environmental governance.

➤ **Protected Areas** Parks and reserves should remain an element of any biodiversity conservation strategy even as attention increasingly shifts toward landscape-level planning, on one hand, and toward community-based resource management, on the other. This is because protected areas can continue to serve as a core area for ensuring the long-term persistence of ecological and evolutionary processes largely unfettered by human influence, with most forms of human use precluded or strictly limited. These core areas are especially important for conservation of

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What Is CARPE?

The Central African Regional Program for the Environment (CARPE) is a USAID initiative to identify and test a wide range of measures to help conserve forests and biodiversity in the Congo Basin over the long run. The expanded knowledge base, and enhanced individual and institutional capacities that result from the implementation of the first 5-year phase of CARPE will serve as the foundation for a longer term (15-20 year) effort to mitigate deforestation of the tropical forests of the Congo Basin and conserve the biodiversity contained within them. In the long run, conservation of these forests will also contribute to the mitigation of potentially negative changes in regional and global climate. CARPE's efforts are focused on the countries of Burundi, Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, Republic of Congo, Rwanda and São Tomé e Príncipe. (See Issue Brief #2 What Is CARPE?). ■

CARPE Implementation Partners

Within USAID, CARPE is unique in that it is being designed and implemented by U.S.-based government and non-governmental organizations with experience in the region: Biodiversity Support Program, NASA/University of Maryland/University of Virginia, Peace Corps, U.S. Agency for International Development, U.S. Department of Agriculture/International Forestry, Wildlife Conservation Society, Innovative Resources Management, World Resources Institute, World Wildlife Fund, Conservation International, African Wildlife Foundation, IUCN, U.S. Fish and Wildlife Service. The CARPE partners constitute a pluralistic coalition of committed partners each bringing their own strengths to addressing the multiple facets of forest management in Central Africa. (See Issue Brief #2 What Is CARPE?). ■

CARPE Philosophy

CARPE's core philosophy is to facilitate the meaningful involvement of African partners and to ensure that African decision makers have access to, and the capacity to use information critical to rational forest resource management. CARPE has engaged local NGOs, individuals and government agencies in activities to evaluate threats to forest integrity and identify opportunities for minimizing resource degradation while promoting human livelihood security.

CARPE activities are designed to fill gaps in our knowledge and build on the experience of oth-



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(1) flora and fauna that are particularly sensitive to human presence and habitat disturbance, and (2) resources that have a low economic value but a high global intrinsic value.

Private Sector

Engagement Logging companies exercise *de facto* control of resource use within much of the forest outside of protected areas in Central Africa. In many cases, poor management practices and technical shortcomings cause needless damage and degradation in and around logging concessions, and also stimulate uncontrolled exploitation of resources such as bushmeat and gemstones. Preliminary results of pilot projects between conservation NGOs and timber companies have demonstrated that efforts to 'green' private sector practices through better planning, site management, and access restrictions, have considerable potential to generate significant conservation payoffs at relatively low cost, and in some cases can also provide economic benefits for concession operators. Private sector activities, in the absence of an appropriate framework and checks and balances, can have short-term, unsustainable impacts.

Bushmeat Crisis

Hunting of wildlife (defaunation) to supply meat for urban markets as well as settlements associated with logging may represent a more immediate and significant threat to forest conservation than deforestation. Loss of wildlife that are important seed predators, seed dispersers and landscape engineers will affect tree species regeneration and forest composition and productivity. Solutions to this crisis will require efforts to reduce demand in urban areas, to better enforce existing laws regulating hunting and marketing of wildlife products, and working with logging companies to ensure they provide appropriate food for employees and their families, and take effective action to curb the use of logging trucks and roads to transport hunters, firearms and bushmeat.

ers, thus extending rather than duplicating our collective knowledge of the forests of Central Africa. CARPE seeks to involve Central Africans in forest management pilot activities in the region and strengthen the capacity of Central African decision makers and civil society to participate in priority setting and management of the region's unique forest resources. In addition, CARPE partners are charged with disseminating lessons learned quickly and at no charge. (See Issue Brief #2 What Is CARPE?). ■

Sources of CARPE Lessons Learned

CARPE lessons learned draw upon information developed by CARPE partners, field results from CARPE partners' pilot projects, facts extracted from prior studies, and results of studies supported outside of CARPE. In many cases, key pieces of information were known only to specialists, or had not been assessed in the broader context of regional-scale forest and biodiversity conservation. The primary added value of CARPE's investment in strengthening the knowledge base lies less in the area of unique or first-time discoveries, than in the systematic gathering of experience, information, tools and approaches which will enable the region to move toward more effective and sustainable forest management. ■

Regional Assessment of the Forest

Present State of the Forest

The Congo Basin contains the second largest continuous tropical rainforest in the world. Dense forests extend over 1.9 million km² of Central Africa, covering almost 50% of the landmass. The forest is home to more than 20 million people, most of whom depend on natural resources for their livelihoods. The forest also harbors the most diverse assemblage of plants and animals in Africa with about 400 mammal species, more than 1,000 different species of birds, and over 10,000 plant species of which about 3,000 are endemic to the region.

Over 50% of the forest outside of protected areas (80% in Cameroon) has now been allocated for logging concessions. Approximately 14% of the forest has been converted to agriculture, most of which is small-scale cultivation by individual households. Industrial-scale agriculture is most prevalent in the coastal zones of south western Cameroon, and, prior to the recent civil war, in the northern and eastern regions of the Democratic Republic of Congo. Protected areas cover 6% of the forest, and represent the major forest types within the region. (See Issue Briefs #3 Rich Forests, #5 Timber Tsunami, #4 Identifying Gaps).



Forest Trends

Current national rates of deforestation are low relative to other regions of dense forested Africa (0.02 -0.45% per year - c.f., Ivory coast 1%, Ghana 1.3%, and Sierra Leone 0.6%). Yet, with human population expected to double in 25 years and

increase by more than four-fold by 2050, forest clearing for agriculture is likely to have a significant long-term impact on forests in Central Africa. From a global perspective, the relatively low deforestation rates in the vast Congo Basin nevertheless represent a significant amount of forest loss in absolute terms.

Within the next 20 years, almost all the region's old-growth forest will have been logged at least once. And without significant progress in controlling the commercial trade in



wildlife for food, we can expect that apes, other primates, and most other large mammals will be eradicated from forests close to urban centers, and possibly throughout much of the region. (See Issue Briefs #6 Deforestation, #7 Seeing the Future).

Diverse Values of Forest Resources

The forests of Central Africa are important for their economic values (timber, non-timber forest products, bushmeat, and agricultural nutrients), ecological values (plant and animal biodiversity, ecosystem services), subsistence value (80% of forest residents depend directly on forest resource use for their livelihoods), and cultural values (the forest plays an important role in many forest societies' belief systems). If every patch of forest could simultaneously provide for all these needs then managing the forest would not be a challenge. Unfortunately, many forms of forest use tend to be incompatible with other uses. Very often decisions about forest access and resource exploitation may favor some uses and preclude or undermine others that would generate different goods and services.

For example, a forested landscape planted with coffee to generate income for families and national governments may no longer be a forest filled with food or medicines that can be harvested for local use or for sale; a forest where wildlife are hunted for meat generates food and income for families today, but may jeopardize future families' likelihood of capturing the same values; and a forest set aside as a national park will no longer be accessible to loggers to harvest and sell the trees and to provide a source of employment. Sustainable forest management is, therefore, an iterative process of compromise that must reconcile competing forest uses, and must be responsive, over time, to changes in values ascribed to the forest by individuals and their political and corporate representatives. (See Issue Briefs #10 NTFP, #9 Forest Estate, #8 Forest Disappeared).

Forest Governance at the End of the 20th Century

Although decentralization is becoming an important trend in much of Africa, this process is fairly recent in the Congo Basin, and political power remains largely in the hands of the urban elite and powerful government officials. The principle of subsidiarity suggests that political and administrative responsibility for resource management is best vested in those decision-making levels closest to the resource. Yet, the legal framework for decentralization (or deconcentration) of forest management in this region is poorly understood, and there is little political commitment to reforms that will provide civil society with more power and citizens with greater equity in the benefits from commercial forest use. At present, the region's capacity for political advocacy and forest governance reform remains weak, but is growing as citizens gain access to improved telecommunications and global information, and as civil society gains experience and confidence.

Several African-based regional forest management initiatives have been launched (CEFDHAC Brazzaville Process, Yaoundé Summit Process, and the African Timber Organization). Though these are promising, all need continued political, financial and technical support to be able to fulfill their potential for improving forest governance in one of the world's poorest and least stable regions. (See Issue Brief #11 Forest Governance).

Monitoring the State of the Forest

Monitoring the changing state of the forest is essential for understanding the consequences of forest use and management decisions and for adapting conservation and development interventions to changing conditions. Monitoring is needed across a range of spatial scales as well as over time. For example, it is important to track deforestation rates at a regional scale, to monitor the extent of logging and logging company environmental performance at both national and corporate scales, and to assess changes in wildlife populations and human welfare at the local or site scale. At present, few public and private sector and civil society institutions are able to generate the environmental data that is needed to guide forest management, and existing methods need to increase accuracy and reduce costs.

Though monitoring can be an essential component of effective resource management, it is a wasted investment if it does not lead to changes in government, corporate and individual practices. Consequently, monitoring will be most effective when driven by government, corporate and civil society demand for environmental information, and when this information is acted upon in a transparent and effective way, and coupled with advocacy. (See Issue Briefs #12 Management Watchdogs, #13 Remote Sensing, #14 Monitoring & Evaluation).

Future Forest State - A Look at the Forest in 2050

The results of a spatial simulation model suggest that by 2050, given present trends, forest cover will decline by over 40%, and few large blocks of intact forest will remain. During this period, over half of Central Africa's forest biomass will be released into the atmosphere as carbon dioxide. While this is equivalent to about 1.6 years of global carbon emissions, an amount insignificant relative to that contributed by fossil fuel burning worldwide, the loss of forest cover, habitat, and biomass from Congo Basin ecosystems would have potentially devastating local and regional consequences. (See Issue Briefs #7 Seeing the Future, #13 Remote Sensing, #8 Forest Disappeared). ■

Forest and Society

At present the power to determine what forest resources are used by whom, for what purposes, over what time frame is unequally distributed. As a result, forest resource-use conflicts are common, the benefits accrued from forest resource use are not equitable, and forest resources are often mined to satisfy short-term interests of the few and to the long-term detriment of the many.

Forest and State

Forest conservation in the Congo Basin will only happen if it has constituencies for change in three sectors of the nation state: the public and private sectors, and civil society. Central African countries tend to be politically centralized yet inefficiently administered, and economically weak. The concentration of authority over the management of most of the forest estate in the hands of a few powerful politicians and private sector actors results in considerable inequity in the distribution of benefits derived from forest resource use, ignores the resource-use concerns of the majority, encourages people to flout unpopular and illegitimate forest use laws, and promotes unsustainable forest resource use. Effective, efficient and equitable forest management that contributes to broad based development in the Congo Basin must be governed by mechanisms that assure inputs from a broad range of societal actors and promotes a system of institutional checks and balances, and separation of powers.

Moreover, Central African governments mainly derive revenues from the extraction and sale of



natural resources to international buyers, paying little attention to the domestic economy. This has several impacts: economies remain dependent on world commodity markets, which are often volatile; there is minimal domestic transformation or value-added from resource exploitation; and there is little incentive for diversification and specialization within the domestic economy. In addition, the absence of a system of taxation of citizens and local businesses, tends to divorce government policy and decision making from the citizenry, and gives little incentive to grow the national economy, and widen public participation in economic development. As this system provides government services as gifts of the state rather than administrative responsibilities financed by the citizenry, accountable and representative government has been extremely slow in developing across the region. Lastly, strong executive powers and absence of civil-suit provisions help to perpetuate the absence of transparency and abuse of authority, and undermine citizen participation in forest use decisions and oversight.

(See Issue Briefs #15 Policy Reform, #16 World Bank #17 Keep Out, #11 Forest Governance).

Information and Civil Society

Forest use information is not gathered systematically nor made public. But more access to information does not necessarily mean that resources will be managed for the benefit of the majority. However, lack of information almost assures that forest resources will not be used equitably. Civil society organizations are critical to law enforcement in the north, and could play the same role in Central Africa, but are presently extremely weak and not supported by legislation. For these reasons, recent examples of increased demand for public accountability, and tentative government moves toward decentralization and transparency in forest management, represent extremely important steps that need to be consolidated and extended. (See Issue Briefs #5 Timber Tsunami, #12 Management Watchdogs).

Greening the Private Sector

Private sector enterprises, primarily logging and mining companies, are often both *de jure* and *de facto* regulators of resource use over the majority of the forest estate in Central Africa. In Cameroon, logging concessions cover 80% of the forest outside of protected areas. Loggers are in the business of making money, not in conserving wildlife, and their present business practices typically reflect this. The process of logging builds roads into once isolated forests, providing access to commercial hunters who supply bushmeat to meet growing urban demand. Salaried employees and their extended families who live in logging company camps within or bordering concessions also constitute a significant local source of demand for bushmeat. The expansion of commercial hunting of wildlife for meat facilitated by logging now risks the loss of most large bodied mammals from forests outside of protected areas. Early results from pilot projects to co-manage wildlife within logging concessions are demonstrating effective collaboration between the private sector and conservation NGOs, with the potential for reducing the impact of timber exploitation on wildlife. This suggests that efforts to 'green' private sector practices have the potential to generate significant conservation benefits. (See Issue Briefs #15 Policy Reform, #18 Sustainable Timber, #19 Private Sector). ■



Forest and Resource Use

The relatively high demand for, and economic value of, forest resources in the absence of effective mechanisms for regulating access to, and use of, forest resources has led to unsustainable use of many forest products throughout much of Central Africa.

Sustainable Forest Use

Most uses of the forest undermine, or preclude, other uses (e.g., logging and tourism are largely incompatible). At small scales (<100 ha), over short time frames, no single forest management system can be expected to generate all possible tangible and intangible benefits simultaneously within the same block of forest. At larger scales over longer time frames, multiple forest units can be managed differently, and

in combination generate the full range of benefits desired by all stakeholders. Sustainable forest management that captures all forest values therefore requires recognition that different forest uses can best coexist when these values are explicitly and transparently negotiated between potential rival interests, and when planning takes place within a landscape large enough to permit multiple uses. Deciding what blocks of forest to use in what way, over what time period, to benefit whom, is a sociopolitical process, the results of which will be determined by how power is shared or concentrated within and among nations. (See Issue Briefs #3 Rich Forests, #9 Forest Estate).

Agriculture

Traditional agricultural practices throughout the forest zone of Central Africa are derived from an ancient system that relied on abandoning a field after one or two years of cultivation, leaving it to reestablish forest cover, regenerate soil nutrients, and deplete the weed seed bank. This system works well when enough land is available to leave abandoned fields in forest fallow for 10-15 years. When land becomes scarce and farmers do not have access to agricultural inputs to increase yields per unit area (e.g., inorganic or organic fertilizers), fallow periods are reduced, soil fertility does not recover, weeds become a severe problem, and crop production declines. Eventually soils become so exhausted that crops no longer grow and fallow forest regeneration takes decades rather than years.

Plantation agriculture, introduced during the colonial era, causes forest clearing on a more systematic scale, with crops such as rubber, oil palm, cacao and coffee accounting for significant areas converted from natural forest in modern times. In some places (oil palm in the Democratic Republic of Congo, cacao in Equatorial Guinea), economic mismanagement had led to the near collapse of this sector, and many former plantations have reverted to some form of secondary regrowth. But in Cameroon, economic crisis has stimulated many unemployed urban workers to return to rural areas to earn a living from cacao or coffee cultivation in the forest zone. Several countries in the region are now pursuing privatization of failing parastatal companies holding large tracts of land, which could also have consequences for land use and forest management. (See Issue Brief #6 Deforestation).

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Non-Timber Forest Products

Non-timber forest products (NTFPs) are important to household consumption in many areas. Promotion of these products is sometimes seen as a way to discourage logging and agricultural clearing. Recent research confirms that NTFPs provide sources of food, medicines, and income to many households in Central Africa, yet these studies also show that the magnitude of NTFP contribution to local and national economies is typically small

relative to agriculture. In Cameroon, agriculture's contribution to GNP is nine times that of NTFPs. But where forest has already been logged at least once, NTFPs are often more valuable than timber.

For poor families, NTFPs are an essential dietary and economic safety net, and are also a valued but minor component of the diets of wealthier households. Transportation costs largely determine whether agricultural crops or NTFPs are the most important source of rural household income, because the former can be produced consistently in large quantities but have a low value-to-weight ratio, whereas the latter typically have a higher value-to-weight ratio but are available less consistently and in relatively small quantities.



As NTFPs increase in value there is a trend toward overharvesting of wild resources, on-farm production, and exclusion of resource users by resource managers. Of the 20 most economically valuable NTFPs in Central Africa, 11 are unsustainably harvested and 12 are now cultivated. This trend suggests that few, if any, commercially valuable NTFPs can be harvested sustainably from the wild, given present resource access, ownership laws and enforcement capacity. Though on-farm and regulated wild production of NTFPs is a realistic option for raising household income levels and welfare security, marketing of NTFPs alone is unlikely to result in natural forest conservation. (See Issue Brief #10 NTFP).

Commercial Logging

Logging is a mainstay of Central African national economies, generating U.S. \$60 million in taxes in 1997-98 in Cameroon and U.S. \$31 million in Gabon. Logging also generates jobs and provides education and health services to rural communities often neglected by national governments. Over 50% of forests in Central Africa outside of protected areas have been allocated to logging companies. European companies have dominated the logging sector thanks to greater capitalization and longstanding political influence of former colonial governments. In recent years large Asian firms and smaller ones based in the Middle East have begun to play a larger role in the region. This is beginning to change the political and economic dynamics of the timber sector, and could complicate efforts to pressure logging companies to improve their practices through publicity campaigns and boycotts in Europe.

Present logging practices across the region are not sustainable, because logging concession leases are typically 30 years or less, while the average age of harvested trees often exceeds 400 years. Logging in Central Africa is essentially taking a once-off gift of nature as the trees that are being harvested took 300-1,000 years to reach their present size and it is unlikely that loggers will ever see trees of that size and age again. Moreover, the technical standards of most concession operations is very low by international standards. Until recently, no logging firm in the region employed a professionally trained forester, and much needless damage was done due to poorly sited skidder trails, high loss rates of felled trees, harvesting of species and stem sizes outside permitted limits, and disturbance of steep slopes and streambeds.



Weak enforcement and implementation of forestry legislation result in rampant illegal logging, significant loss of revenue for local and national economies, and unnecessary environmental impacts. Absence of government transparency and accountability means that logging legislation is poorly respected and hard to enforce. In Cameroon, in 1992-93, only 4% of violations were brought to trial and fines levied, while one out of five citations against logging companies was dropped by the courts after the intervention of an influential person. (See Issue Briefs #18 Sustainable Timber, #5 Timber Tsunami, #19 Private Sector).

Community Conservation of Forest Resources

At present strong executive powers, absence of civil-suit provisions, and the *de facto* regulatory authority of the private sector over much of the forest estate undermine citizen participation in decisions that influence who has access to how much of what forest resource over what time period. As a result, forest resource use decisions often only benefit a few national or international actors, and do little to improve the welfare of the majority of Central Africa citizens.

Community mobilization initiatives such as participatory mapping and increased access to environmental information, help to empower civil society, which may in turn strengthen public demand for transparency and equity in forest resource decisions. Greater democracy in forest resource use decision making will help ensure that minority practices do not undermine majority interests. However, community control over land and resources does not by itself reduce forest degradation or deforestation. Thus, though building civil society institutions is critical to counterbalancing the power of the public and private sectors, it is important to maintain appropriate roles for national-level policies and decision making, to ensure that local self interest does not undermine the interests of society in general. (See Issue Briefs #17 Keep Out, #20 Mobilizing Communities, #11 Forest Governance). ■

Forest and Biodiversity Conservation

Some conservationists argue for creating more - and larger - protected areas in Central Africa. Yet few protected areas in Central Africa presently receive the level of investment necessary to ensure their long-term persistence.

In practical terms, substantially increasing the area within national parks and reserves is unlikely. To fill conservation gaps left by the present protected area network, conservation-compatible land uses are being proposed in landscapes bordering and between protected areas; i.e. land uses that permit significant conservation benefits in addition to desired economic returns. This landscape approach to biodiversity conservation is based on the realization that economic imperatives of poor nations and households make biodiversity conservation difficult unless investments are also made to minimize the overall environmental impacts of forest resource use as a whole, while providing for local and national commercial and subsistence needs.

Landscape management is a process for harmonizing resource use policies and practices within regions divided by international frontiers or by national property or land use zoning boundaries, and can help to reconcile the often competing interests of resource use and resource conservation.

Protected Areas

Protected areas support more diverse and abundant populations of wildlife and have less forest degradation than areas dominated by people and managed primarily for economic reasons. Parks and reserves also raise local

community and government awareness of conservation values, and provide a source of national pride and international recognition.

Yet, most parks and reserves in Central Africa are inadequately staffed and financed, and often conflict with, and are seldom responsive to, local community interests. As a result almost all protected areas are at risk of gradual degradation from unregulated land use and resource extraction.

Given that protected areas are seldom self-financing, and are more typically a drain on national and local economies, their long term management and the persistence of the plants and animals that they contain is predicated on long-term international financing and stronger national commitment to managing parks primarily for the conservation of biodiversity. (See Issue Briefs #3 Rich Forests, #4 Identifying Gaps, #21 Sustainable Financing).

Conservation in Times of Conflict

Over the last decade civil wars and military conflicts have rent the social, institutional and administrative fabric of many nations in Central Africa, and in some cases several times. Yet, even with this appalling level of political and economic upheaval protected areas have been effective where NGOs and donors have maintained a presence and financial support during periods of strife. This has been particularly true when local communities have been advocates for, or at least not antagonists to, the park or reserve.

Experience in managing protected areas during internal or international conflicts has shown that leadership training of junior staff helps them to assume key roles left by senior staff who are targets of aggression and thus, necessarily, must withdraw from the area. Existing local community networks could be mobilized more effectively to help secure the protected status of the park or reserve. And in the aftermath of civil conflict, helping relief agencies to avoid or minimize the environmental impacts of their efforts will reap significant conservation payoffs. (See Issue Brief #22 Civil Instability).

Bushmeat Crisis

Though habitat loss is often cited as the primary cause of wildlife extinction, commercial bushmeat hunting is now the most immediate threat to wildlife conservation in Central Africa, with more than one million metric tons of wildlife consumed by rural and urban families each year. This unsustainable offtake is now resulting in the local extinction of apes, primates and other large-bodied mammals in forests close to urban centers of demand. Apes and primates are particularly susceptible to over-hunting as they reproduce slowly.

Though wildlife has been hunted for food ever since humans first evolved, only recently has bushmeat become an important source of income in Central Africa. A hunter can make \$300-\$1,000 per year—more than the average household income for the region, and comparable to the salaries of those responsible for controlling the bushmeat trade. Bushmeat is often the primary source of meat for poor consumers, as it is typically the cheapest meat in rural and urban markets. Yet bushmeat is also a luxury item for the urban rich, who eat bushmeat during special days to retain their links to the village. As consumers are price-sensitive, solutions to the bushmeat crisis should focus on increasing the price of bushmeat through law enforcement and taxation, and reducing the price of alternative sources of meat and protein, perhaps including livestock production in nearby peri-urban areas. Measures to reduce restrictions on imports of meat should also be examined.



Logging companies are complicit in the commercial trade in bushmeat. Road construction associated with selective logging dramatically increases hunter access to isolated sectors of the forest, and decreases the cost of transporting bushmeat to urban markets, effectively increasing the supply of bushmeat and the profitability of the



trade. Moreover, per capita bushmeat consumption is highest in logging concessions because company workers can afford to buy more meat than poorer unemployed families, they have the money to purchase guns and ammunition, they have motorized access to the forest to hunt, and logging companies often encourage hunting rather than providing their workers with food. Working with logging companies to curb their role in the commercial bushmeat trade has proven possible in several pilot co-management projects between conservation NGOs and timber companies and should be expanded. (See Issue Brief #23 Bushmeat Crisis).

Conservation Financing

The global heritage value of tropical forest plants and animals rarely, if ever, exceeds the short-term exploitation value of these resources. Thus, there is often little local or national incentive to set aside areas to conserve plant and animal species for perpetuity. Moreover, biodiversity conservation rarely pays for itself in full. Rather, it results in both direct management costs and indirect opportunity costs to local and national economies. Tourism, research, safari hunting and even a 10% national income tax are unlikely to cover a significant portion of protected area costs. As a

result, more sustainable financing mechanisms are needed both to cover the recurring management costs of maintaining protected areas, and to compensate local and national economies for the opportunity costs of conserving globally significant plants and animals. (See Issue Brief #21 Sustainable Financing).

Green Conditionality

Experience from the World Bank financed forest sector reform program in Cameroon has shown that loan conditionality can empower latent constituencies for reform, deal set-backs to those with a vested interest in business as usual, and raise the profile of the forest sector on the development agenda. However, loan conditionality is poorly suited to ensuring the long-term institutional reforms necessary for effective policy implementation. As a result, donors need to link loans not only to sectoral reform, but to broader institutional and legal reforms. (See Issue Briefs #15 Policy Reform, #18 Sustainable Timber, #19 Private Sector).

Carbon Trading

Under the Kyoto Protocol, signed in December 1997, 38 industrialized countries and the European Union committed themselves to reducing their greenhouse gas emissions by 2008-12 to a level 5.2% less than the 1990 level. To achieve this goal, the Protocol established legally binding emission reduction targets for industrialized countries, and two flexible mechanisms: emission trading within and among the industrialized countries, and the Clean Development Mechanism (CDM).

It may be more cost-effective to make offsetting investments in developing countries than to reduce emissions in industrialized countries, where the costs of retrofitting existing plants and upgrading existing technology is higher. The CDM, if ratified, may offer the countries of Central Africa an opportunity to take advan-

tage of their forest resources to provide carbon sequestration opportunities (plantations on degraded forest lands) and emission reduction (reduced impact logging) projects to industrialized countries, at prices below the cost of emission mitigation efforts in industrial economies. If such forestry projects were linked to lasting improvements in the performance of public forest administrations, such approaches could be a positive force for change in forest management in Central Africa. However, governments need to be empowered to participate in international negotiations and must be willing to be held accountable for carbon trading contracts with verifiable results. The perceived risks of carbon-trading in forestry might be offset by adapting financial mechanisms used in stock trading (put options). (See Issue Brief #24 Carbon Offset). ■

Conclusion

Achievements

This first 5-year phase of CARPE has maintained U.S. environmental dialogue in a region of global interest with little direct USAID mission presence. CARPE's U.S.-based partners have succeeded in collaborating with a series of national partners across the region on a wide spectrum of forest management topics, resulting in the preparation of a compendium of environmental briefing sheets for a wide range of users. CARPE activities have stimulated NGO interest and participation in regional issues through targeted small grants, and have fostered public and private sector and civil society awareness of environmental governance concerns, issues and leverage points. CARPE has also taken a leadership position in the region by mandating its partners to make freely available all environmental information generated during the program, and advocating that donors, governments and NGOs do likewise.

Forest management and governance have changed in Central Africa. Though the change is not yet dramatic and other factors have played a role, CARPE has been a key catalyst for greater transparency and accountability, better management approaches, increasing access to environmental information, and improved coordination.

Key Gaps Remaining

Several key gaps in knowledge and capacity remain in Central Africa that militate against effective forest management. The future role of agriculture in determining the fate of the forest is poorly understood, particularly because we know little about how rural family farmers respond to changes in market access, commodity prices and off-farm labor availability. As most residents of Central Africa rarely have the opportunity to attend more than a few years of primary school, the drag on economic development that results from widespread illiteracy and innumeracy, and lack of technical skills associated with quality higher education, will have long-term consequences for the environment. This area has had little attention to date from environmental organizations, including CARPE.

Regional integration and cooperation is important to reduce the risk of international conflicts and to improve transboundary natural resource management. Regional harmonization of logging policies, customs regulations and tariffs might do much to promote intra-regional trade and economic growth. However, none of the numerous regional initiatives since independence in the 1960s has achieved significant gains in promoting regional integration or development. Such regional cooperation probably requires: (1) real political will, (2) comparable levels of development and intra-regional trade, and (3) available, affordable and reliable forms of communication which remain scarce in Central Africa. Though promoting regional integration is important, it is unclear what donors could do, given present funding levels, to significantly reduce these constraints, especially in the absence of strong commitment and leadership from within the region. ■

CARPE ... What Is It?

Central African Regional Program for the Environment (CARPE)

Launched in 1995, the *Central African Regional Program for the Environment (CARPE)* engages African NGOs, research and educational organizations, private-sector consultants, and government agencies in evaluating threats to forest integrity in the Congo Basin and in identifying opportunities to sustainably manage the region's vast forests for the benefit of Africans and the world. CARPE's members are helping to provide African decision makers with the information they will need to make well-informed choices about forest use in the future. BSP has assumed the role of "air traffic controller" for CARPE's African partners. Participating countries include Burundi, Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon, Republic of Congo, Rwanda, and São Tomé e Príncipe.

Web site:

<http://carpe.umd.edu>

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