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DEMOCRATIC REPUBLIC OF CONGO: BIODIVERSITY AND TROPICAL FORESTRY ASSESSMENT (118/119)

FINAL REPORT



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DEMOCRATIC REPUBLIC OF CONGO: BIODIVERSITY AND TROPICAL FORESTRY ASSESSMENT (118/119)

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ABBREVIATIONS

ADB	African Development Bank
ADIE	Agence pour le Développement de l'Information Environnementale
AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
AFLEG	Africa Forest Law Enforcement and Governance
APF	African Parks Foundation
ASBL	Associations Sans But Lucratif
ASL	Above Sea Level
ATIBT	Association Technique Internationale des Bois Tropicaux
AWF	African Wildlife Foundation
BAK	Nouvelles Approches/Biodiversity in Katanga
BTC	Belgian Development Cooperation
CAF	Country Assistance Framework
CARPE	Central African Regional Program for the Environment
CAS	Country Assistance Strategy
CBD	Convention on Biological Diversity
CBFP	Congo Basin Forest Partnership
CCAA	Climate Change Adaptation for Africa
CDM	Clean Development Mechanism
CEFDHAC	Conférence sur les Ecosystèmes de Forêts Denses et Humides d'Afrique Centrale
CI	Conservation International
CIDA	Canadian International Development Agency
CIFOR	Center for International Forest Research
CITES	Convention on International Trade in Endangered Species
CNONGD	Conseil National des ONG de Développement
CoCoCongo	Coalition pour la Conservation au Congo
CoCoSi	Comité pour la Coordination du Site
CODELT	Conseil pour la Défense Environnementale pour la Légalité et la Traçabilité
CoFCCA	Congo Basin Forests and Climate Change Adaptation
COMIFAC	Commission des Ministères des Forêts d'Afrique Centrale
CREF	Centre de Recherche en Ecologie et Foresterie
CRON	Coalition des Réseaux des ONGs de l'Environnement

CRSN	Centre de Recherche en Sciences Naturelles
DFGF	Dian Fossey Gorilla Fund
DfID	Department for International Development
DRC	Democratic Republic of Congo
EC	European Commission
ECOFAC	Conservation et Utilisation Rationnelle des Ecosystèmes Forestiers en Afrique Central
EGAT	Bureau for Economic Growth, Agriculture, and Trade
EIS	Environmental Impact Study
EITI	Extractive Industries Transparency Initiative
ENGAGE	Encouraging Global Anticorruption and Good Governance Efforts
ERAIFT	Ecole Régionale d'Aménagement Intégré des Forêts Tropicales
ERGS	Environmental Resources Management and Global Security
ESMP	Environmental and Social Management Plan
ETOA	Environmental Threats and Opportunities Analysis
EU	European Union
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization of the United Nations
FFI	Fauna and Flora International
FIB	Fédération des Industries du Bois
FLEGT	Forest Law Enforcement, Governance and Trade
FORAC	Observatoire des forêts d'Afrique Centrale
FSC	Forest Stewardship Council
FZS	Frankfurt Zoological Society
GDA	Global Development Alliance
GDP	Gross domestic product
GDRC	Government of the Democratic Republic of Congo
GEF	Global Environment Facility
GIC	Gillman International Conservation
GIS	Geographic information system
GJD	Governing Justly and Democratically
GNP	Garamba National Park
GRASP	Great Apes Survival Project Partnership
GTF	Groupe de Travail Forets

GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HIPC	Heavily Indebted Poor Countries
ICCN	Institut Congolais pour la Conservation de la Nature
IDA	International Development Association
IDRC	International Development Research Center
IFIA	Inter-African Association of Forest Industries
IMF	International Monetary Fund
INERA	Institut National de Recherche Agronomique
INRB	Institut National de Recherche Biomédicale
IQC	Indefinite Quantity Contract
IRF	International Rhino Fund
ISAV	Institut Supérieure Agro Vétérinaire
ISDR	Institut Supérieurs de Développement Rural
ISEA	Institut d'Etudes Agronomiques
ISP	Instituts Supérieurs Pédagogiques
IST	Institut Supérieurs Techniques
ISTA	Institut Supérieur des Techniques Appliqués
IRI	Interactive Radio Instruction
IUCN	International Union for the Conservation of Nature
JGI	Jane Goodall Institute
KBNP	Kahuzi-Biega National Park
KfW	German Bank for Development
KNP	Kundelungu National Park
LINAPYCO	La Ligue Nationale des Associations Autochtones Pygmées du Congo
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MENCT	Ministry of Environment, Nature Conservation and Tourism
MIKE	Monitoring of Illegal Killing of Elephants
MLS	Multilateral System
MONUC	Mission des Nations Unies au Congo (United Nations Mission in Congo)
MPI	Max Planck Institute
MRP	Mitigation and Rehabilitation Plan
MZS	Milwaukee Zoological Society
NGO	Nongovernmental organization

NP	National Park
NRM	Natural Resource Management
NSNC	National Strategy for Nature Conservation
OAB	Organisation Africaine du Bois
OCEAN	Organisation Concertée des Ecologistes et Amis de la Nature
OFR	Okapi Faunal Reserve
OSFAC	Observatoire Satellital des Forêts d’Afrique Centrale
PNFoCo	Programme National Forêt et Conservation
PNV	Parc National de Virunga
PRSP	Poverty Reduction Strategy Paper
RAPAC	Réseau des Aires Protégées en Afrique Centrale
RAPY	Réseau des Associations Autochtones Pygmées
REAFOR	Program for Relaunching Agricultural and Forest Research in the DRC
REDD	Reducing Emissions from Degradation and Deforestation
REFADD	Réseau Femmes Africaines pour le Développement Durable
REPEC	Réseau des Partenaires pour l’Environnement au Congo
RFUK	Rainforest Foundation UK
ROCFAD	Réseau des Organisations Communautaires Francophones d’Appui au Développement Local
R-PIN	Readiness Plan Idea Note
RRN	Réseau Ressources Naturelles
RS	Remote sensing
SARW	South African Resource Watch
SENADEP	Service National pour le Développement des Pêches
SGS	Société Générale de Surveillance
SIDA	Sweden International Development Agency
SPIAF	Service Permanent d’Inventaire et d’Aménagement Forestier
SYGIAP	Système de Gestion d’Information sur les Aires Protégées
TFCA	Tropical Forest Conservation Act
TFM	Tenke Fungurume Mining
TNC	The Nature Conservancy
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
ULPGL	Université Libre des Pays des Grands Lacs
UNDP	United Nations Development Program

UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNF	United Nations Foundation
UNP	Upemba National Park
USAID	United States Agency for International Development
USDAFS	U.S. Department of Agriculture Forest Service
USFWS	United States Fish and Wildlife Service
USG	United States Government
VNP	Virunga National Park
WCS	Wildlife Conservation Society
WFC	Worldfish Center
WHS	World Heritage Site
WRI	World Resources Institute
WWF	World Wildlife Fund
ZSL	Zoological Society of London

EXECUTIVE SUMMARY

This Biodiversity and Tropical Forest Assessment report has been prepared to provide information and analysis as requested by USAID/DRC, required by the U.S. Congress, and stipulated in the U.S. Foreign Assistance Act (FAA) of 1961. This report updates the 2003 countrywide Environmental Threats and Opportunities Analysis (ETOA) and seeks to provide a concise and targeted assessment to inform the USAID/DRC Mission's strategic planning, program development, and implementation. This assessment includes:

- An overview of the status of biodiversity and tropical forest conservation;
- An analysis of threats to biodiversity and tropical forests and underlying causes;
- The institutional, policy and legislative framework for environmental management in the DRC; and
- Current interventions in the environmental sector, bi- and multilateral donors, non-governmental organizations (NGOs), the private sector and other institutions; and
- An examination of how the proposed activities in USAID/DRC's Country Assistance Strategy (CAS) could contribute to conservation needs and includes recommendations for actions related to the CAS's goals.

COUNTRY CONTEXT

Following the emergence of a durable peace process in 2001, the Government of the Democratic Republic of the Congo (GDRC) has made substantial progress overcoming the legacy of mismanagement and conflict, and in establishing effective institutions of government. The GDRC has implemented a solid program of economic reforms, including new investments in labor, mining, and forestry codes designed to make these traditionally opaque sectors more transparent, and able to attract reputable foreign investors. As a result, economic growth returned in 2003, after a decade of decline, and reached a high of 8% in 2008. However, the challenges ahead remain daunting. Since September 2008, DRC's economic prospects have sharply deteriorated as a consequence of the changing international financial environment. Insecurity, caused by several factors including the presence of illegal armed groups in the East, continues to drive large-scale population displacement, violence, and human rights abuses. Endemic corruption and capital flight hinders economic growth.

The DRC is endowed with a wealth of natural resources which, if managed properly, can help the country recover from the devastation created by years of conflict and mismanagement that have made it one of the poorest countries in Africa. The country has fertile soils, ample rainfall, immense water resources and enormous mineral wealth. DRC's forests are the second largest block of tropical forest in the world (145 million hectares, or approximately 62 percent of national territory). These forests are critical to the livelihood of about 40 million Congolese, providing food, medicine, domestic energy, building materials, and cash. They play a vital role in regulating the global environment. They harbor much unique biodiversity: DRC ranks fifth among nations for its plant and animal diversity. If they are conserved and managed well, DRC's forests could provide many national and global benefits in perpetuity. Yet DRC's forests and biodiversity are under threat from a variety of fronts including clearing land for agriculture,

illegal logging, a high rate of bushmeat consumption, population growth and migration, poverty, and conflict. Recognizing these and other threats, the GDRC seeks to develop and institutionalize a vision of DRC's forests as an enduring provider of multiple goods and services rather than as an arena for the rapid extraction of timber and other resources.

CURRENT STATUS OF BIODIVERSITY, TROPICAL FORESTS, RIVER BASINS, AND KEY WATERSHEDS

In the early years of independence, the DRC was fairly well-positioned to begin biodiversity conservation. A large amount of work was conducted by Belgian scientists on the flora and fauna of the Congo. Today, however, it is debatable how much biodiversity conservation is happening in DRC. Megafauna protection in large protected areas is not biodiversity conservation per se, and can have negative as well as positive impacts on biodiversity. Positive effects of large protected areas on biodiversity are obvious, since by and large the included biodiversity will be protected if there is good management. However, they are often located in the least disturbed areas, where megafauna protection is most effective but where the threats to other diversity are minimal, leaving the hotspots of biodiversity loss at risk and national attention focused away from these threats. Planning tools can also pose a threat to biodiversity, since powerful Geographic Information System (GIS)-based approaches can seemingly produce results even in the absence of the necessary information base, and can replicate mistakes over large areas.

DRC's forests cover an area of 2 million square kilometers of which roughly half are closed high rainforests and the remainder open forests and woody savannah. Designated parks and conservation areas occupy around 18 million hectares, or 8% of the national territory, though most of these exist only on paper. DRC contains an estimated 10,000 species of plants, 409 species of mammals, 1,117 species of birds and 400 species of fish—making it the 5th most biodiverse country on earth. The annual deforestation rate for the 1990—2000 period was estimated at 0.22% and the current rate is thought to be around 0.33% per year. Forest types include the moist evergreen/semi deciduous forest across the center of the country, and extensive dry forest (miombo) in the south. There are also forest/savanna mosaics. The definition used by the Central African Regional Program for the Environment (CARPE) is very narrow, and when CARPE and partners use the term forest, they often mean moist forest only. The concept of a large expanse of tropical dry forest in southern DRC, seriously threatened by deforestation has taken a back seat to the conservation of the moist forest. Another large information gap of potential significance concerns the vegetation dynamics of the Congo Basin. In the absence of sound forest science, managers are making assumptions about the stability of the forest, the regeneration of timber trees, and especially about the impacts of long-term climate change and the degradation of forest by human activity.

MAJOR ECOSYSTEM TYPES OR ECOREGIONS

In the DRC there are three different classes of ecoregions: terrestrial, freshwater aquatic and marine, with the first two overlapping because of the extensive freshwater swamps. The ecoregions are described in groupings: western DRC, moist forests, northern forest/savanna mosaic, southern forest/savanna mosaic, miombo dry forest, montane/alpine vegetation, and the rift valley lakes. In the north/central part of DRC lies the vast block of Congolian moist tropical forest and swamp forests which is home to an enormous and largely endemic flora and fauna, but with several species listed by the World Conservation Union as endangered or threatened. For example, total DRC elephant population (forest and forest-savanna

hybrids) is likely under 20,000, down from a population estimated at over 100,000 elephants 50 years ago, and still dropping due to poaching and the illegal ivory trade.

The southern part of the DRC supports extensive dry forests of the miombo type, widespread in eastern Africa and rich in biodiversity though less so than the moist forest. A very strange feature of the Congolian forest is that the moist and dry forests are not adjacent to each other. There is a large expanse of sparsely-wooded tall grass savanna between them. Similar vegetation also occurs to the north of the Congo, where the forest/savanna mosaic occurs between the moist forest and the woodlands dominated by *Isobertia* and other trees that takes the place of miombo in the north. The dynamics of this vegetation are still poorly-understood. However, the savannas appear to be a fire-climax community that will develop into moist forest if burning is suppressed. DRC's aquatic ecosystems are extensive and contain a high number of endemic species. The DRC has three Ramsar sites, including the world's largest Ramsar site, the 25,365 square mile Nigiri and Lac Mai-Ndombe/Bassin wetland.

NATURAL AREAS OF CRITICAL IMPORTANCE

Given the enormous biodiversity of the DRC and the high level of endemism, there must be large numbers of species of animals and plants that depend upon as yet unidentified critical natural areas for their survival. Documenting the biodiversity of the DRC and its distribution and critical habitat areas needs to be an important priority for the universities and natural resources agencies of the DRC and their foreign partners. In 2007, ICCN in collaboration with partners undertook an important first step in this direction by conducting a strategic evaluation of biodiversity in the DRC which identified a number of areas of high biodiversity importance outside of the protected area system. In addition to this evaluation, a few smaller sites for the protection lower-profile species have been identified, and the bird conservationists have taken the lead here, identifying critical bird conservation areas in the fragmented forests of the eastern highlands and elsewhere. Other critical sites are caves along the lower Congo with endemic fish, the Mont Hoyo area near the Virungas with Bedford's paradise-flycatcher and cave ecosystems, sandy beaches with marine turtle nesting, and the southernmost fragment of the species-rich Mayombe forest at Luki.

ENVIRONMENTAL AND NONCOMMERCIAL SERVICES OF NATURAL AREAS

On a global scale, the DRC's forests provide essential ecosystem services, such as watershed conservation, climate regulation and carbon sequestration. They are an important driver of atmospheric circulations, the exchange of energy and water between the forests and atmosphere influencing regional and global weather systems. In terms of carbon storage, the DRC has by far and away the majority of the Congo Basin's carbon biomass estimated at 23,173 million tons with an estimated value of \$1211 per ton.

The estimated economic value of current annual flows for artisanal timber is \$60 million, and over \$1 billion each for bushmeat and firewood.

The DRC has the largest freshwater resources in Africa and its hydroelectric potential ranks fourth in the world, and has the potential to produce 150,000 Megawatts of power, approximately three times Africa's present consumption. Aquatic resources in the DRC play an important role in many people's livelihoods and are often the only means of subsistence for local populations, particularly since the onset of the war in the 1990s, which increased the isolation of the majority of rural communities from economic alternatives outside the exploitation of local resources.

LAND TENURE ARRANGEMENTS AND CONSERVATION

The basic land tenure regime reflects the 1967 Bakajika Law and the 1973 Land Tenure Law and customary tenure which is very complex and differs considerably across regions. This legacy of legal dualism has several implications for conservation:

- The Forest Code does not modify the land tenure regime of 1973. It deals with forest products and services, but it does not transfer any rights concerning the land itself. Forest concessions and land concessions are distinct from one another. A forest concession deals exclusively with the forest, not the land. It is a rental contract with no transfer of ownership. The situation for community reserves is similar - land rights are not transferred, only management and supervision rights via an ICCN subcontract to NGOs representing the community.
- The current land tenure system may affect the ability of communities to benefit from any payment for ecosystems services arrangements including those under Reducing Emissions from Deforestation and Degradation (REDD). For the community reserves, the assessment team was not able to examine ICCN management contracts to determine if there was provision for the subcontractors (and communities) to benefit directly from ecosystem services. However, the recently, signed agreement between Walt Disney and Conservation International to provide financing for development of REDD demonstration activities in the Tayna and Kisimba-Ikobo Community Reserves will provide invaluable experience in terms of gauging REDD land and resource problems and potential in the context of community reserves.
- For the remaining majority of DRC's rural/forest populations with customary tenure and no community reserve, gaining benefits from payments from ecosystem services may be more problematic. In conducting a multi country assessment of tenure issues related to REDD, Cotula and Mayers (2009) conclude that in the DRC, insecure tenure for local communities combined with revenue management issues (corruption and rent-seeking) and limits in GDRC's implementation/enforcement capacity could be major stumbling blocks for REDD implementation in the DRC. This conclusion was also reached by a series of DRC stakeholder workshops on REDD facilitated by the World Resources Institute (WRI). Participants, including local and indigenous communities, community-based NGOs, and parliamentary representatives, expressed five concerns regarding REDD's design and implementation including: limited recognition of land tenure rights; inadequate information about forest and carbon resources; weak institutional capacity and unclear roles; inequitable revenue distribution; and fewer opportunities for development activities.

STATUS AND MANAGEMENT OF PROTECTED AREAS IN THE DRC

The process of creating protected areas began early in DRC, with the creation of national parks and hunting reserves during the 1920's and 1930's by the colonial administration. At the present time, DRC has 66 terrestrial protected areas and one marine area. The total area covered by these reserves is estimated at 286,345 km² or 12.21% of the surface area. General problems include the lack of management plans and the lack of trained, equipped field staff. For the higher-profile protected areas, especially some of the national parks, the Congolese Institute for the Conservation of Nature (ICCN) is being assisted by international partners to create management plans and to re-establish reserve management. However, most of the reserves in DRC do not fall into this category, and are not managed at the moment.

Since the 2003 Environmental Assessment, new protected areas have been created and others are in progress. These new reserves are primarily to protect larger mammals in the moist forest zone, and include the huge Sankuru Reserve (30570 km²), the Lomako Reserve with ICCN and African Wildlife Foundation (AWF), the Tayna Nature Reserve, the Kisimba Ikobo Nature Reserve, the Itombwe Massif Nature Reserve, and the Kokolopori Natural Reserve. All of these new initiatives are the result of collaboration between ICCN and international partners.

ICCN maintains staff in 39 of DRC's 66 protected areas, thus many of the protected areas—particularly the hunting reserves—exist on paper only. In general, ICCN is constrained by limited technical (including guards) and scientific staff in the field. For example, there are only 19 scientific staff assigned to national parks and key reserves, and the area to be covered by technical staff is enormous—e.g., the ratio of staff to area for Salonga National Park is one staff member per 244 km² which makes surveillance and control difficult.

THREATENED AND ENDANGERED SPECIES

The DRC has a number of threatened and endangered species across all orders. There are 72 species that are completely protected by law in DRC, though in practice this protection is very weak, and 234 partially protected species, whose exploitation requires a permit. The DRC list of completely protected species lists many mammals, especially primates that are listed by IUCN in lower risk categories.

The mammals category contains most of the highest profile endangered species. Some species continue to decline because of illegal trade in wildlife products, especially ivory and rhino horn, with DRC losing both of its rhinoceros species. The northern white rhino, which depended on protection in the Garamba National Park for survival, has apparently become extinct in the wild between the 2003 Environmental Analysis and this one. Elephant populations continue to decline because of a resurgent trade in illegal ivory with Asia. War in the east has increased pressure on gorillas and other wildlife, and led to the catastrophic decline in hippo numbers in Lake Albert. Larger mammals are especially susceptible to poaching, and species continue to decline through DRC, both because of the bushmeat trade and because of habitat loss.

Although there has been little research on the possible impact of climate change on biodiversity, many endemic species with restricted ranges such as the mountain gorilla could be at risk from minor climatic changes. Migratory species—notably birds and marine turtles—are especially at risk due to climate change because they require separate breeding, wintering, and migration habitats of high quality and in suitable locations.

Overall, knowledge of the distribution and status of most groups of organisms in the DRC is too poor for effective biodiversity measures to be designed and implemented. However, wildlife protection for the most part depends upon protected area management rather than species-based initiatives.

THREATS TO BIODIVERSITY AND TROPICAL FORESTS

Underlying Causes:

- Former war elites—military, political, and economic—still remain influential in the illegal trade of DRC's natural resources;

- Corruption and the lack of good governance continue to undermine progress towards conservation and sustainable management of forest resources and biodiversity;
- Weak institutional capacity across GDRC institutions hampers their ability to manage and protect forest and biodiversity resources;
- Lack of knowledge about the distribution and state of biodiversity, a poor understanding of the ecology of the forest/savanna mosaic areas and their carbon dynamics, and a poor understanding of vegetation, dynamics, significance, and effects of long term climate change are major obstacles for conservation and sustainable development;
- Weak law enforcement combined with legislation that is far removed from the realities that it is trying to influence and low community awareness of existing legislation;
- Lack of a holistic approach to environment/natural resource management—the GDRC and most donors view logging—commercial or artisanal—as the sole indicator of economic value in the forest sector, with little appreciation of the economic value of non timber forest products (including bushmeat);
- Absence of alternative livelihood activities that can compete with incomes gained from illegal activities;
- Insecure land and resource tenure make community investments in natural resource based economic activities problematic;
- Absence of a strategy to address the compromises between environment and economic development may mean that economic development—in the form of mining, logging and agro industrial concessions may take precedence over the environment as they have done in the past; and

Threats

Direct threats include:

- Agriculture expansion as a result of shifting cultivation, particularly in Eastern DRC as a result of demographic pressures and civil strife; future deforestation may be driven largely by the expansion of palm oil plantations into forest regions;
- Illegal artisanal logging and cross border trade linked to industrial logging concessions;
- The commercial bush meat trade which has replaced habitat loss as the primary cause of wildlife extinction;
- Industrial mining activities—without adequate safeguards, including the use of biodiversity offsets—will continue to threaten the DRC’s forests and biodiversity given the overlap between DRC’s mineral resources and tropical forests/protected areas. Uncontrolled artisanal mining may have individually insignificant effects on biodiversity and tropical forests but cumulatively significant effects.
- Cutting for fuelwood is a major driver of forest degradation around DRC’s urban areas, as wood accounts for 85% of domestic energy use in the DRC;
- Illegal trade in endangered species continues to have an impact on the DRC’s elephant, hippo, grey parrot populations as well as on important plant species including *Prunus africana* and *Afromosia spp*;

- As peace and stability return to the DRC, improving the country's road network will be absolutely essential for development, but roads fragment the forests, favor the advance of agriculture and facilitate hunting and trade in bushmeat;
- Zoonotic diseases such as Ebola have had an devastating impact on the Congo Basin's great ape populations;
- Invasive species such as *Chromoleana odorata* and *Sericostachys scandens* are displacing native species through competition for food and other resources, through predation, and alteration of habitat;
- Bushfires in many areas are resulting in the progressive disappearance of the woody species most sensitive to fire and the re-growth of herbaceous species;
- DRC's aquatic biodiversity is menaced by overexploitation, pollution, alteration of habitat and destruction of shore zones.

Indirect threats include:

- Climate change. The impact of the current level of climate change on tropical forests is a matter of considerable controversy. However, nearly all models project that even in extreme scenarios, direct deforestation will impact tropical forests before climate-driven dieback;
- Conflict and war in the DRC have led to large numbers of refugees and displaced persons and this has had a severe impact on natural ecosystems and on local populations. This problem is particularly acute in eastern DRC, in the Virunga Landscape and the Maiko-Tayna-Kahuzi-Biega Landscape.

CURRENT CONSERVATION EFFORTS—SCOPE AND EFFECTIVENESS

BILATERAL AND MULTILATERAL ORGANIZATIONS

A large number of donors have been and continue to be keen on assisting DRC in the field of conservation. The World Bank estimates that the current level of donor support over the next 2-3 years will reach approximately \$360 million. A review of current and proposed donor activities suggests that: most donor emphasis has been placed on the tropical moist forest to the neglect of other ecoregions; few donor initiatives address core issues such as corruption, civil service reform, democracy and governance outside of the timber sector; and only one donor, Canada, is addressing the core issue of replacing a cadre of retiring professionals by strengthening the University of Kinshasa. Finally, although perhaps embedded as sub components of certain programs, there appears to be almost a complete neglect of alternative income generation activities.

Improved donor coordination in the environment/natural resource sector is becoming increasingly important in DRC in light of the increased volume of aid, proliferation of projects, and the administrative weaknesses of the GDRC. Theoretically, the GDRC's National Forest and Conservation Program (PNFoCo) should take on this role as PNFoCo but as PNFoCo has only recently been formally established, it is unclear whether it will play a donor coordination role or whether its mandate will extend beyond the tropical moist forest.

UNIVERSITIES AND RESEARCH INSTITUTIONS

Biology and its related branches are taught in most of the universities. However the biological curricula taught at most university institutions have been mainly limited to basic biological concepts or laboratory biology. Few institutions focus specifically on conservation biology in the DRC, and where this has been initiated the modules are still at a very early stage of development. Furthermore, provinces of high biodiversity importance like Equateur and Kivu have no university institutions providing training in conservation. The faculty of sciences of the University of Kisangani has a long history in teaching ecology, zoology, and botany and has produced a remarkable number of university graduates over the years. The University of Kinshasa has a curriculum in natural resource management at the Faculty of Agriculture, with an option in wildlife management, and is receiving support from the Canadian International Development Agency (CIDA) to upgrade facilities and curricula. The University of Kinshasa also hosts the Ecole Régionale d'Aménagement Intégré des Forêts Tropicales (ERAIFT), a central African regional postgraduate school financed by UNESCO that trains central African citizens in sustainable natural resource management and places a particular accent on the human dimension of conservation practice. The University of Lubumbashi supports research on ecology and site rehabilitation for the Tenke Fungurume Mining Company.

The DRC also has a number of specialized higher education institutions where biology and its related branches are taught. CIDA is currently assisting the Institut Supérieure Agro Vétérinaire (ISAV) to develop an agroforestry option, and the Institut d'Etudes Agronomiques (ISEA) to develop an "Eaux et Forêts" option.

The DRC has a number of research institutions including the Centre de Recherche en Ecologie et Foresterie (CREF), the Centre de Recherche en Sciences Naturelles (CRSN), the Institut National de Recherche Biomédicale (INRB), the Institut National de Recherche Agronomique (INERA), and some aspects of ecological research are covered by these organizations. INERA is supported by the EU funded, FAO implemented Program for Relaunching Agricultural and Forest Research in the DRC (REAFOR) program.

INTERNATIONAL NONGOVERNMENTAL ORGANIZATIONS

A large number of international conservation NGOs working with a wide variety of public and private funding sources implement a wide range of conservation and applied conservation research projects throughout the country. Several of them remained in the country and continued to provide direct support to ICCN in the field throughout the war and it was largely thanks these organizations that the major public funding agencies were able to channel their funds to DRC. Their interventions cover a wide range of activities including all aspects of protected area management, surveys and monitoring, community conservation, environmental education, conservation-based research, capacity building. However, international NGO efforts to engage national and local staff in the strategic planning of activities has been limited as have NGO local capacity building initiatives.

International advocacy NGOs are also active in the DRC in the areas of environmental advocacy and in filling the leadership void where they seek to compensate for national weakness in enacting and enforcing strong environmental/social rules and regulations particularly in the industrial logging and mining sectors. However, advocacy NGO success at influencing national policies has been limited, due in part to the absence of a consensus-based approach between the NGOs, major donors (particularly the World Bank) and Government.

LOCAL NONGOVERNMENTAL ORGANIZATIONS

The majority of environment/natural resource NGOs (réseaux or networks) were established in the late 1990s/early 2000s with donor support, as a mechanism for donors to channel resources given that most direct aid to the GDRC was suspended. Local NGOs have a mandate to work with and represent the interests of local communities and thus have been involved in the development of the new Forest Code, the review/conversion of old forest titles and translating elements for the Forest Code into local languages and sensitizing local communities on their rights and responsibilities under the Code. Although it is generally recognized that DRC's environment networks play an important role in lobbying, awareness raising and education at local and national levels, some are now representing donor interests at the community level, and in some instances, representing community interests has taken a back seat to advocating a particular donor agenda.

GOVERNMENT INSTITUTIONS

There are four GDRC institutions whose mandates cover tropical forests and biodiversity to one extent or another: the Ministry of Environment, Nature Conservation and Tourism (MENCT), the Congolese Institute for Nature Conservation (l'Institut Congolais pour la Conservation de la Nature—ICCN), the Department in Charge of the Protection of the Mining Environment, Directorate of Mines, Ministry of Mines, and the National Service for Development of Fisheries. These institutions have historically suffered from corruption and abuse of authority, and large numbers of public servants equipped with limited means and training. Employees tend to be older with many near retirement age and many have little education beyond secondary school. Administrative management systems (financial management, human resources, and planning, monitoring, and evaluation) are manual, often in-operational, hardly transparent or effective. Ministerial control services are poorly equipped (communications, travel means, etc.) to fulfill their mandates to control Forest and Mining Code infractions, and to combat illegal exploitation and fraud. Limited technical capacity hampers institutional ability to develop proposals for funding, to manage important funding, and ensure implementation of major projects. Coordination across government institutions is currently very limited, many institutions have overlapping mandates, and all DRC government institutions face shortages of scientific information pertaining to tropical forest and biodiversity conservation and management.

LEGISLATION RELATED TO THE ENVIRONMENT AND BIODIVERSITY

Several legislative instruments govern the management, use and control of DRC's tropical forest and biodiversity assets. These include: the 2002 Forest Code; the 2002 Mining Code; and various fisheries regulations (including the 1932 Decree on Exclusive Fishing Rights, the 1937 Decree on Fishing and Hunting, Ordinance No. 432/Agri. of 26 December 1947, the 1981 Ordinance regulating the use of fishing devices, and the 1979 ordinance (amended 1983) on fishing fees and license categories).

Biodiversity conservation currently falls under a law dealing in a general way with wildlife resources, namely, law No. 082-002 of 28 May 1982, which regulates hunting of certain species under total protection status. Together with this law there is also ordinance-law No. 69-041 of 22 August 1969 on the conservation of nature, which sets out the framework for improved conservation of wildlife in general, especially great apes, who are covered under the notion of “nature reserves”, and law No.75- 024 of 22 July 1975, concerning the establishment of “sanctuary areas”. In regulatory terms, arrangements for species protection derive from the combination of certain provisions of the hunting regulations. A new draft nature conservation law introduces major reforms to law No. 69-041 of 22 of August 1969. MENCT

is also in the process of elaborating a new environmental law (Projet de loi-cadre sur l'environnement au Congo), which has elements pertaining to the protection of DRC's flora and fauna.

Recently, the “Arrête Ministériel No. 107/CAB/MIN/ECN-T/15/JEB/09 of August 20, 2009 on the creation, composition, organization and functioning of a National Forestry Zoning Steering Committee” represents a critical first in improved land use land use planning in the DRC.

In general terms the above legislation is sufficient to provide the enabling environment for the conservation of DRC's biodiversity and tropical forests. However, there are still a number of cross cutting and sectoral issues that need to be addressed.

CROSS CUTTING

- Absence of a strategy or policy to address the compromises between environment and economic development;
- Absence of any sectoral policies which guide decisions and achieve rational outcome(s);
- The gap between legislation and practice—most of the legislation provides ‘technical’ solutions to environment/natural resource development ‘problems’, including overly comprehensive legislative mandates that are removed from the reality they are trying to influence.

SECTOR SPECIFIC

The Forest Code has a number of issues. Although the GDRC and its NGO partners have undertaken efforts to ensure that government, civil society, forest populations, and forest companies are well informed of the Forest Code; there have been some delays in scaling up dissemination efforts pending the availability of resources under the World Bank-funded Forest and Nature Project. Additionally, there are no guidelines or regulations governing the cahier des charges or the social contract between a logging concession and a community, as well as numerous challenges and legislative conflicts in terms of decentralizing forest governance. There are also delays in developing and approving the implementing guidelines for community forestry, and some concern that the guidelines for artisanal logging will not address the relationship between artisanal loggers and the minor logging concessions that may become eligible for title conversion.

A major problem with the mining code is its focus on site rehabilitation with no provision for biodiversity offsets.

Finally, a major issue in the draft nature conservation legislation is its near total neglect of the artisanal and commercial bushmeat trade.

INTERNATIONAL TREATIES AND CONVENTIONS

The DRC is signatory to 21 international treaties and conventions related to biodiversity, tropical forests, climate change and the environment. DRC's constitution stipulates that all properly concluded treaties and international agreements take precedence over national laws (on condition that the parties to the treaties or convention apply them). In order to conserve and manage its biological resources more effectively, the GDRC should - keeping in mind its limited institutional capacity to enforce compliance - also consider becoming signatory to the World Trade Organization Agreement of Trade-Related Aspects

of Intellectual Property Rights, the International Treaty on Plant Genetic Resources for Food and Agriculture, and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds.

COMMERCIAL/PRIVATE SECTOR CONSERVATION ACTIVITIES

Private sector investment in DRC's biodiversity and tropical forests is still fairly limited. Private sector partners under the Congo Basin Forest Partnership have yet to substantially contribute to any activities in the DRC. There are reportedly over 80 private game ranches and zoos in Katanga Province which could conceivably make a contribution to restocking efforts, but both the legal and physical status of these efforts are unclear. The Fédération des Industries du Bois (FIB) reports that the majority of its 16 members has established or plans to establish conservation zones within their logging concessions and are also interested in pursuing Forest Stewardship Council (FSC) certification, but informal and formal taxes have precluded them from doing so to date. Of all the mining companies, only Tenke Fungurume Mining has developed and is currently implementing a Biodiversity Action Plan.

ASSESSMENT OF USAID/DRC'S STRATEGY AND BILATERAL AND REGIONAL PROGRAMS

A review of USG and USAID priority goals in view of threats to biodiversity and tropical forests under the new 2009-2013 Foreign Assistance Strategic Plan suggests the following:

STRATEGIC APPROACH AND PRIORITIES

Goal 1: Peace and Security—Increase Stability in the DRC

The Eastern regions mineral wealth, and to a certain extent its timber resources have been and continue to be implicated as complicit in the violence in the area. Indeed, conflict in the area is in part a consequence of various actors trying to accumulate wealth, often through the exploitation of natural resources and control over informal trading activities. Although restoring peace to the region will undoubtedly have an impact on the over exploitation of natural resources, war economies have the potential to persist in post-conflict contexts and in some cases are hardly affected by peace processes; mechanisms of exploitation that have been instituted during wartime can largely survive in peacetime conditions. With this in mind, USAID/DRC could consider expanding its program to work directly with 'illegal' or 'illicit' traders in the natural resource shadow economy by incentivizing them through a process of engagement.

Goal 2: Governing Justly and Democratically—Strengthen Core Governance Capacity

USAID/DRC has the opportunity to help establish the necessary infrastructure for decentralizing natural resource powers, and improving natural resource decentralization in general. At the national level, USAID/DRC could work with decentralization actors to ensure sufficient, meaningful, and appropriate discretionary powers are transferred to local authorities, and that these powers are transferred as secure rights. At the Provincial and lower levels, USAID/DRC and partners could design and implement activities based on the five key governance indicators of successful natural resource decentralization programs: local community decision-making potential, primacy of law and sanctions, the fight against corruption and embezzlement of funds, downward accountability, and positive socioeconomic effects.

Goal 3: Economic Growth—Promote Economic Growth with Emphasis on Poverty Reduction and Environmental Sustainability

Work in the agriculture sector is critically important to improving the well being and economic status of those who need it the most. USAID’s agricultural/economic growth program has the opportunity to enhance the long term protection of biodiversity and tropical forests by promoting sustainable use and by providing a much needed source of alternative (to the bushmeat trade and illegal logging) income.

Goal 4: Health—Improve the Basic Health Conditions of the Congolese People

Under Goal 4, USAID has the opportunity to address HIV/AIDS and other health-related environmental issues and strengthen population, health and environment issues by developing institutional HIV/AIDS policies and strategies to help both employers and employees in MENCT, ICCN and national parks; adapting conservation training programs to include the development of special HIV/AIDS modules; and by developing linkages with RESPOND, USAID’s Avian and Pandemic Influenza and Zoonotic Disease Program.

Goal 5: Education—Improve Access to Quality Education at All Levels of Schooling

There is considerable potential for programs under this Goal to have a significant positive impact in tropical forests and biodiversity by expanding key messages on civic participation, health, and conflict mitigation to include messages on environmental issues. Links to the CARPE program could be strengthened by working with CARPE partners to develop Interactive Radio Instruction programs on the protection of biodiversity and tropical forest conservation.

USAID/DRC’S COMPARATIVE ADVANTAGE

The USG and USAID, through CARPE and the Congo Basin Forest Partnership, play a major role in biodiversity conservation and the protection and management of tropical forests in DRC. The Mission and USG are capable of facilitating the involvement of large, international NGOs with an interest in biodiversity and tropical forest conservation, and support to these organizations has had an impact on conservation in DRC. USAID and the USG also have a distinct comparative advantage in terms of alternate conservation financing mechanisms. USAID/DRC and the USG can also use their positions in DRC to help the GDFC forge conservation partnerships with corporations such as Tenke Fungurume Mining Company and other mining concessions. USAID and the USG have built up a strong comparative advantage in its health programs, which over the last decade have improved the health of the poorest Congolese, particularly in rural areas. Through its Governing Justly and Democratically program, USAID has the opportunity to encourage more accountability for conservation activities and could provide a voice for development activities that consider the conservation and equitable distribution of DRC’s natural resources. Finally, the Mission’s “Investing in People: Education” program has been at the forefront in providing accelerated learning opportunities to disadvantaged and vulnerable populations using a number of innovative technologies and a community-centered approach. This approach to education and training would enable it to respond to the variety of learning challenges that are being faced by DRC’s environment and natural resource management institutions.

RECOMMENDATIONS

The assessment team has formulated a set of recommendations for program actions that USAID may wish to consider for improving its contribution to natural resources management and biodiversity conservation in DRC. Recommendations are broken down into short term and medium to long-term activities.

Priorities in the Short Term

- New Agriculture Development Project—include fuelwood as one of the commodities under this program; develop mechanisms whereby CARPE partners could draw on the project’s technical expertise to assist with development of alternative livelihood programs;
- Encouraging Global Anticorruption and Good Governance Efforts (ENGAGE). USAID/DRC should consider developing a scope of work for, and issuing a Request for Applications (RFA) for a program to assist ENGAGE to become more actively involved in the decentralization of natural resource management, including establishing the necessary mechanisms for decentralizing natural resource powers, and improving natural resource decentralization in general;
- Tenke Fungurume Mining (Freeport-McMoran Copper and Gold) Global Development Authority Agreement. Any eventual detailed agreement with TFM should place strong emphasis on forest management and biodiversity conservation;
- Ensure that new initiatives under Goal 4 are linked to USAID/W’s RESPOND program. By encouraging linkages between RESPOND and any new initiatives under its Goal 4, USAID/DRC has the opportunity to address both human health issues and help alleviate a threat to DRC’s primates;
- Strengthen linkages between CARPE implementing partners and GDRC institutions. USAID/DRC should encourage CARPE implementing partners to adopt a steering committee or similar approach as a mechanism for improving coordination with GDRC institutions and improving buy in from these institutions. Annual general meetings of all CARPE implementing partners and their respective steering committee members should be part of this approach;
- Provide support to the development of a bushmeat policy and legislation. USAID/DRC should consider bringing in the U.S. Fish and Wildlife Service under the Great Apes Survival Project to assist the GDRC in developing a policy framework and eventual legislation to better control the bushmeat trade. This could be done in collaboration with TRAFFIC (The Wildlife Trend Monitoring Network) which is currently assisting the GDRC in developing a national bushmeat strategy and action plan, that will include improving the efficiency of legal and institutional frameworks;
- Expand the USDA Forest Service’s role in DRC’s national land use planning process. The Forest Service currently supports the Forest Inventory and Management Department, of MENCT, and the inter-ministerial and multi-stakeholder National Forestry Zoning Steering Committee, as they outline a national land use planning policy and process. However, the assessment team understands that as of January 1, 2009, the Forest Service will only be providing intermittent support to MENCT and the Steering Committee. As DRC is moving forward in its ambitions to carry out zoning and management of 143 million hectares of forest into protected areas, permanent production forests, and other uses, the assessment team believes USAID should consider expanding the Forest Service’s role through the provision of a full-time Forest Service land use planning advisor to be embedded in MENCT; and
- Provide support for university training. Even limited USAID/DRC support for university level training can have long-term impacts in terms of human resource development. Additionally, linkages between CARPE partners and DRC’s universities and forestry schools could be expanded to increase the skills of faculty and students by involving them in research, policy analysis, field level surveys and other activities.

Medium- and Longer-Term Interventions

- Analysis of climate change adaptation needs. USAID/DRC should consider supporting an objective, up-to-date, and comprehensive assessment of climate change adaptation in the DRC. Such an assessment would: i) complement the Congo Basin Forests and Climate Change Adaptation (CoFCCA) Project's objective of "contributing to national processes of adaptation to climate change through the development of policy-oriented adaptation strategies that also ensure sustainable use of forest resources in the Congo Basin Forests;" and ii) help strengthen the design and development of the Mission's food security program.
- Use Mission bilateral funds to supplement/complement CARPE activities and help CARPE achieve its Phase III goal of transferring activities to GDRC institutions. CARPE is USAID's major conservation program in Central Africa and is one of USAID's largest field-based conservation programs. In the DRC, CARPE has seen many major accomplishments not the least of which is providing support to the only organizations with the capacity to protect biodiversity and tropical forest resources – namely international conservation NGOs. CARPE partner contributions to biological and socio-economic surveys, zoning, gazetted community reserves, spatial planning and policy reform have significantly increased the conservation status of biodiversity and tropical forests in the DRC. However, there are several issues that may undermine CARPE's ability to achieve its Phase III goal of facilitating the final transfer of CARPE activities to the Central African institutions with which it works.

Although the landscape approach has been very successful in identifying high priority conservation targets and supporting habitat conservation needs, and is also beginning to achieve some legal recognition, the linkages between the landscapes and DRC's local administrative structures are generally weak. This can limit local buy-in for critical conservation-development initiatives such as alternative livelihood and strengthening local environmental governance programs.

CARPE implementing partners have also found it difficult to develop alternative income opportunities—yet, viable alternative income opportunities for DRC's rural populations represent one of the best options to reduce threats from illegal activities such as the bushmeat trade as well as illegal logging and mining.

The efforts of CARPE partners to engage national and local staff in the strategic planning of activities have also been modest as have capacity building efforts.

Finally, CARPE's legislative mandate precludes it from having direct formal bilateral relationships with Central African governments, thus CARPE cannot provide "direct" assistance to the GDRC. Instead CARPE relies on international NGO partners who execute direct bilateral agreements with those governments. In spite of these constraints, CARPE and the USG have been able to provide some indirect assistance through the USDA Forest Service and the USFWS. Although such support is appreciated by the GDRC, many GDRC personnel still contrast this assistance unfavorably with other bilateral donors that are managed in direct cooperation with the GDRC.

The assessment team understands that USAID/DRC will be receiving additional biodiversity, climate change and food security funds in FY 2010. By using these and future bilateral resources plus existing CARPE resources to implement the short and medium term recommendations noted above, the Mission is in the position to help CARPE address the aforementioned issues and thereby contribute to the achievement of CARPE's Phase III goals and objectives. An increased emphasis on alternative livelihood activities along with new bushmeat and community rights/tenure legislation, increased support to the decentralization of natural resource management—including directly engaging 'illegal'

or 'illicit' traders in the natural resource shadow economy, expanded support to MENCT's national land use planning initiative, and a better understanding of climate change adaptation issues would all combine to make a thoroughly integrated USG conservation and development program, one that is responsive to GDRC needs and concerns, and one that contributes substantially to reducing threats to biodiversity and tropical forests. Finally, an integrated USAID/DRC and CARPE program would also contribute to the achievement of the USG's Congo Basin Forest Partnership goal of promote economic development, alleviating poverty, combating illegal logging, enhancing anti-poaching laws, improving local governance, and conserving natural resources.

1. INTRODUCTION

The United States Government Country Assistance Strategy (2009-2013) for the Democratic Republic of the Congo (DRC) was approved in March 2009. The strategic vision for U.S. Foreign Assistance to the DRC is to support the security conditions and governance structures necessary for improvement of Congolese social and economic sectors and to permit extension of state authority across the country. The United States (U.S.) Mission will advance this vision by working with the Congolese government and local actors to transition from conflict and humanitarian relief programming to development assistance, and specifically working to fight poverty, consolidate democratic reform, and provide for the basic human needs of a Congolese population ravaged by more than ten years of war.

This Biodiversity and Tropical Forest Assessment report has been prepared to provide information and analysis as requested by USAID/DRC, required by the U.S. Congress, and stipulated in the U.S. Foreign Assistance Act (FAA) of 1961. Sections 117, 118 and 119 of the FAA require USAID Missions to examine issues of environmental impacts and tropical forest and biodiversity conservation when preparing strategies for development assistance. Specifically, this assessment is designed to take into consideration the FAA provisions related to:

- Section 117: Consideration of the impact of proposed activities on the environment and how to implement programs with an aim toward maintaining and restoring natural resources upon which economic growth depends;
- Section 118: Analysis of the actions necessary to achieve conservation and sustainable management of tropical forests and the extent to which the actions proposed by USAID meet these needs; and
- Section 119: Analysis of the actions necessary to protect endangered species and to conserve biological diversity and the extent to which the actions proposed by USAID meet these needs.

In 2003, a countrywide Environmental Threats and Opportunities Analysis (ETOA) was prepared for the Mission. The purpose of this environmental analysis was to provide an assessment of the state of the environment and natural resource management in the DRC at one of the most important crossroads in the nation's short history, notably the peace agreements that ended nearly a decade of war. The report from the ETOA—Democratic Republic of Congo Environmental Analysis—along with other literature addressing biodiversity, tropical forestry and other environmental concerns, have been used as a basis for updating this 118/119 assessment. The updated report seeks to provide a concise and targeted assessment to inform the USAID/DRC Mission's strategic planning, program development, and implementation.

This assessment includes:

- An overview of the status of biodiversity and tropical forest conservation;
- An analysis of threats to biodiversity and tropical forests and underlying causes;
- The institutional, policy and legislative framework for environmental management in the DRC; and
- Current interventions in the environmental sector, bi- and multilateral donors, non-governmental organizations (NGOs), the private sector and other institutions.

The report also examines how the proposed activities in the new Country Assistance Strategy (CAS) could contribute to conservation needs and includes recommendations for actions related to the CAS's goals including: i) increased stability in the DRC; ii) strengthened core governance institutions; iii) increased economic growth with emphasis on poverty reduction and environmental sustainability; iv) improved basic health conditions; v) improved access to quality education; and vi), the cross cutting themes of conflict, disaster assistance, corruption, protection of vulnerable populations, gender, capacity-building, HIV/AIDS and environment. The assessment also provides near term and longer-term suggestions for additional programming. These additional suggestions could also be presented for consideration by other donors, depending on the funding levels and capacity of USAID/DRC over the coming years. These recommendations are aimed at supporting environmental sustainability and conservation objectives in a manner consistent with the overall strategy of USAID and in ways that help to address the needs identified in this assessment.

Findings, conclusions and recommendations for the report are based on a series of interviews with key stakeholders, specialists, and program representatives in the DRC and in Washington, D.C., and three weeks of fieldwork in the DRC including site visits to Luki Biosphere Reserve, Mangroves National Park, Kundelungu National Park, the Tenke Fungurume Mining Company, and adjacent landscapes in the Provinces of Bas Congo and Katanga. Annex A provides a complete scope of work for the assessment; Annex B provides a list of contacts; Annex C provides a list of documents reviewed and referenced; Annex D provides a list of past and current donor projects; Annex E provides the staffing pattern for all DRC protected areas by labor category; and Annex F provides a list of all published forest code implementing decrees.

This report was prepared from June to November 2009 by a four-person team combining experience in tropical forestry, biodiversity conservation, natural resource management, environmental policy and management. Dr. Jim Seyler acted as assessment team leader and is a forestry/natural resource specialist with over 25 years of experience providing technical and management expertise on forestry and natural resources activities and assessments in Africa, Asia and Eastern Europe. Dr. Duncan Thomas, the assessment's biodiversity specialist, has 30 years of experience in tropical biodiversity program management including recent environmental assessment expertise in the Democratic Republic of Congo, Gabon, Chad, and Cameroon. Augustin Mpoyi, Environmental Lawyer and Executive Director of the Conseil pour la Défense Environnementale pour la Légalité et la Traçabilité (CODELT) served as the team's institutional and legislative specialist. Finally, Nicolas Mwanza, Director of the Centre de Recherche en Ecologie et Foresterie (CREF) provided both technical input and guidance on a wide variety of issues, and served as a critical local "reality check" for many of the assessment's recommendations.

2. COUNTRY CONTEXT

2.1 DRC'S ECONOMY

Following the emergence of a durable peace process in 2001, substantial progress has been made in overcoming the legacy of mismanagement and conflict, and in establishing effective institutions of government. The Government strengthened policies and institutions over the period 2001-2006, leading to DRC attaining the International Monetary Fund/World Bank Heavily Indebted Poor Countries (HIPC) decision point in 2003, but has not yet reached the completion point that would allow for approximately \$10 billion in debt to be forgiven by lender nations. Since 2001, with the support of the Bretton Woods institutions and others, the Government has implemented a solid program of economic reforms, including new investments in labor, mining, and forestry codes designed to make these traditionally opaque sectors more transparent, and able to attract reputable foreign investors. DRC recently joined the Extractive Industries Transparency Initiative (EITI), as a further effort to increase transparency in the mining and forestry sectors. Private investment has been relatively high, mainly in the natural resource sector (about US\$2.7 billion in new investments since 2003), and now constitutes a significant share of the overall private capital flows to Sub-Saharan Africa. Better management of public finance has helped break hyperinflation and stabilize the exchange rate. As a result, economic growth returned in 2003, after a decade of decline, and is estimated to have been about 5 percent between 2003 and 2007 reaching a high of 8% in 2008.

The December 2006 elections marked an important moment in Congolese history when the government, parliament and local authorities assumed power through a democratic process, with intensive support from the international community. With a new cabinet appointed in February 2007, the post-election period has provided a new opportunity to push forward much needed reforms. The DRC completed its first full Poverty Reduction Strategy Paper (PRSP) in July 2006. The five pillars of the PRSP are: 1) promote good governance and consolidate peace; 2) assure macroeconomic stability and accelerate economic growth; 3) improve access to social services and reduce vulnerability; 4) fight HIV/AIDS; and 5) promote community dynamics. Through participation in development of the PRSP, the international donor community agreed to a shared strategic approach for assistance called the Country Assistance Framework (CAF). The CAF, which includes the United States among 18 participating donors, elaborates a joint vision and plan of action according to the Poverty Reduction Strategy Paper's (PRSP) five pillars and represents the agreed-upon development agenda between donors and the DRC.

The challenges ahead remain daunting. Since September 2008, DRC's economic prospects have sharply deteriorated as a consequence of the changing international environment resulting from the financial crisis, which abruptly impacted the mining sector. Insecurity, caused by several factors including the presence of illegal armed groups in the East, continues to drive large-scale population displacement, violence, and human rights abuses, demanding the attention and additional resources of international actors. A November 2007 agreement in Nairobi and subsequent January 2008 Conference on Peace Security and Development in Goma provide the foundation for improved security in eastern DRC, though the nascent peace process remains precarious and will require significant diplomatic, technical, and financial support in order to stay on track.

Endemic corruption and capital flight hinders economic growth, with the DRC ranked 168 out of 180 countries surveyed in Transparency International's 2007 Corruption Perception Index. For the past three years the World Bank's Doing Business Report rated the DRC as the most difficult place in the world to do business, during which time the government did not make needed reforms to address rampant corruption and improve the business climate. However, the Government recently adopted a Governance Compact with the people of DRC, under which it promises to work on a broad front to reform the security sector, strengthen the judiciary, strengthen political governance (through decentralization and the increased role of the women in public life), and improve economic governance (through public finance management and anti-corruption efforts). The key challenge will be to implement this ambitious program—a long-term effort for which a substantial amount of external support will be necessary.

2.2 NATURAL RESOURCES AND THE ECONOMY

With the gradual return to peace and a new, democratically elected Government in place, the DRC has a strong opportunity to reduce poverty and promote broad-based, sustainable, and pro-poor growth. Yet, the country's history suggests that economic growth alone will not necessarily translate into better living conditions for the majority of the Congolese people. DRC is endowed with a wealth of natural resources which, if managed properly, can help the country recover from the devastation created by years of conflict and mismanagement that have made it one of the poorest countries in Africa¹. Indeed, the opportunity is enormous. DRC has the third largest population and second largest land area (equivalent to Western Europe) of all countries in sub-Saharan Africa. The country has fertile soils, ample rainfall, and immense water resources. Its enormous mineral wealth includes copper, cobalt, coltan, diamonds, gold, zinc, other base metals, and oil.

DRC's forests² are the second largest block of tropical forest in the world (145 million hectares, or approximately 62 percent of national territory). These forests are a strategic resource for many reasons. They are critical to the livelihood of about 40 million Congolese, providing food, medicine, domestic energy, building materials, and cash. They play a vital role in regulating the global environment. They harbor much unique biodiversity: DRC ranks fifth among nations for its plant and animal diversity, and it has five natural World Heritage Sites, more than the rest of Africa combined. If they are conserved and managed well, DRC's forests could provide many national and global benefits in perpetuity. Yet DRC's forests and biodiversity are under threat from a variety of fronts:

- While annual deforestation rates have remained relatively low, at 0.27 percent for several years, deforestation can be locally very high and is generally associated to clearing land for agriculture, population growth and migration, poverty, and conflict. During the war, entire villages sought refuge in the forest (which sustained them at the expense of increasingly scarce wildlife) or in urban areas and refugee camps (which depleted the surrounding forests for fuel, building material, and cropland). In all instances, reducing deforestation calls for action outside the forest sector including innovation to improve agricultural productivity and alternative sources of income;

¹ DRC's Human Development Index declined by more than 10 percentage points in the last ten years—and DRC now ranks 167 out of 177 rated countries, with the great majority of the population without access to the most basic human services. About 70 percent of the population lives below the poverty line, and in some parts of the north and east, poverty levels are above 80 percent.

² DRC forests are among the world's most coveted and important. They include *half* of Africa's rainforests (86 million hectares), as well as dry forests (45 million hectares), swamp forests (9 million hectares), and mountain forests (5 million hectares).

- Bushmeat consumption is higher in DRC than in any neighboring countries (three times as much extraction per square kilometer³). While making a fundamental contribution to the income and protein intake of the poor, bushmeat trade is the most serious threat to biodiversity after land conversion. The war left large swaths of forest practically depleted of wildlife, resulting in environmental losses and malnutrition in affected areas;
- Most logging is carried out by artisanal companies which supply the local and regional markets. Industrial timber exports from DRC are modest, less than 15% the exports of Gabon or Cameroon which have only a fraction of DRC's forest resources. Yet, the stage was set long ago for Congo's forests to be plundered as soon as peace and rebuilt infrastructure permitted. Even before the war began, speculative interests controlled the vast majority of DRC rainforests. By the time the war ended, an area twice the size of the United Kingdom (more than 43 million hectares) was under 285 logging contracts. Few of these contracts had been awarded transparently or competitively; none of them was designed to benefit anyone except the contract holder-not the government, and certainly not local and indigenous people, who were neither consulted about nor expected to receive benefits from logging operations. In some locations, logging permits, mining concessions, national parks, and farmland occupy the same forest space, which often spurs conflict and mismanagement;

Recognizing these and other threats, the new Government seeks to develop and institutionalize a vision of DRC's forests as an enduring provider of multiple goods and services rather than as an arena for the rapid extraction of timber and other resources. Its strategy is based on: i) addressing the legacy of past mismanagement by cancelling logging contracts that were obtained or managed illegally; ii) using participatory forest zoning to apportion forests to conservation, sustainable production of forest-based goods and services, community management and other purposes; iii) expanding national parks and supplying forest-based environmental services to emerging global markets; iv) ensuring that timber production is organized around sound social and environmental sustainable principles; and v) introducing transparency and participation of civil society, rural people and indigenous communities into all aspects of forest conservation and management.

³ Wilkie and Carpenter (1999).

3. CURRENT STATUS OF BIODIVERSITY, TROPICAL FORESTS, RIVER BASINS AND KEY WATERSHEDS

Biodiversity is a term that covers all types of plants, animals, fungi and other micro-organisms. Measurements of biodiversity can focus on numbers of species, numbers of groups, genetic diversity and other diversity metrics. Biodiversity is found everywhere. In order to make patterns of species distributions more understandable, systems of habitat classification such as ecoregions have been developed to provide a framework for biodiversity conservation. In DRC, the main habitats are moist tropical forest, dry tropical forest, wooded and grassland savannas, tropical montane and alpine habitats, freshwater ecosystems and a short length of Atlantic coast with marine and estuarine habitats.

The concepts of biodiversity and biodiversity conservation were developed about 40 years ago, partly to balance the thrust of conservation towards large protected areas for megafauna with a broader approach. Conservation Biology provides distribution data from biological inventories and ecological studies as the scientific basis for conservation. The types of action include the identification and protection of special habitat areas, and the conservation of species using a broad range of approaches.

Once, Belgians had the prize research network in Africa. Founded in 1933, their Institut National pour l'Etude Agronomique au Congo (INEAC) had 32 research centers in what is now the DRC. Each center had many buildings, research plots, European researchers and Congolese technicians (Terese Hart, www.bonoboincongo.com). A large amount of work was conducted by Belgian scientists on the flora and fauna of the Congo. Large numbers of specimens were collected in Congo, especially from areas accessible from the research centers, and were lodged in museums in Belgium, often with duplicate specimens at the research centers. For example, the National Botanic Garden of Belgium (<http://www.br.fgov.be/RESEARCH/COLLECTIONS>) has about one million specimens from Africa, most from the Congo. Similarly the Royal Belgian Institute of Natural Sciences (http://www.natural-sciences.be/collections/entomo/collection_entomo_GB.htm) has about 15 million insect collections, many from Congo.

In line with museum policy worldwide, the collection data from these specimens is being put online, sometimes with photographs of the specimens. These specimens form the basis for biological inventory of Congo. Large numbers of scientific publications have been produced, together with comprehensive inventory projects such as the series now known as the *Flore d'Afrique Centrale* (DRC, Rwanda, Burundi). The first volume of the floristic inventory was published by INEAC in 1948, and the on-going project is now about 60% complete and progressing slowly. However, as Terese Hart has pointed out, the sites that were accessible to the Belgian naturalists such as Yangambi have become degraded and have lost conservation interest. For the lowland forests at least, the sites that are now of high conservation interest were largely unvisited by scientists during colonial times, and therefore lack inventory data, even in the vast collections of the Belgian museums.

As with other biological inventories for DR Congo, the links between the museums and the field have tragically weakened since independence for a number of reasons. The field stations still exist, and are now under control of the DRC Government agencies, especially INERA. However, their central function in biodiversity inventory has largely disappeared. Museum collections still exist in DRC but are in very poor condition, including the ones that the assessment team visited at Luki and at the University of Kinshasa.

Declining funding for the European museums has impaired their capacity to continue foreign aid to DRC in the form of biodiversity inventory and to forge new relationships in DRC. Meanwhile, the concept of biological inventory has been degraded by the aid community into species checklists produced by conservation organizations for protected areas, often incomplete and of low quality. CARPE, however, has conducted a number of higher quality inventories in the various landscapes and some examples of these are provided in the text box. In general, however, the high quality applied research needed to drive biodiversity conservation is often mistakenly viewed as “pure research” in Congo, so that conservation is forced to go forward on a very shaky scientific base, and there is little recognition of the work of museums as foreign aid. For DRC to recover from decades of neglect, it will be necessary to recognize the importance of true biodiversity conservation in DRC and the central role of inventory, and to better connect the technical assistance from museums with DRC institutions and field programs.

Thus, it is debatable how much biodiversity conservation is happening in DRC. Megafauna protection in large protected areas is not biodiversity conservation *per se*, and can have negative as well as positive impacts on biodiversity. To move from a traditional protected areas approach to more sophisticated biodiversity conservation, large amounts of information are needed on species distributions and habitats. In the absence of such information, effective biodiversity conservation will not be able to proceed very far, leaving an undocumented portion of the nation’s biodiversity at risk.

Positive effects of large protected areas on biodiversity are obvious, since by and large the included biodiversity will be protected if there is good management. In the case of large protected areas in the species-rich moist forest zone, such as Salonga, even without inventory and monitoring we can assume that the amount of protected biodiversity is enormous and includes many rare and endemic species.

However, like any other kind of development, large protected areas can also negatively impact diversity. They are often located in the least disturbed areas, where megafauna protection is most effective but where the threats to other diversity are minimal, leaving the hotspots of biodiversity loss at risk and national attention focused away from these threats. Planning tools can also pose a threat to biodiversity,

Selected CARPE-Supported Biological Inventories

Inogwabini (2007). Great apes in the Lake Tumba landscape, Democratic Republic of Congo: newly described populations. http://carpe-infotool.umd.edu/IMT/LS7_Lake_Tele-Lake_Tumba/Landscape/LS7_EC_Great_Apes_in_Lake_Tumba_Inogwabini_2007.pdf

Steel L. (2007). Salonga-Lukenie-Sankuru Landscape. Summary Results of WWF Biological Surveys: 2006 – 2007. http://carpe-infotool.umd.edu/IMT/LS8_Salonga-Lukenie-Sankuru/Landscape/LS8_EC_Biological_Surveys_Steel_2007.pdf

Abondance et Distribution de la Faune et des Activités Humaines dans le Landscape Maringa/Lopori-Wamba: Rapport de collecte des données biologiques de base. <http://carpe-infotool.umd.edu/IMT/Landscape.php?Landscape=9>

Bashonga M. (2007). Etude de la Répartition de l’Okapi (*Okapia johnstoni*) et autres mammifères dans le secteur nord du Parc National des Virunga. http://carpe-infotool.umd.edu/IMT/LS12_Virunga/Landscape/LS12_EC_Okapi_and_Mammal_Study_Bashonga_2007.pdf

Makana (2006). Pre-harvest forestry and botanical inventories in ENRA logging concession in the Ituri Forest Landscape, northeastern Congo Basin Rainforest (Democratic Republic of Congo). http://carpe.umd.edu/resources/Documents/SI_Ituri_ForestryInventory_TechnicalRpt_Sept2006.pdf/

since powerful Geographic Information System (GIS)-based approaches can seemingly produce results even in the absence of the necessary information base, and can replicate mistakes over large areas. At the moment, with the main focus on re-establishing the rule of law in the protected area network, the lack of capacity and information does not much impede this effort. In the future, if biodiversity conservation focused on a wide range of plants and animals and on their critical habitats—similar to approaches being implemented elsewhere in Africa—then an enormous effort in capacity-building inventory and monitoring will be needed.

Forests and Biodiversity. DRC’s forests cover an area of 2 million square kilometers of which roughly half are closed high rainforests and the remainder open forests and woody savannah. Designated parks and conservation areas occupy around 18 million hectares, or 8% of the national territory, though most of these exist only on paper. DRC contains an estimated 10,000 species of plants, 409 species of mammals, 1,117 species of birds and 400 species of fish—making it the 5th most biodiverse country on earth.

The annual deforestation rate for the 1990—2000 period was estimated at 0.22% and the current rate is thought to be around 0.33% per year. This is a low figure by continental standards, but nevertheless implies a gross loss of 358,000 hectares of forest per year. Table 1 provides a comparison of forest loss inside and outside protected areas between 1990 and 2000.

TABLE 1: COMPARISON OF INSIDE AND OUTSIDE PROTECTED AREAS FOREST LOSS FOR THE PERIOD 1990–2000

Forested Regions	1990 Forest Cover (km ²)	2000 Forest Cover (km ²)	Forest Cover Loss (Km ²)	Forest Cover Loss (%)
DRC	1,088,092	1,066,423	21,668	1.99
Inside protected areas	147,004	146006	998	0.68
Outside protected areas	941,088	420,418	20,670	2.2

Source: CARPE (2006).

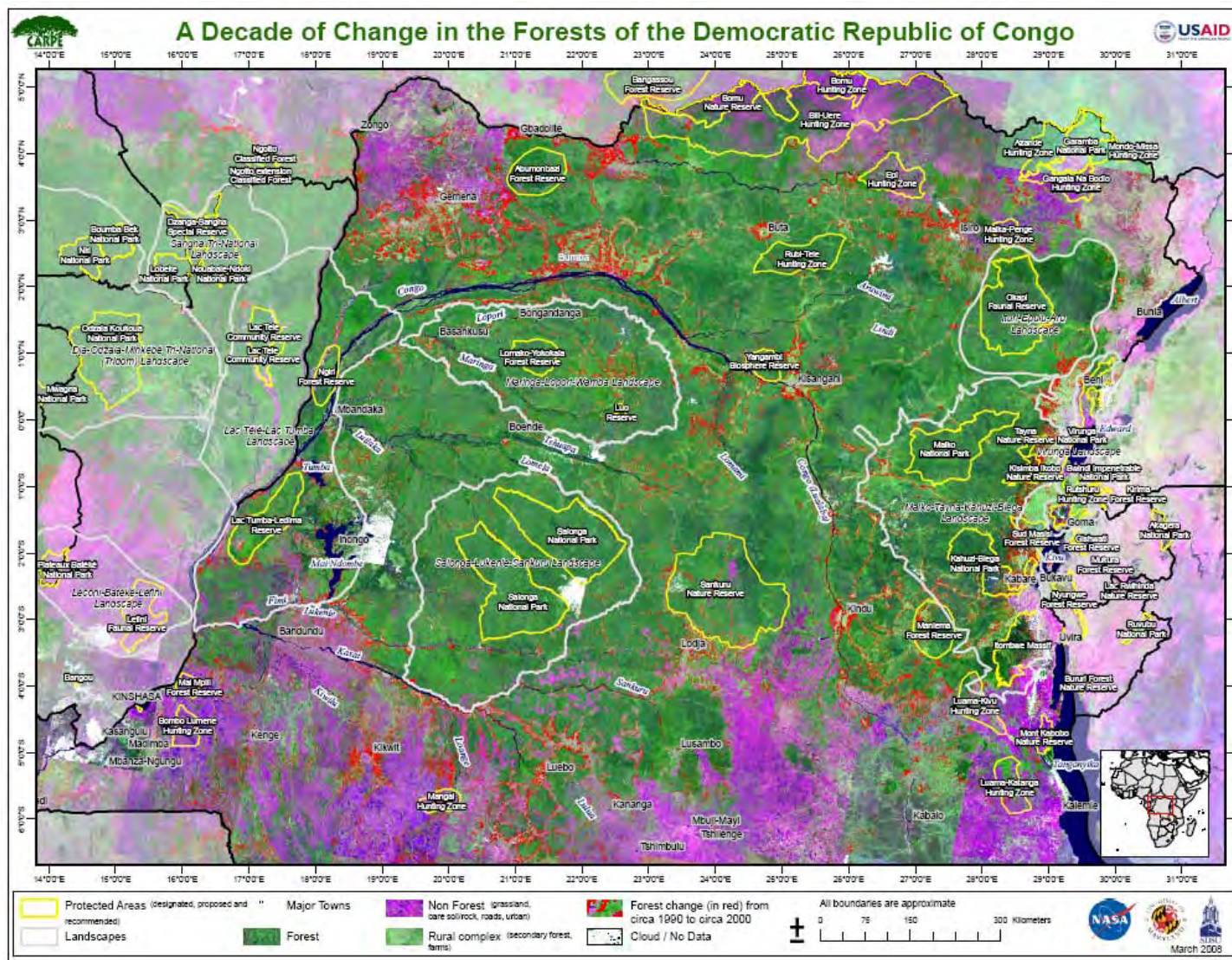
As Figure 1 below indicates, most of the forest loss is occurring in the northwest and in the densely populated eastern region. Most of the deforestation is a consequence of small scale shifting agriculture with logging being an important factor in Bas Congo and Equateur Provinces.

Forest types include the moist evergreen/semi deciduous forest across the center of the country, and extensive dry forest (miombo) in the south. There are also forest/savanna mosaics. The definition used by the Central African Program for the Environment (CARPE) is very narrow, and when CARPE and partners use the term forest, they often mean moist forest only. Given the importance of CARPE partners to forest conservation in DRC, it is understandable that the concept of a large expanse of tropical dry forest in southern DRC, seriously threatened by deforestation, has taken a back seat to the conservation of the moist forest. This needs to change if loss of forest cover and valuable natural resources in the southern half of the Congo Basin is to be prevented.

Another large information gap of potential significance concerns the vegetation dynamics of the Congo Basin. In the absence of sound forest science, managers are making assumptions about the stability of the forest, the regeneration of timber trees, and especially about the impacts of long-term climate change and the degradation of forest by human activity. In reality, at least the drier forest areas appear to be highly

dynamic, changing the relative distribution of species and of forests and grasslands, and probably accumulating large carbon stocks in less populated areas, which could be sold.

FIGURE 1: FOREST CHANGE IN THE DRC 1990–2000



Source: SYGIAP (2008).

4. MAJOR ECOSYSTEM TYPES OR ECOREGIONS⁴

An ecoregion is an area or a group of areas with similar physical and biological characteristics throughout. Ecoregions provide a convenient framework for describing biodiversity, endemism and conservation. In the DRC there are three different classes of ecoregions: terrestrial, freshwater aquatic and marine, with the first two overlapping because of the extensive freshwater swamps. Generally speaking, the vegetation potential for terrestrial ecosystems over most of the DRC is moist or dry forest under current rainfall regimes. Where this potential is not realized, the main causes are agriculture practices that prevent forest from reestablishing especially on sandy soils, and frequent burning of grasslands creating a fire-climax savanna and preventing the establishment of forest trees. Terrestrial areas lacking potential for forest include some montane/alpine formations, some scrub formations along the Albertine Rift, and on very dry substrates such as rock or unconsolidated sand. Freshwater aquatic vegetation includes vast tracts of seasonally inundated forests, especially in the Cuvette Centrale, and these are often included in terrestrial ecoregions. Other freshwater types include emergent marshes and open water on rivers and lakes. The DRC coastline is very short, but does include half of the estuary of the Congo River.

In the north/central part of DRC lies the vast block of Congolian moist tropical forest and swamp forests, home to an enormous and largely endemic flora and fauna. The southern part of the DRC supports extensive dry forests of the miombo type, widespread in eastern Africa and rich in biodiversity though less so than the moist forest. A very strange feature of the Congolian forest is that the moist and dry forests are not adjacent to each other. There is a large expanse of sparsely-wooded tall grass savanna between them. Similar vegetation also occurs to the north of the Congo, where the forest/savanna mosaic occurs between the moist forest and the woodlands dominated by *Isoberlinia* and other trees that takes the place of miombo in the north. The dynamics of this vegetation are still poorly-understood. However, the savannas appear to be a fire-climax community that will develop into moist forest if burning is suppressed.

One theory is that this vegetation is the result of intensive agricultural degradation of moist forest, and this may be true in more densely populated areas. A second theory, advanced by Jean Maley (Maley, 2006) and others, is that the forest contracted in response to a very dry period about 2000 years ago and is still in the process of recovery. If it is true that the forests/savannas on both the north and south sides of the Congo Basin are still undergoing a massive response to long-term climate change, this has major implications for all aspects of forest and grassland management, including biodiversity, wildlife habitat, timber harvest and carbon storage. A high priority is to greatly increase the monitoring of the vegetation, using a combination of both satellite images and intensive ground-based studies in the various vegetation types, to thoroughly document the changes that are occurring and the ecological processes that underlie

⁴ This overview is based on the World Wildlife Fund's (WWF) terrestrial ecoregion descriptions, WWF/The Nature Conservancy (TNC) aquatic ecoregions, and the 2003 DRC ETOA report. Ecoregion descriptions are drawn from: <http://www.nationalgeographic.com/wildworld/terrestrial.html>; <http://www.feow.org>; http://www.panda.org/about_our_earth/ecoregions/ecoregion_list/; http://www.ramsar.org/wurc/wurc_dr-congo_inventaire2008.pdf, supplemented with additional material.

the changes by establishing appropriate monitoring baselines followed by long-term recensus programs. Without the applied ecology derived from monitoring, it will not be possible to understand the impacts of agriculture, logging and future climate change on the forests and grasslands.

The ecoregions are described in groupings: western DRC, moist forests, northern forest/savanna mosaic, southern forest/savanna mosaic, miombo dry forest, montane/alpine vegetation, and the rift valley lakes.

4.1 WESTERN DRC

The most extensive terrestrial ecoregion in western DRC is the *Western Congolian Forest-Savanna Mosaic* with small areas of *Atlantic Equatorial Coastal Forests* and *Central African Mangroves* near the coast. Aquatic ecoregions are the Lower Congo, the Lower Congo Rapids, Malebo Pool, and the Gulf of Guinea South Marine Ecoregion.

The area around Kinshasa and extending westwards to the coast has varied topography and vegetation and a high human footprint associated with high population density, intensive agriculture, industries including oil and hydropower, port facilities, and relatively good roads and communications. The Kinshasa area is a plateau with sandy soils mostly under various forms of agriculture. Formerly forested, the landscape is now fields with scrubby fallows, and even the riparian forest is often cleared for cultivation. Crops and fuelwood/charcoal are major products of this landscape. East of Boma and Matadi are the Mounts Crystal with thin infertile soils, less human disturbance, and more natural vegetation, including remnants of the species-rich Mayombe forest which reaches its southern limit here. Between Boma and the coast are extensive sandy plains and marshes. Protected areas near the coast are the Mangrove National Park and the Luki Biosphere Reserve. Included in the former are most of the mangrove swamps on the DRC side of the Congo River Estuary, and the sandy beaches along the coast, important for marine turtle nesting, have partial protection and a small WWF conservation project.

Luki Reserve, although small, protects about 8,000 hectares of Mayombe forest, important for plant conservation, and is the focus of a World Wildlife Fund (WWF)/ICCN conservation project. Along with the eastern mountains and the Katanga mining area, western Congo has the largest human footprint, and biodiversity loss and forest degradation are more severe here than in less disturbed areas. Problems include both species extinction and loss of diversity within landscapes, including diversity useful to communities. The loss of the larger mammals from this area has been documented but for diverse groups such as plants there is little distribution data at the species level, so we cannot say how much extinction is occurring. However, biodiversity hotspots that combine high diversity and high endemism with a large human footprint, such as the Mayombe forest, are the most likely places to find high extinction rates. Biodiversity should be a focus of rural development and agriculture projects in western Congo, to develop models for the inclusion of biodiversity, especially useful biodiversity in populated landscapes.

One advantage of the western DRC is that it already has small-scale ecotourism and could have a lot more. It does not have the problems of access and security that plague the more remote conservation areas, and there are a large number of Kinshasa residents interested in weekend tourism at sites within driving distance. The Bombo-Lumene Reserve, less than two hours drive east of Kinshasa, has a lot of disturbance from cultivation and poaching, but still has scenic areas with grasslands and forested ravines with tourism potential and with some existing tourism facilities. Also, there are spectacular sites along the Congo River which could be developed more than they are at the moment to combine tourism revenues and environment protection and start to rebuild DRC's ecotourism industry. Although the ecotourism

potential of these sites would require further analysis beyond the scope of this assessment, according to IUCN, the following have significant potential:

- The Inkisi Basin and falls in Bas Congo have potential for both cultural and traditional ecotourism. From a cultural perspective, the Basin was part of the Kingdom of the Kongo. The region east of the Inkisi River all the way to the Kwango River was part of the Kongo federation as early as the 15th century, and the Basin is mentioned in historical records as the setting of some of the Kongo's expanding conquests. The towns of Kimpemba, Kimpangu and Kinzundu, located within the Basin are also associated to historical areas of the Kongo Kingdom and include important commercial routes during the slave trade. The nearby Kisantu Botanical Gardens, the rapids, and the Mbanza Ngungu caves are popular tourist sites for visitors coming from Kinshasa, although there are few facilities to support them. The absence of drivable roads connecting Kinshasa to other parts of the country makes these sites some of the few places accessible to tourists, and their development could conceivably generate income for the local communities there.
- The Congo River and estuary below Matadi in the Bas Congo is considered “outstanding” at the sub regional level for its richness in birds including pelicans, the black-crowned crane, herons (including the Goliath heron), and egrets and is a key staging, feeding and breeding areas for migratory water bird species. The area also harbors populations of manatees and dwarf buffalo. The area overlaps with the Luki Biosphere Reserve, the Mangroves National Park and the coastal town of Moanda, all of which are tourist destinations for Kinshasa residents. The development of the site as a birding destination could conceivably increase the number of international visitors coming to the area, with a subsequent increase in tourism revenues and local income generation.
- The Congo River below Matadi and Bela in Bas Congo is another potential ecotourism site. It's an historical site of the Kingdom of the Kongo and was an important commercial route during the slave trade. The caves of Banza Sanda (road to Luozi), as well as Stanley's Manianga post were popular tourist destinations in the region before Independence, and may have potential for ecotourism development today.
- The Aruwimi-Ituri-Uélé wetland (Oriental Province) on the Ituri River, a major tributary to the Congo, is a key site for migratory birds and a feeding or resting ground for many species. This area is also an ecotone—a zone of transition between the forests and savanna and harbors bird species from both zones. Birdlife International reports that this area was an important birding site before independence, and as the wetland overlaps with the Okapi Wildlife Reserve, the potential for ecotourism development could be considered high.

4.2 THE MOIST FOREST

This is the vast rainforest that covers the uplands and swamps along both sides of the Congo River, including the forests in the big bend. This area is very high in biodiversity and endemism, but is also poorly explored, and might even yield new species of larger mammal, like the new *Cercopithecus* monkey, resembling the endangered owl-faced monkey, recently discovered in the Tshuapa-Lomami-Lualaba area. The forest is very important for great apes, bonobos, chimpanzees, and gorillas, listed by the World Conservation Union (IUCN) as critically endangered or endangered. Okapi (IUCN: near-threatened) are endemic to the eastern part of the moist forest, and populations of forest elephants continue to decline.

The decline of DRC's elephant population is particularly distressing. Hart (2009) estimates that total DRC elephant population (forest and forest-savanna hybrids) is likely under 20,000, down from a population estimated at over 100,000 elephants 50 years ago, and still dropping due to poaching and the illegal ivory trade. He estimates that there are only 6 core elephant populations (≥ 500 elephants occupying contiguous range) remaining in the DRC, and all core populations are in protected areas with the exception of about 500-1000 individuals in the Tshuapa, Lomami and Lualaba River basin area. Remnant populations (< 500 animals, not necessarily contiguous occurrence) occur in other protected areas including Virunga, Kahuzi-Biega, Lomako and Upemba, and other sites (Kokolopori, Mbou mon Tour, Shabunda and Itombwe) with the vast majority of these occurring in Virunga (± 450 animals in isolated fragments) and Upemba (< 200 animals).

Core populations have decreased in the last 10 years, some catastrophically, as indicated in Table 2.

TABLE 2: ELEPHANT POPULATION TRENDS FOR SELECTED PROTECTED AREAS

Protected area	Historical record (Pre-1980)	Before war (1986-1996)	Civil War (1996-2003)	Post-war Anarchy (2003-2009)
Garamba National Park (forest/savanna)	23,000	11,175	5,980	3,800
Okapi Forest Reserve	N.D.	6800	N.D.	3,540
Maiko National Park	N.D.	6,500	N.D.	2,000
Salonga National Park	N.D.	6,330	N.D.	1,900
Kahuzi-Biega NP—upland forest	N.D.	± 800	± 20	± 20
Kahuzi-Biega NP—lowland forest	N.D.	3,720	N.D.	No sign
Virunga National Park	2,900	469	286	± 450

Source: Hart (2009).

Protecting endangered and threatened species and their habitats is currently the main thrust of conservation across the moist forest, and given the seriousness of the threats from the bushmeat trade and ivory poaching, larger mammals are likely to be the primary focus of moist forest conservation for the foreseeable future. The forest has several large protected areas including the vast Salonga National Park (NP), but not much effective protection.

Conservation of the moist forest—the core biodiversity management area of the DRC—is the focus of CARPE. CARPE supports 12 Congo Basin Forest Partnership and Central African Forest Commission (COMIFAC) designated conservation areas or landscapes across seven Central African Countries. Six landscapes are either wholly or partially located in the DRC including:

- **Ituri-Epulu-Aru Landscape.** This landscape covers

FIGURE 2: MOIST FOREST AREA ALONG A RIVER IN CENTRAL DRC

This photo shows natural forest (dark green) with degradation to secondary forest and scrub by shifting cultivation along road corridors (pale green).



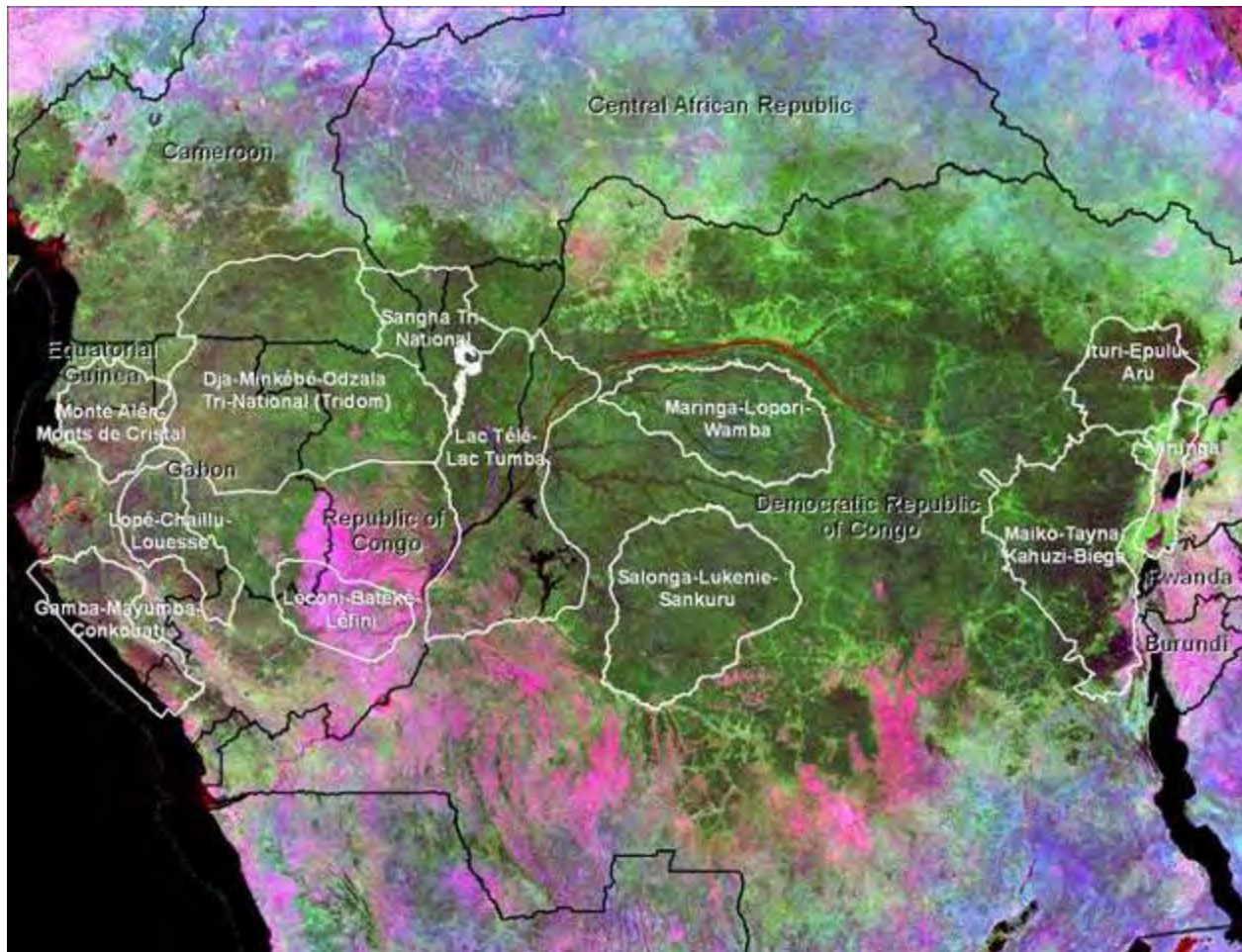
Satellite Image: Google Maps

the upper basin of the Ituri River and thus the most northern part of the Congolese forest with its adjacent forest-savannah mosaic. The Ituri forests are exceptionally rich in mammals and a total of 90 species have been found in the central sector. The Landscape contains populations of world importance for several species with a limited distribution, endemic or almost endemic to the DRC, including the okapi (*Okapia johnstoni*). It also has large populations of globally threatened species, such as the forest elephant (*Loxodonta africana cyclotis*) and the chimpanzee (*Pan troglodytes*).

- **Maiko-Tayna-Kahuzi-Biega Landscape.** This Landscape is situated in the eastern part of the DRC and covers an area of 67,121 km², and includes the Kahuzi-Biega and Maiko national parks as well as the Tayna Gorilla Reserve. Given its diverse habitats, the Landscape is home to a rich variety of mammals, in particular the elephant (*L. africana*), the chimpanzee (*P. troglodytes*), the eastern gorilla (*Gorilla beringei*), including almost the entire population of the graueri form), and numerous other primates.
- **Salonga-Lukenie-Sankuru Landscape.** The Landscape lies in the heart of the central basin of the Congo River in the DRC straddling the provinces of Equateur, Bandundu, Kasai-Occidental and Kasai-Oriental. It covers 102,847 km² and is centered on Salonga National Park. The latter has an area of 33,350 km² and is the second largest area of protected forest in the world, but it is divided into two separate blocks. The Landscape is home to the bonobo (*Pan paniscus*), a great ape endemic to the central Congolese forests ecoregion.
- **Lake Télé-Lake Tumba Landscape.** The Lake Télé-Lake Tumba Landscape is situated at the heart of the Congo Basin region, centering on Lake Télé in the Republic of Congo, and the Tumba and Mai-Ndombe lakes in DRC. It extends over an area of 126,440 km². The 54,001 km² western section is situated in the Republic of Congo and the 72,439 km² eastern section is in DRC. It includes one protected area, the Lake Télé Community Reserve in the west. In the eastern section, primates are represented by the bonobo (*P. paniscus*) and the common chimpanzee (*P. troglodytes*). The western section is considered to be an important area for bird conservation, particularly owing to the presence of large colonies of water birds.
- **Maringa-Lopori-Wamba Landscape.** The Landscape is limited to the basin of the Maringa and Lopori rivers in the districts of Equateur, Mongala and Tshuapa in the Equator Province. The Landscape covers 74,544 km² and is characterized by tropical forests and some inhabited strips along the rivers. It is a very isolated enclave, given the deterioration of the road infrastructure in the 1980s and 1990s and the discontinuation of river transport since the war, which is only now beginning to start up again. At least eleven species of diurnal primates have been observed. The dryas monkey (*Cerco pithecus*) is endemic to the basins of the Maringa and the Lopori and only two examples of the species are known. The avifauna comprises over 400 species, and the density of the Congo peafowl (*Afropavo congensis*), is thought to be highest in the country. The Landscape contains the Lomako-Yokokala Faunal Reserve.
- **Virunga Landscape.** The Virunga Landscape covers 15,155 km² and includes two contiguous national parks, Virunga National Park in DRC and Volcano National Park in Rwanda, and the Rusher Hunting Zone. Outside the Landscape, the two national parks are also contiguous with the national parks of Semuliki, Queen Elizabeth, Rwenzori and Mgahinga in Uganda. Together, these six national parks constitute the largest transborder complex of protected areas in Africa. The landscape is home to the mountain gorilla (*Gorilla beringei beringei*) and has the highest species endemism rate in Africa.

Figure 3 below provides a map of all CARPE landscapes.

FIGURE 3: THE 12 CARPE LANDSCAPES



Source: CARPE.

The protected areas within these landscapes are benefitting from the efforts of CARPE partners to re-establish law enforcement and to plan natural resources management outside protected areas. It is remarkable that several large new protected areas have been established in the interval between the first USAID biodiversity/forests report and this one. New gazetted reserves in the moist forest are Sankuru Nature Reserve (2007, three million hectares), the Tumba-Lediima Nature Reserve in wetlands (2006, 750,000 ha), the Tanya Nature (gorilla conservation) Reserve (2005, 88,600 ha), the Kisimba-Ikobo (2005, 97,000 ha), the Itombwe Massif Nature Reserve, and the Kokolopori Natural Reserve (2009, 487,500 ha). All of these new initiatives are the result of collaboration between ICCN and international partners.

The central Congo and its main tributaries in the moist forest zone have about 206 known species of fish, with 11 endemics. However, most of the tributaries, especially smaller forested tributaries remain poorly explored for fish (and other) diversity. For the wetlands areas and rivers, local overfishing, especially in lakes is a problem, and the establishment of well-managed fisheries is a problem. Fishing with dynamite should be eliminated. Aquatic weeds are also a problem, especially the water hyacinth which is invading

lakes. There is sedimentation from riverbank degradation by agriculture and other development, and local pollution problems around settlements, especially the larger cities.

For biodiversity other than larger mammals, conservation is unclear. One of the main concerns about tropical rainforest is loss of the enormous diversity of vascular plants and arthropods, and DRC has a large responsibility here, since it contains much of the world's second largest rainforest. We can assume that most of the biodiversity that is inside existing protected areas where effective reserve management is being re-established will be safe. However, for megafauna protection to transition into biodiversity conservation in the moist forest, there has to be a large inventory and monitoring program with local capacity-building; but the rebuilding of DRC's capacity for conservation biology is proceeding very slowly and DRC is very far from being able to conduct gap analysis to identify further conservation needs. Priority actions include the establishment and management of national biodiversity databases, thorough inventory of existing protected areas, and finally, a more detailed assessment of critical habitats and concentrations of biodiversity outside protected areas, including logging concessions. DRC also needs more information on forest ecology than is available at present, since even the most basic processes of forest and timber regeneration remain poorly-understood. Until these information needs are met, it is unlikely that management plans based only the conservation of larger mammals, the interpretation of satellite images, and imported concepts of forest ecology will achieve sustainable forest management, and management is likely to harm as well as benefit biodiversity.

4.3 SOUTHERN DRY FOREST (*CENTRAL ZAMBEZIAN MIOMBO WOODLANDS, INCLUDING SMALLER AREAS OF OTHER ECOREGIONS*)⁵

Dry deciduous forest (miombo), widespread in eastern and southern Africa, is the climax vegetation over much of the southeast DRC and constitutes about 10% of the countries' total forest cover. The vegetation is a large-scale mosaic of forests interspersed with edaphic grasslands, especially on sand or dry ridges, and riparian/wetlands vegetation in depressions. Miombo is fairly rich in species, especially plants and birds, and low in endemism, though rare birds occur around the wetlands and rare plants occur on copper-rich soils and elsewhere. Formerly, dry forests were moderately rich in large mammals, with higher densities around wetlands, but populations have been greatly reduced by poaching. The black rhino, formerly present in Katanga is now extinct in DRC, elephant populations are much-reduced, and only a small population of zebras survives in Upemba National Park (NP). Although miombo typically has very poor soils and low human population density, Katanga province is an exception since there are large settlements associated with mining. The need of the large urban population for food

FIGURE 4: A BLOCK OF MIOMBO DRY FOREST

This photo shows the forest (dark green) on gentle slopes in Katanga Province, with grassland (red) on a steeper slope lower right.



Satellite Image: Google Maps

⁵ From http://www.feow.org/ecoregion_details.php?eco=544 with additional material.

and fuel has led to the degradation of the miombo woodland near settlements, while demand for bushmeat has greatly reduced the densities of large mammals throughout the area.

Large wetlands included in this dry forest zone include Lake Upemba (Dépression de Kamalondo) and Lualaba River, a large expanse of shallow lakes and emergent marshes in a rift valley, with vast papyrus beds and floating reed islands, important for birds and mammals. Part of these wetlands is included in the Upemba NP currently lacking any effective management. (http://www.feow.org/ecoregion_details.php?eco=545). A second large wetlands complex on the Luffira River is entirely within the Annex of the Kundelungu NP, which was created specifically to protect these wetlands. However, like Upemba, the Kundulungu NP has no effective protection at present. Together, Upemba and Lufira are reported to support over 180 species of fish including 28 endemics, plus a rich herpetofauna with six endemic frogs. In addition, two large artificial lakes near Kolwezi and Likasi are listed as important bird habitat. Lake Mweru (Moero), shared by DRC and Zambia, is a large shallow lake draining into the Congo River. It is unprotected and unmanaged on the DRC side, with overfishing and pollution from numerous fishing villages and a few towns around the lake shore, with more than a quarter million people living in the vicinity of the lake. It has high fish diversity, with about 150 species of which 39 are endemic.

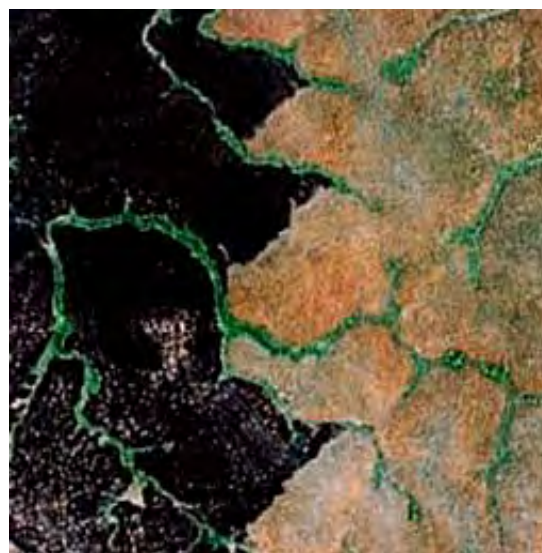
Major threats to this ecoregion come from poaching, degradation of the dry forest, poor mining techniques and overfishing. Priorities for biodiversity conservation are to re-establish the integrity of the Upemba and Kundelungu NPs and to establish rural development that includes sustainable management of the dry forests and the wetlands basins.

4.4 NORTHERN CONGOLIAN FOREST-SAVANNA MOSAIC⁶

This vegetation borders the Congo moist forest to the north, and is a fire-climax savanna with semi-deciduous forest in valleys. Compared to the moist forest to the south, the forest/savanna mosaic has less diversity in most groups and fewer endemics, though it formerly supported important megafauna. Moist forest is probably the potential vegetation of this ecoregion under current climate conditions but cannot establish with current burning regimes. Because this area of northeast and north-central DRC was sparsely populated and contained large populations of savanna megafauna, large protected areas were created and conservation is a major land use. More than half of this ecoregion in DRC is taken up by two large complexes of protected areas. North-center is the Bomu Nature Reserve surrounded by large Hunting Reserves, while in the northeast is the Garamba National Park and associated Hunting Reserves.

FIGURE 5: SAVANNA/GALLERY FOREST MOSAIC IN THE GARAMBA AREA, NORTHEAST DRC

The green gallery forests occupy drainages while the tall grass savanna occupies the plateau. The grass on the left (black) has been recently burned, while that on the right (orange) has not, but otherwise the grasslands are probably identical. Most vegetation of this type in DRC would regenerate as moist forest if the frequency of wildfires were reduced.



Satellite Image: Google Maps

⁶ From http://www.eoearth.org/article/Northern_Congolian_forest-savanna_mosaic with additional material.

Unfortunately, civil unrest in DRC and neighboring countries has resulted in uncontrolled poaching in the reserves, so that Garamba's flagship species, the last population of northern white rhino, is now extinct, while the elephants have been largely eliminated from Garamba and Bomu. Consequently, DRC has set aside large areas of forest/savanna mosaic as protected areas to protect wildlife values that have been largely lost to poaching. These protected areas need to be thoroughly reviewed for management objectives and management plans need to be created and implemented by ICCN and international and local partners. Important factors are the current status and future prospects for the megafauna and other important biodiversity (endemics etc.), the dynamics of the vegetation, the needs of the local communities and options for future carbon storage and timber production.

4.5 SOUTHERN CONGOLIAN FOREST-SAVANNA MOSAIC AND THE KASAI AQUATIC ECOREGION⁷

These ecoregions cover a large area of about 570,000 km² mostly in southern DRC. The Southern Congolian Forest-Savanna Mosaic is a blend of forest, woodland, shrubland and grassland habitats. In DRC, this ecoregion is a plateau that slopes downwards from the Angola border and the Katanga uplands towards the Congo River drained by the large Kasai River and other Congo tributaries. While the forests have only a few known endemic species, they had a rich fauna, including a number of different antelope species and high numbers of African elephants, current status not known. The rivers/riparian areas are reported to support high fish diversity and endemism, and to be rich in amphibians. Human population density varies from high around the larger towns to sparse in the extensive more remote areas. There are relatively few protected areas in this ecoregion, mostly old hunting reserves, heavily poached/encroached and with no management. Given the lack of biodiversity inventory and the lack of protected areas, we can assume that the larger mammals and the (largely unknown) rare/endemic species of this ecoregion are under threat from lack of conservation management.

In terms of its vegetation, this large ecoregion is a mosaic of savannas and forests sandwiched between the moist forest zone to the north, and the dry (miombo) forests to the south. Elsewhere, this type of vegetation is not in equilibrium with current climate, and would naturally support moist forest in the absence of grassland burning and cultivation. We can assume that the area has the potential to accumulate and store very large quantities of carbon, gaining several hundreds of tons/ha as the grassland develops into forest so the management and the development of this ecoregion should be a high priority for the DRC.

4.6 EASTERN MOUNTAINS

The Albertine Rift is one DRC's most species and endemic rich regions. It is very different to the rest of DRC because of the mosaic of high-elevation vegetation types, large numbers of rare/endemic species and high human population pressure. The unique rift valley lakes are treated separately below. In contrast to the very high alpha-diversity of the moist lowland forests, where stands of forest vegetation contain very large numbers of species, the montane/alpine areas have lower stand diversity but a very large range of ecological conditions, with unusual biodiversity occurring in unique conditions often quite small in

⁷ Adapted from <http://www.nationalgeographic.com/wildworld/profiles/terrestrial/at/at0718.html> and http://www.feow.org/ecoregion_details.php?eco=546 with additional material.

area. Combined with the high human population pressure at montane elevations, this leads to biodiversity hotspots and a high risk of extinction for narrow endemics.

The mountain ranges create a variety of elevations and climates, including both east and central African types. Several east African scrub and mosaic vegetation types enter DRC in this region, while the moist forest to the west changes in character with increasing elevation to become more montane, with montane species replacing lowland ones across elevational gradients. Above the montane vegetation are the unique alpine/subalpine moorlands of the Ruwenzori/Virunga National Parks along the DRC-Uganda border.

The area has significant numbers of endemic birds and amphibians. The vulnerable cream-banded swallowtail butterfly is confined to this region. In addition to the many endemic species of smaller size, the mountain gorilla, one of the most critically threatened large mammals in Africa, is also found in a few places within the ecoregion. In terms of plants, the area is probably rich in both species and endemics, but remains poorly-explored.

In terms of protected areas, there are several, the Virungas NP, plus a (growing) number of protected areas in the montane forest/lowland forest transition zone, such as Kahuzi-Biega NP, focused particularly on the protection of the eastern/mountain gorillas. The mountains are popular with foreign conservation organizations, which are assisting ICCN with conservation. With increasing security in the area, it should be possible to re-establish ecotourism based on the gorillas and the scenic values of the landscape.

The biodiversity of this region is threatened by a number of activities—agriculture, grazing of livestock, hunting, and logging—and many of the montane forests have already been cleared for cultivation. The wars have led to the displacement of large populations, causing degradation of protected areas and increased poaching. It is likely that there are pockets of unique biodiversity outside of the currently established protected areas that are under serious pressure and finding and protecting these areas should be a high priority.

Active Programs in the Virungas

Under CARPE, the World Wildlife Fund is the lead for Landscape 12—Virungas with consortium partners Wildlife Conservation Society, African Wildlife Foundation, and the Netherland Development Organization (SNV). WWF and partner's work in the in the Virunga landscape builds on more than 20 years of supporting Virunga National Park and its surrounding communities. In that time, WWF has helped promote sustainable livelihoods, provided environmental education, and increased protection of critically endangered species like the mountain gorilla. WWF is currently active on the ground to reduce the environmental impacts of this conflict in concert with those addressing humanitarian needs. WWF and ICCN are currently working to restore patrols and asses the health of the park's wildlife whenever the security situation permits. Other support to the Virungas includes:

- European Commission's \$20 million Great Virunga Project (2009-2014), supports cross-border collaboration with Rwanda and Uganda in the areas of protected area management, park rehabilitation, recruitment and training of personnel, and tourism development;
- Swedish International Development Agency (SIDA) provides support to WWF for landuse planning;
- United Nations Education, Scientific and Cultural Organization/United Nations Fund (UNESCO/UNF) Protected Area Management program supports population relocation, boundary marking, protection of mountain gorillas and control of illegal logging;
- Fauna and Flora International, through the International Gorilla Conservation Program, supported the November 2008 to late January 2009 gorilla census; and
- Frankfurt Zoological Society provides support to the Virungas for management planning, improvement of infrastructure, capacity building of ICCN staff and partners, establishing training opportunities for park rangers, plus provision of medicines and medical equipment for park rangers.

4.7 RIFT VALLEY LAKES ON THE NILE AND CONGO

LAKE TANGANYIKA⁸

Shared by DRC and Tanzania, with Burundi in the north and Zambia in the south, Lake Tanganyika is one of the world's largest freshwater lakes, second only to Lake Baikal in volume. The watershed is relatively small and water residence time is estimated at 440 years, making the lake very susceptible to pollution. There are no protected areas bordering the lake in DRC. A regional program under the Lake Tanganyika Authority aims at sustainable management of the lake and the Food and Agricultural Organization (FAO) and the United Nations Environmental Program/Global Environment Facility (UNEP/GEF) have provided funding. In DRC, there is currently little capacity to control fisheries, slow degradation of the watershed, limit sedimentation and pollution all of which have been identified as threats. It is also predicted that global warming will have adverse impacts on the lake. The lake supports extraordinary biodiversity. For fish alone there are 325 known species, with 289 species and 33 genera endemic. Estimates of the maximum fishing potential range from 125,000 to 400,000 tons per year. Current harvest is about 200,000 tons/year, with about half of this taken in DRC. This lake supports one of the largest fisheries in DRC, comparable in tonnage to the entire Congo River system. Better management could not only improve protection of the biodiversity, but also lead to improved fish harvest.

LAKE KIVU⁹

Kivu is a deep lake located at high elevation in the mountains of the rift valley, between DRC and Rwanda. It is 1460 m above sea level (ASL), covers 2,370 km² and has a maximum depth of 485 m, 240 m average. The area is densely populated, with about half a million people in the lakeshore cities of Goma and Bukavu and dense rural population along the DRC lakeshore. Protected areas on the DRC lakeshore are the Rutshuru Reserve to the north and the small Bushyeni Reserve on Isle Idjwi. Both of these have been largely lost to agriculture and rural population expansion. The lake shows characteristics typical of an area with active volcanism including mineral deposits of volcanic origin in the lake sediments and large quantities of dissolved gasses in the deep water. The water is estimated to contain 250 km³ of carbon dioxide, 55 km³ of methane and 5 km³ of nitrogen. There is concern that a catastrophic release of gas from the lake could occur, much larger than the Lake Nyos, Cameroon event that killed 1,700 villagers in 1986. The lake's methane is being developed as an energy source in Rwanda, with a 4 megawatt pilot plant and plans for a 100 megawatt plant in future. Processing the gas-rich deeper water from the lake will release large quantities of greenhouse gasses. No comparable energy development is being undertaken in DRC. The lake has few fish species, about 23 with 15 endemics. Estimates of the maximum fisheries potential of the lake range from 7,000—19,000 tons/year. Ecological problems in the lake include overfishing, pollution from raw sewerage, introduction of fish species (lake sardine) and the consequent loss of the main plankton-grazing shrimp.

LAKE EDWARD¹⁰

Lake Edward averages only 17 m deep and lies at fairly high elevation in the Albertine Rift (912 m ASL, area 2,325 km²). It is shared by DRC and Uganda and is the only large lake in the Albertine Rift that is

⁸ From http://www.ilec.or.jp/eg/lbmi/pdf/22_Lake_Tanganyika_27February2006.pdf with additional material.

⁹ From <http://www.co2.ulg.ac.be/kivu.htm> with additional material.

¹⁰ From http://www.feow.org/ecoregion_details.php?eco=521 with additional material.

completely inside protected areas, the Virunga NP in DRC and the Ruwenzori NP in Uganda and it is surrounded by the highest mountains in the area. Inflows to the lake are from fairly small rivers, with most of the watershed on the Uganda side and the DRC shores mostly steep and rugged. There are 81 fish species reported from the lake, of which 56 are endemic. A large natural lake surrounded by high mountains should be a tourist paradise, but unfortunately, following the war there are many illegal settlements, with overfishing and poaching. The lake and rivers formerly supported the world's densest population of hippopotamus, with 23,000 in the DRC alone in 1989. Now, poaching has reduced the numbers to a few hundred. However, unlike many other conservation areas in DRC, the Virunga NP has a lot of support from foreign donors and non-governmental organizations (NGO), including 11 million Euros from the European Union (EU) so the reestablishment of park management and tourism is likely to be fairly rapid once the area becomes secure.

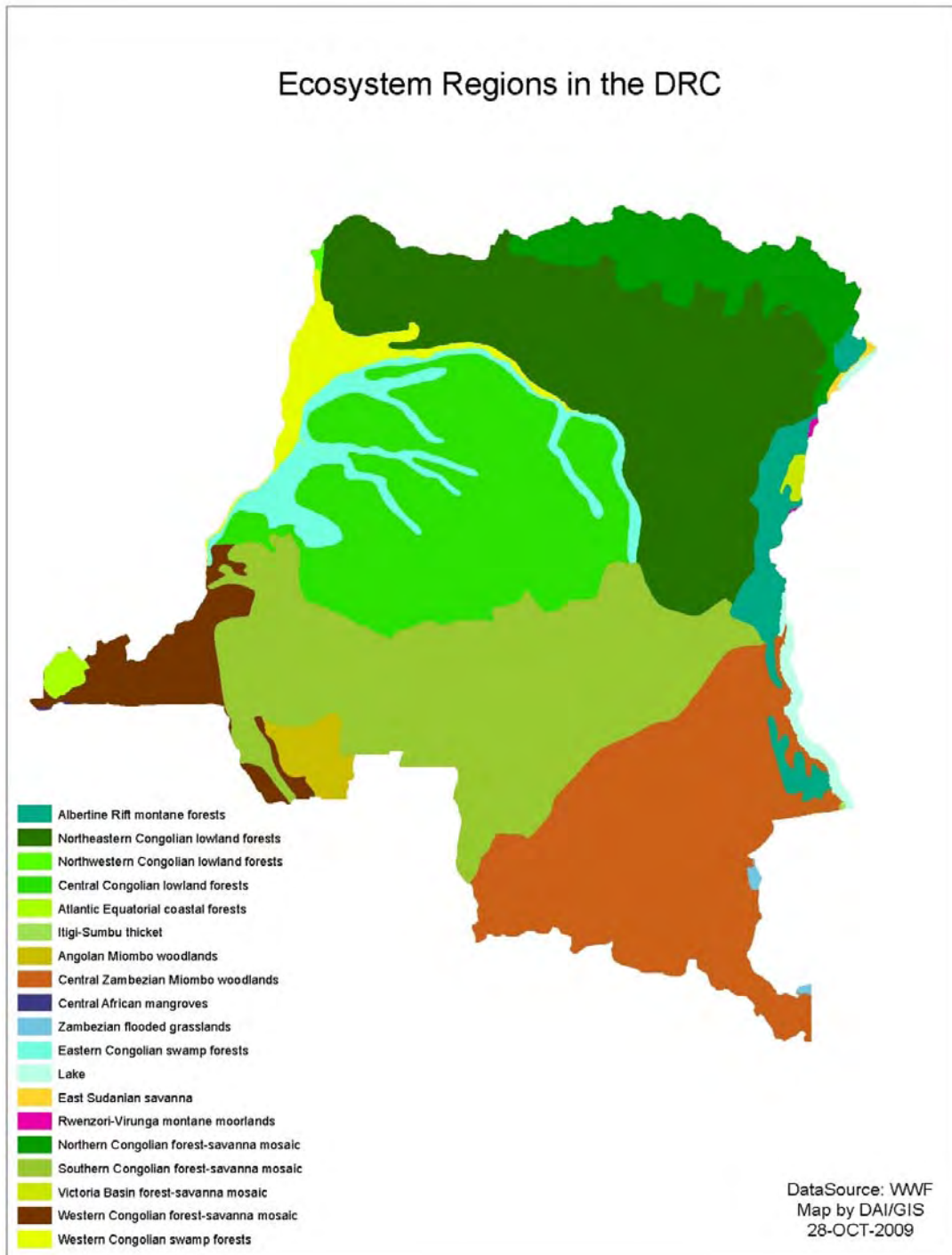
LAKE ALBERT¹¹

Lake Albert receives water primarily from Lake Edward to the south. The Victoria Nile enters Lake Albert at the north end, close to the Albert Nile outlet, so that it affects the lake level but only affects the water quality at the north tip. It is at moderate elevation, 620 m ASL, with a surface area of 5270 km². The lake is rather shallow, with a maximum depth of 50 m and an average depth of only 25 m, and the water is evenly oxygenated throughout, greenish with dense pelagic algae. The lakeshore is predominantly steep on the DRC side, with extensive marshes and papyrus beds in Uganda. 48 species of fish are reported, of which 23 are endemic. Estimates of the maximum fisheries potential range from 9,700—13,300 tons/year. No protected area borders the lake in DRC, but there are two, one at each end in Uganda. Since the fisheries are not managed at present, there are likely to be problems with poor fishing techniques and overfishing. The Albert basin has rich oil deposits and there are oil concessions on both the DRC and Uganda sides. DRC leases are held by a consortium of Heritage Oil (Canada), Tullow Oil (U.K.) and COHYDRO (DRC state oil company). Production is likely to start soon. The assessment team could not find any information on environmental impacts and proposed mitigation for oil exploration and development in the DRC, although some information is more than likely available at the Ministry of Mines.

A map of DRC's ecoregions is provided in Figure 6 below.

¹¹ From http://www.feow.org/ecoregion_details.php?eco=522 with additional material.

FIGURE 6: ECOSYSTEM REGIONS IN THE DRC



5. NATURAL AREAS OF CRITICAL IMPORTANCE

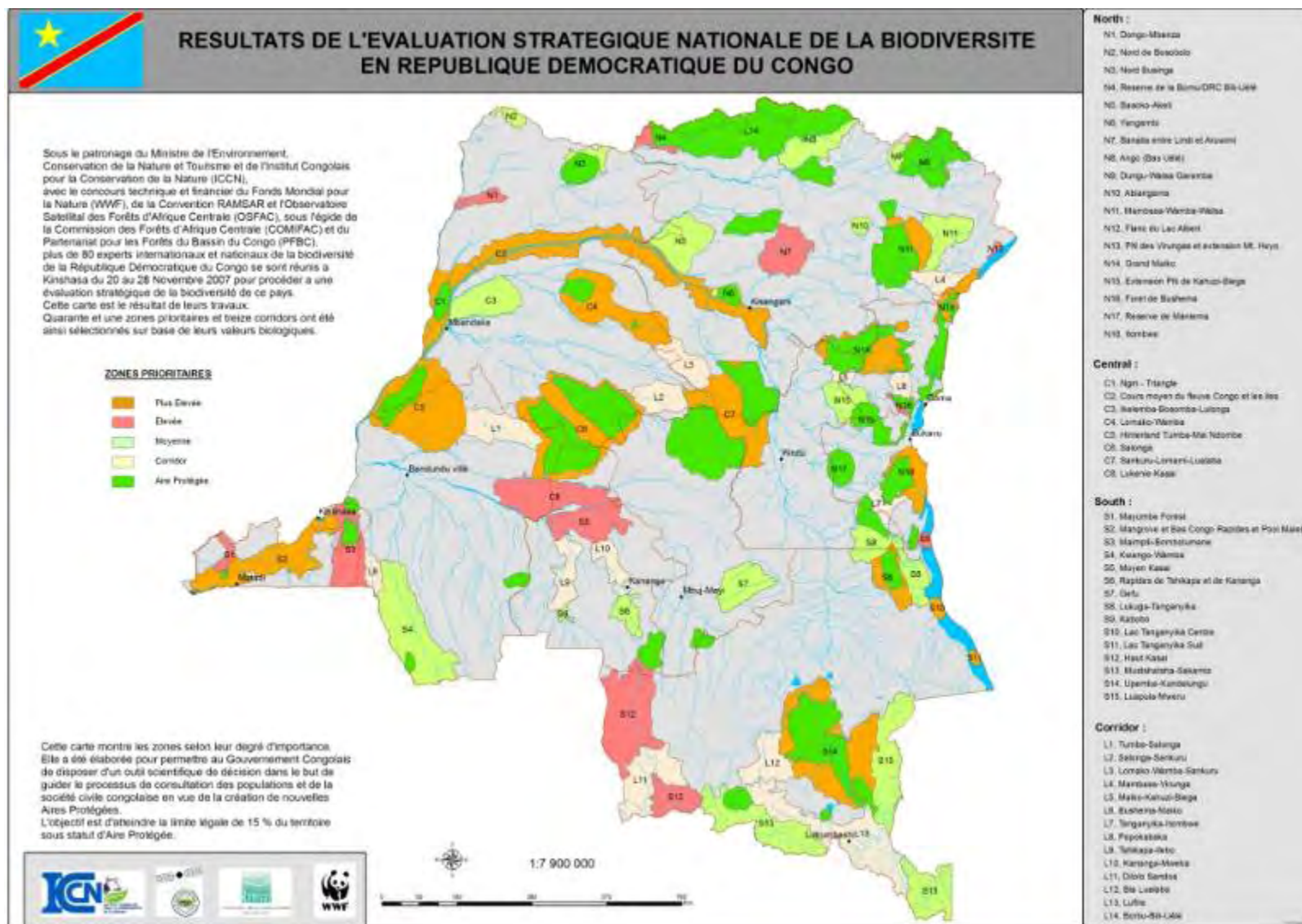
Natural areas of critical importance contain concentrations of biodiversity, especially rare and endangered species, endemic species (a specific type of rarity where a species is limited to a narrow geographic range), disjunct species (species that have widely separated populations, such as alpine species that occur on widely separated mountain tops). Reasonable targets for biodiversity conservation in DRC will involve the types of actions being taken elsewhere in tropical Africa, a combination of species-level and natural areas protection. At a species level, the highest-profile species and their habitats are protected, and this process is fairly well-advanced in DRC through the protected area network and the active support of foreign conservation organizations. Conservation should also include the protection of the most natural examples of the vegetation types, and the protection at a small scale of critical areas for rare species of plants and animals.

At a large scale, this concept meshes with ecoregion classification and the protected area network. Critical areas include the less-disturbed areas of moist forest and wetlands right across central DRC, the montane forests, the alpine areas and the lakes along the rift valley. Currently, identified critical areas for most of the larger mammals tend to be very large, since elephants, primates, and okapi, have populations spread across large areas of rain forest. In the east of the DRC, forest habitat is more fragmented, and areas with populations of gorillas are smaller. Formerly, the less disturbed areas of dry forest and forest-savanna mosaic were important natural areas, especially for elephants and rhinos, but these values have been greatly reduced by poaching in recent decades.

Given the enormous biodiversity of the DRC and the high level of endemism, there must be large numbers of species of animals and plants that depend upon as yet unidentified critical natural areas for their survival. Documenting the biodiversity of the DRC and its distribution and critical habitat areas needs to be an important priority for the universities and natural resources agencies of the DRC and their foreign partners. In 2007, ICCN in collaboration with partners undertook an important first step in this direction by conducting a strategic evaluation of biodiversity in the DRC. The evaluation identified a number of sites of high biodiversity importance outside of the protected area system. The results of this evaluation are presented in Figure 7 below.

In addition to this evaluation, a few smaller sites protection lower-profile species have been identified, and the bird conservation has taken the lead here, identifying critical bird conservation areas in the fragmented forests of the eastern highlands and elsewhere, including Lufira (an artificial lake), Marungu and Lendu. Other critical sites are caves along the lower Congo with endemic fish, the Mont Hoyo area near the Virungas with Bedford's paradise-flycatcher and cave ecosystems, sandy beaches with marine turtle nesting, and the southernmost fragment of the species-rich Mayombe forest at Luki. This is the beginning of what needs to be a very long list for conservation in DRC to work at the species level. Capacity is needed in plant and animal taxonomy to increase knowledge of these groups at least to the current levels of information on larger mammals and birds in DRC.

FIGURE 7: RESULTS OF A NATIONAL STRATEGIC EVALUATION OF BIODIVERSITY IN THE DRC



Source: ICN (2007).

5.1 ENVIRONMENTAL AND NONCOMMERCIAL SERVICES OF NATURAL AREAS

5.1.1 FOREST ECOSYSTEMS

On a global scale, the DRC's forests provide essential ecosystem services, such as watershed conservation, climate regulation and carbon sequestration. Although no specific data are available for the DRC, the Congo Basin's forests are a sink of an estimated 24-39 Gt of carbon, and current deforestation rates are estimated to be releasing 0.02- 0.44 Gt of carbon per annum (Hoare, 2007). DRC's forests are an important driver of atmospheric circulations, and the exchange of energy and water between the forests and atmosphere influence both regional and global weather systems (Hoare, 2007). It is believed that deforestation in the Congo Basin would have a particularly strong effect on local rainfall. Cadet and Nnoli (1987) showed that a large part of the rainfall comes from the recycling of moisture by the forest, whereas in other monsoon regions most rainfall comes from water vapour accumulated from the oceans. Although the estimate is somewhat old, Brinkman (1983) found that as much as 75-95% of rainfall is recycled within the Congo Basin.

In terms of carbon storage, as Table 3 indicates, the DRC has by far and away the majority of the Congo Basin's carbon biomass.

TABLE 3: GROWING STOCK, BIOMASS, AND CARBON BIOMASS IN THE CONGO BASIN

COUNTRY	GROWING STOCK			BIOMASS		CARBON IN BIOMASS		PER HECTARE VALUE
	Per hectare (m ³ /ha)	Total (million m ³)	Commercial (% of total)	Per hectare (tons/ha)	Total (million tons)	Per hectare (tons/ha)	Total (million tons)	US \$ / t C
Cameroon	61.8	1313	10.1	179.1	3804	90	1902	630
Central African Republic	167.0	3801	-	246.3	5604	123	2801	861
Republic of Congo	202.5	4551	30	461.1	10361	231	5181	1617
Democratic Republic of Congo	230.8	30833	-	346.9	46346	173	23173	1211
Equatorial Guinea	65.6	107	-	141.5	231	70	115	490
Gabon	222.5	4845	-	334.6	7285	167	3643	1169
TOTAL	203.4	45450		329.5	73631	164.7	36815	1152.9

Source: *Zunia Knowledge Exchange (2007)*.

In terms of the value of DRC's forest resources, Table 4 provides an estimate of the annual flow of forest goods and services in the DRC.

TABLE 4: ESTIMATED ORDERS OF MAGNITUDE OF THE ECONOMIC VALUE OF ANNUAL FLOWS OF FOREST GOODS AND SERVICES IN THE DRC¹²

Good/Service	Estimated order of magnitude of the economic value of current annual flows for selected forest products and services, in US dollars (market value, replacement value, or willingness to pay)
Formal timber	Approximately 60 million
Informal timber	Approximately 100 million
Fuelwood	Tentatively estimated over 1 billion
Bushmeat	Tentatively estimated over 1 billion
Other foods	No figures available
Medicines	No figures available
Materials, implements	No figures available
Watershed protection	Tentatively estimated 0.1-1 billion
Ecotourism	Marginal
Carbon	Zero
Option, existence values	Approximately 18 million
Cultural, political dimensions	No figures available

Source: Debroux (2007).

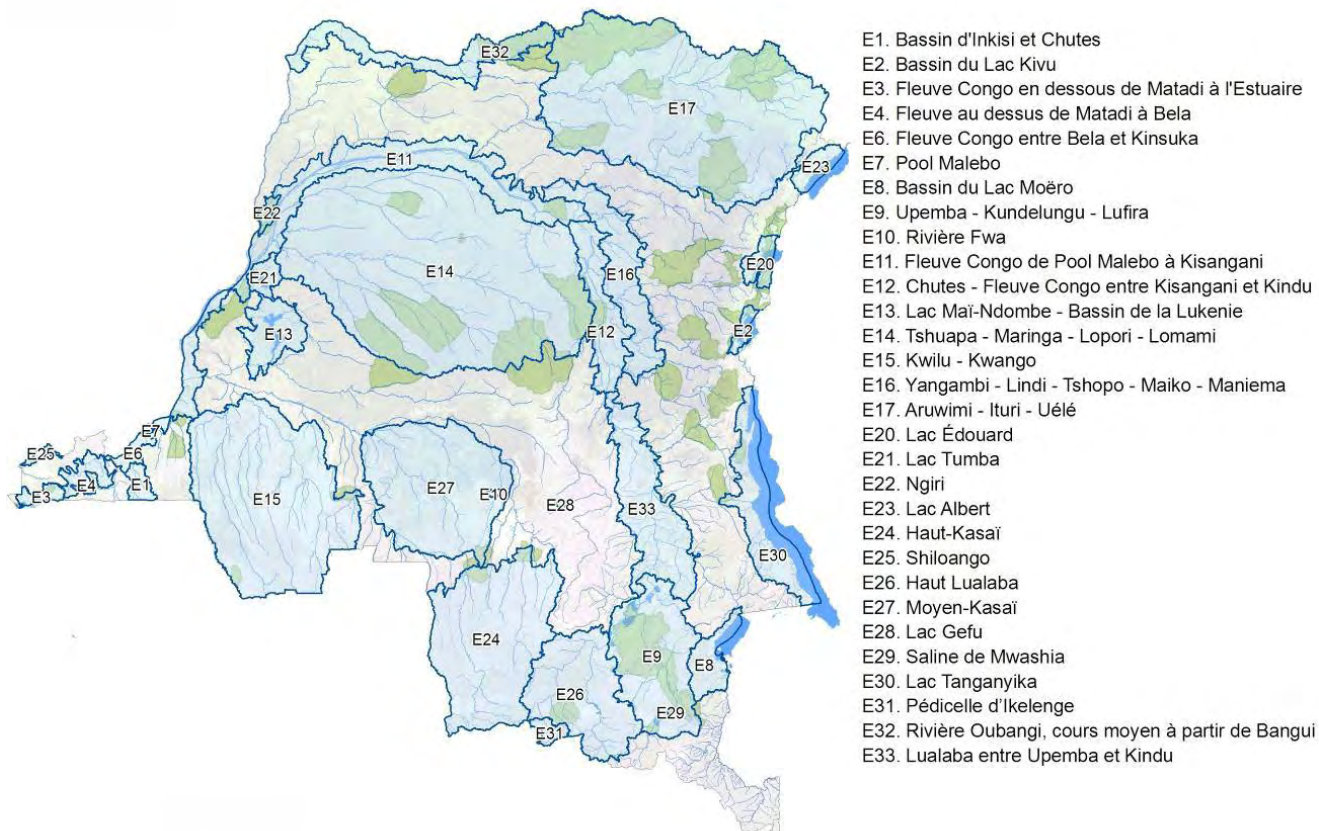
5.1.2 AQUATIC ECOSYSTEMS

The DRC has the largest freshwater resources in Africa and its hydroelectric potential ranks fourth in the world; it has the potential to produce 150,000 Megawatts of power, approximately three times Africa's present consumption, and could become the hub of a pan-African power grid. Aquatic resources in the DRC play an important role in many people's livelihoods. Local natural resources are often the only means of subsistence for local populations, particularly since the onset of the war in the 1990s, which increased the isolation of the majority of rural communities from economic alternatives outside the exploitation of local resources.

Although the DRC's major aquatic ecosystems are described to a certain extent above, in late 2007/early 2008, MENCT and IUCN with support from Ramsar, WWF and the Observatoire Satellital des Forêts d'Afrique Centrale (OSFAC) undertook a country-wide wetlands/biodiversity assessment to identify priority areas for conservation and contribute strategic data to inform an ongoing government legal review. A summary of the findings for selected wetlands are provided below with the full findings provided in IUCN (2008). A map of wetland priority areas for the DRC is provided in Figure 8.

¹² **Author's disclaimer and method.** All figures mentioned in this table are to be taken as tentative approximations of orders of magnitude. In this war-torn country, databases are piecemeal and uncertain. There are few quantitative studies on the economic value of forests. They rarely cover representative samples at the national level, and extrapolations therefore cannot be robust. Uncertainty ranges are obviously high, yet difficult to assess in statistical terms. Methodologies used in various studies may not be comparable. Some estimates are based on assumptions and simplifications that are open to debate and could be inaccurate. All figures mentioned in this section must therefore be treated with the greatest care. This initial effort will need to be further improved and updated as better data become available. Additional studies are needed to that end.

FIGURE 8: WETLAND PRIORITY AREAS FOR THE DRC



Source: IUCN (2008).

Area E1: Bassin d'Inkisi et Chutes

The area is outstanding at sub regional scale for fish endemism. The Mbanza-Ngungu caves harbor Convention on International Trade in Endangered Species (CITES) and IUCN protected *Caecobarbus geertsii*; some caves are threatened by agricultural development with sediment entering caves. The caves also potentially harbor other endemic fish or invertebrate species. Along with the caves found in Lastoursville and Ndendé in Gabon, these caves represent a rare habitat type and constitute the only known cave systems in the Congo Basin. There are also many endemic fishes found in the rapids, e.g., *Schilbe zairensis*.

Area E3: Fleuve Congo en dessous de Matadi à l'Estuaire (Bas Congo/Muanda and Seke-Banza)

The lower Congo River and associated coastal swamps, from the coast upstream to Boma, are rich in marine species. Mangrove National Park, located in the DRC, was designated as a Ramsar site in 1996. Mangrove areas are dominated by red mangrove (*Rhizophora racemosa*) as well as *R. mangle*, *Avicennia nitida*, *A. tomentosa*, *Longucularia racemosa*, *Hibiscus tiliaceus*, and *Acrostichum aureum*. Other vegetation includes wet grasslands (*Heteropogon contortres* and *Andropogon schirensis*), grassland savanna (*Annona arenaria* and *Anisophylla pogeii*), swamp vegetation (*Canavalia maritima*, *Ipomea pescaprae*, and *Alternanthera maritima*), and strips of *Corynanthe paniculata* forest. Aquatic fauna

includes shark, barracuda, sole, capitaine, snakes, turtles, crustaceans (shrimp, crab), and oysters. Notable mammals are manatee (*Trichechus senegalensis*) and dwarf buffalo (*Syncerus caffer nanus*). A mixture of marine and freshwater fishes is found in the lower river, including several uncommon species of freshwater fish. Several cichlids have limited distributions in the lower portion of the Congo River, including *Haplochromis fasciatus* and *Oreochromis lepidurus*. Oil exploitation, increased human population, and the introduction of exotics threaten the lower Congo River. African bonytongue (*Heterotis niloticus*) has already been introduced.

FIGURE 9: MANGROVE NATIONAL PARK



Photo: DAI

Area E7: Pool Malebo (Kinshasa)

A large diversity of species occurs within Pool Malebo, apparently stemming from the different input-drainages, e.g., Kwango, Oubangui, Koyo, Kasai. Outstanding at the ecoregional scale for fish endemism:—a number of species are known only from Pool Malebo, including several mountain catfish, *Dolichamphilius brieni*, and *Belonoglanis bouilloni*, and an African suckermouth catfish, *Atopochilus chabanaudi*. However, collection intensity has always been high. This unique riverine habitat is subject to industrial and sewage pollution from the nearby cities of Kinshasa and Brazzaville. Fishing pressure is also high in this area.

Area E8: Bassin du Lac Moëro

The area is outstanding for the region for fish, aquatic mollusks and wetland bird endemism; there are ~15 endemic cichlids, 12 endemic gastropods (out of ~ 27 total species), and high endemism among other fish taxa (e.g., *Nothobranchius malaissei*). The papyrus yellow warbler (*Chloropeta bensoni*) is known only from Lake Mweru at the mouth of the Luapula River in Zambia and from Nkole in DRC. Heavy fishing impacts the area, particularly in the lower Luapula River.

Area E9: Upemba—Kundelungu—Lufira (Katanga)

The area is outstanding for the region for fish richness with ~ 200 species of fish. Upemba National Park has been documented to be one of the richest regions globally for *Odonata spp.* The swamps, shallow lakes, and river channels of Upemba host a relatively rich aquatic fauna and suspected high odonate endemism. The area is also outstanding for the region for fish endemism with ~47 endemic fish species. Endemic mammals include the Upemba Lechwe (*Kobus anseli*) and Upemba shrew (*Crocidura zimmeri*). At least 15 reptiles are endemic to Katanga, and these include three aquatic reptiles: the Upemba hinged terrapin *Pelusios upembae*, Upemba water snake *Lycodonmorphus upembae* and Laurent's water snake, *L. leleupi*. The area is a key site for migratory birds and a globally important habitat for the Shoebill stork and Wattled crane. The area/site regularly supports >20,000 water birds, and at least 16 endemic birds occur in this region, with two weaver birds restricted to the Lufira basin (*Ploceus ruweti*) and Upemba (*Ploceus upembae*).

Area E13: Lac Mai-Ndombe/Bassin de la Lukenie (Bandundu, Equateur)

The area is a large, shallow blackwater lake with unique water quality (pH ~4.0, no minerals, high tannin content). The southwestern part of the Cuvette Centrale covers the lowest part of the extensive, low-lying central depression of the Congo Basin. Mai-Ndombe and the Lokoro harbor at least 120 fish species, including several endemics and undescribed species (*Chrysichthis spp.*, *Characins spp.*). Freshwater mammals include Allen's swamp monkey (*Allenopithecus nigroviridis*), Congo clawless otter (*Aonyx congica*), and giant otter shrew (*Potamogale velox*). The rare small kingfisher (*Corythornis leucogaster leopoldi*) is recorded around Lake Mai-Ndombe. A new species of a brown semi-aquatic snake of the genus *Boulengerina sp.* (Elapidae) has recently been discovered.

The World's Largest Ramsar Site

As a result of MENCT's and IUCN's work, The Nigiri and Lac Mai-Ndombe/Bassin wetlands were combined and designated as a Ramsar site in April 2009. Lying on the eastern side of the Congo River very close to the Equator, the Nigiri-Tumba-Maindombe wetland is the largest Ramsar site in the world extending over 25,365 square miles (6,569,624 hectares) of marshy rainforest punctuated by rivers and lakes. Located in the transboundary area of Lake Télé and Lake Tumba, the new site contains the largest continental freshwater mass in Africa, making it one of the most important wetlands in Africa and one of the most important freshwater masses in the world. The addition of this site brings DRC's total Ramsar sites to three—Virunga National Park, Parc National des Mangroves, and now Nigiri-Tumba-Maindombe.

Area E22: Ngiri (Equateur)

The area is a key staging, feeding, breeding areas for migratory water bird species. The Ngiri region is a BirdLife International Important Bird Area for waterbirds including 1,000+ breeding pairs of *Ardea purpurea* and 870+ breeding pairs of *Merops malimbicus*.

Area E14: Tshuapa - Maringa - Lopori - Lomami (Equateur, Orientale, Maniema, Kasai Oriental)

The area is outstanding at the sub-regional scale for fish richness -a large fraction of freshwater fishes only occurs in the northern Cuvette Centrale, but most species are often shared with the Republic of Congo. This region also provides core habitat for aquatic mammals, such as Allen's swamp monkey (*Allenopithecus nigroviridis*). Other notable aquatic mammals include giant otter shrew (*Potamogale velox*), Congo clawless otter (*Aonyx congica*), situngu (*Tragelaphus spekei*), and chevrotain (*Hyemoschus aquaticus*). A water bird of special concern found in this region is Hartlaub's duck (*Pteronetta hartlaubii*). This bird species is threatened throughout its range by habitat loss due to deforestation, and populations are believed to be declining.

Area E23: Lac Albert (Orientale)

The area is outstanding at the ecoregional scale for fish endemism: *Labeo mokotoensis*, is endemic to Lake Ndaraga (Altitude: 1750 m) at Mokoto in the national park, not far from Lake Albert.

The area is a key staging, feeding, breeding areas for migratory waterbird species, and includes part of the Rift valley that is a key migratory route for wetland birds. The area/site regularly supports >20,000 waterbirds annually.

Area E29: Saline Mwashia (Katanga)

The area is outstanding at the ecoregional scale for fish endemism—*Oreochromis salinicola*. This species is known only from Mwashia (also spelt Mwa Chia and Mwashya), a region of saline springs near the Lufira River below the barrage lake at Mwadingusha in Katanga.

Area E30: Lac Tanganyika (Katanga, Sud Kivu)

The area is outstanding for the region for fish and aquatic invertebrate richness, and outstanding for the region for fish and aquatic invertebrate endemism, and has an extremely high degree of endemism in all taxonomic groups, including three hundred endemic fish species.

5.2 LAND TENURE ARRANGEMENTS AND CONSERVATION

The basic land tenure regime in the DRC reflects the 1967 Bakajika Law and the 1973 Land Tenure Law. During the colonial era, the government acknowledged the rights of local populations on the lands they ‘occupied, cultivated and exploited one way or another according to local custom’. But in 1967, the so-called Bakajika law gave the government “full ownership rights over its domain and full sovereignty in conceding rights to land to up to 20 kilometers, forests and mines through the extent of its territory,” and in essence cancelled individual and community land property. The land law of 1973 then somewhat relaxed the rule by establishing several categories of land concessions as alternatives to private property allowing for certain types of ‘permanent private concessions,’ and also recognized that customary laws apply to user rights over ‘non-allocated lands in rural areas.’ According to the World Bank, important implementation decrees of the 1973 law were not adopted and up to now, the Congolese land ownership legislative framework remains incomplete; key implementation decrees were not adopted and the legal land tenure regime is characterized by the coexistence of written and customary laws and inconsistencies between the two have not been formally reconciled. Forest ownership and user rights are now subject to the 2002 Forest Code which sets out the basic framework for the GDRC’s forest policy. However, the Code does not modify the 1973 Land Law, but continues to assert state ownership over all areas of forest. It does broadly define certain categories of forest, such as for ‘exploitation’, ‘community use’ and ‘conservation.’

Customary tenure in the DRC is very complex and differs considerably across regions. Given the diverse ethnic composition of DRC’s population, there is a dense and complex pattern of traditional ownership and use of land and forest resources over much of the country. Within each of the broad categories of ‘Bantu’ agriculturalists and the various ‘Pygmy’ hunter-gatherers, there are marked differences and complexities of traditional land tenure regimes, and the two broad systems often overlap. For example, within hunter-gatherer groups, ‘territories’, where ‘access rights’ can be exercised, may depend on family lineages, and specific individuals within any clan may have access rights to areas of forest according to as many as 10 different lineages.

Different parts of the forest in relation to ‘camps’ or villages may have a different tenure or access status, with gathering of forest products taking place within 2-3 kilometers of camps (within an area of 12-14 square kilometers), whereas hunting areas may extend 30 kilometers away for good net-hunting sites. The base ‘camps’ might move 4-6 times per year, so the already complex system of access rights is also constantly moving. Groups of hunter-gatherers might well share parts of their ‘territories’ with members of other clans, and allow the migratory passage of them through their ‘own’ areas. The overall size of ‘territories’ is thus extremely difficult (and in some sense meaningless) to calculate, but it might be in the range of 70-400 square kilometers for any hunting-gathering clan—possibly depending on the richness of the flora and fauna to be found within it. Some ‘territories’ are essentially linear, extending along preferred footpaths and other routes of migration through the forest.

For agricultural communities, fields and fallow may extend up to 5 kilometers and sometimes up to 10 kilometers from the village, but fishing, gathering and trapping might extend 20 kilometers. The ‘territories’ used and claimed by agricultural communities are generally more fixed than those of hunter-

gatherers, but not necessarily static. Rights to cultivate certain parts of the forest might only be granted to individuals by the community as a whole until the forest reaches a certain stage in regeneration, at which point it reverts to the community. Colonial and post-colonial governments added to the traditional tenure complexity by agglomerating smaller communities together, such that individuals within any given community might now, through their lineages in other communities, retain rights to cultivate land far from their own villages and closer to others.

Each of these arrangements is complex enough, but they are often superimposed on top of each other, creating an enormously complex system that is likely to shift in both time and space. It is sometimes even further complicated by the fact that one or other of the ethnic groups might at least partly define their own ‘territories’ in terms of the other groups’ land use.

In the above context, the current land and resource tenure situation has several implications for tropical forest and biodiversity conservation in the DRC:

- DRC’s legacy of legal dualism has resulted in relatively secure statutory land tenure and property rights for natural resources accruing to a small percentage of the population, i.e., those with permanent private concessions. The remainder of the population receives more insecure customary land tenure and property rights. While this dualism actually may have been instituted with the benign intention of retaining traditional management systems, in many areas it has resulted in confusion, as lands with legal titles intersect with those managed under customary use rights and as the pressure to utilize land resources increases with population growth and economic development. Land tenure and property rights for certain segments of the population, particularly Pygmies, women and other disadvantaged groups, have been significantly impaired by the constraints stemming from this dualistic system and may be further eroded as DRC moves toward political stability and potentially a more formalized system of land tenure and property rights;
- If the methodology used for zoning DRC’s forests—and thus, ultimately, for the delineation and designation of ‘logging concessions’—does not properly take account of existing land claims and traditional tenure regimes, then it may not be consistent with the Council Resolution on the FLEGT Action Plan, the Congolese constitution, or with international standards, such as International Labor Organization resolutions. All logging concessions allocated under such a process are likely to be challenged locally, and to be a source of conflict. Because of the size of DRC, and the intention to phase the allocation of concessions’ over time, such conflicts are likely to continue to emerge over a period of many years;
- The Forest Code makes no specific reference to the user rights of indigenous people. Although these groups enjoy the same consultation and participation mechanisms as all Congolese citizens, there are no implementation decrees that specify provisions to take account of their cultural and socioeconomic specificities;
- The Forest Code does not modify the land tenure regime of 1973. It deals with forest products and services, but it does not transfer any rights concerning the land itself. Forest concessions and land concessions are distinct from one another. A forest concession deals exclusively with the forest, not the land. It is a rental contract with no transfer of ownership.

- The situation for community reserves is similar - land rights are not transferred, only management and supervision rights. For example, in April 2006, the “Tayna Nature Reserve” was created via an Arrêté by MENCT, and the completely protected integral zone was officially integrated into the DRC network of protected areas. However, the management of the Reserve remains with the local community through a long-term contract in which ICCN subcontracted supervision of the Reserve to the Tayna Gorilla Reserve Project, an NGO representing the local community. Similarly, the Kisimba-Ikobo Nature Reserve was created by Ministerial Arrêté in April, 2006 and management of this reserve was subcontracted to another local NGO (ReCoPriBa), representing the local community.
- Clarifying rights and responsibilities of local resource regimes is essential for establishing ecosystem payment services. The current land tenure system may affect the ability of communities to benefit from any payment for ecosystems services arrangements including those under Reducing Emissions from Deforestation and Degradation (REDD):
 - For the community reserves, the assessment team was not able to examine ICCN management contracts to determine if there was provision for the subcontractors (and communities) to benefit directly from ecosystem services. Recently, however, the Walt Disney Company and Conservation International (CI) signed an agreement through which Disney will provide financing for development of REDD demonstration activities in the Tayna and Kisimba-Ikobo Community Reserves. Experience gained from these demonstrations will be invaluable in terms of gauging REDD land and resource problems and potential in the context of community reserves. Of particular interest will be the reaction of the local landowners who “ceded” land for the development of the reserves.
 - For the remaining majority of DRC’s rural/forest populations with customary tenure, gaining benefits from payments from ecosystem services may be problematic. In conducting a multi country assessment of tenure issues related to REDD, Cotula and Mayers (2009) argue that security of local land and forest use rights is a key issue in the DRC, and the DRC’s “weak local tenure on paper and in practice” could undermine the formal value of customary rights and expose local people to dispossession as outside interests (in gaining REDD benefits) “muscle in.” They conclude that insecure tenure for local communities combined with revenue management issues (corruption and rent-seeking) and limits in GDRC’s implementation/enforcement capacity could be major stumbling blocks for REDD implementation in the DRC.

DRC Stakeholder Concerns about REDD
<ul style="list-style-type: none"> • <i>Limited recognition of land tenure rights</i> - REDD will further threaten their informal and customary property rights (over which the state's formal ownership takes precedence) as the value of land increases and government and private-sector interest in the land grows • <i>Inadequate information about forest and carbon resources</i> - the lack of knowledge about forest and carbon resources will be an impediment to effective REDD design and implementation • <i>Weak institutional capacity and unclear roles</i> - limited capacity of government staff responsible for forest management and control. • <i>Inequitable revenue distribution</i> - misgivings about both the national government and the local administrations involved in disbursing forestry funds, since the misappropriation of funds is commonplace; and • <i>Fewer opportunities for development</i> - suspicious of promises from the government and worried that REDD will be similar to previous projects that ended without the expected impact on their livelihoods; concerns that communities living in and around protected areas will not receive any compensation because their conservation activities will not be additional to business as usual

The same concerns expressed by Cotula and Mayers have in fact been expressed by a number of other stakeholders in the DRC. The World Resources Institute (WRI), along with the Council for Environmental Defense by Legality and Traceability (CODELT), engaged underrepresented local communities in the DRC on issues regarding REDD¹³. They conducted a series of workshops with local and indigenous communities, community-based NGOs, and parliamentary representatives to raise their awareness of forest/climate issues and REDD. The workshop participants then had an opportunity to discuss their aspirations and concerns regarding REDD's design and implementation. Their five main concerns are presented in the text box above.

Finally, the GDRC's REDD Readiness Plan Idea Note (R-PIN) - a requirement for the GDRC to access resources from the World Bank's Forest Carbon Partnership Facility - outlines how the GDRC views the challenges of deforestation and degradation in the country and how it intends to go about addressing them. Although this document is only an initial overview of the GDRC's perceptions of the drivers of deforestation and degradation and principal elements of any approach to addressing it, they may strongly influence the orientation of future REDD plans and offer a glimpse into whose interests are served. In this context, Dooley (2008), in reviewing DRC's R-PIN, noted that several major issues are not discussed including: cross-sectoral issues such as land ownership, resource use rights, rights to revenues from them, and taxation thereof; issues related to forest law enforcement and governance; no discussion of the role of indigenous role in the REDD processes; and no information provided about the monitoring of benefits from REDD implementation to biodiversity conservation or to rural livelihoods.

¹³ See Dkamela *et al* (2009).

6. STATUS AND MANAGEMENT PROTECTED AREAS IN THE DRC

The process of creating protected areas began early in DRC, with the creation of national parks and hunting reserves during the 1920's and 1930's by the colonial administration. At the present time, DRC has a large number of gazetted protected areas of various categories, but many of these have little in the way of existence on the ground, and few remaining natural values. According to the World Database on Protected Areas, there are about 66 terrestrial protected areas in DRC, and one marine area. The total area covered by these reserves is estimated at 286,345 km² or 12.21% of the surface area. General problems include the lack of management plans¹⁴ and the lack of trained, equipped field staff. For the higher-profile protected areas, especially some of the national parks, ICCN is being assisted by international partners to create management plans and to re-establish park management. However, most of the protected areas in DRC do not fall into this category, and are not managed at the moment.

6.1 PARKS AND WILDLIFE/NATURE RESERVES

These categories include the highest-profile protected areas, and contain some areas of outstanding scenic value and high potential for tourism, as well as areas created primarily to protect wildlife. Parks in the central moist forest zone and along the rift valley generally benefit from international partners working with ICCN to establish management in the parks, with funding from CARPE and other donors. Parks elsewhere, especially in the north and in Katanga, do not have much support and have little management at present.

6.1.1 THE ON-GOING PROCESS OF PROTECTED AREA CREATION IN DRC

There is an on-going process of protected area creation in DRC at the moment, with several new reserves created since the 2003 Environmental Assessment, and several more in progress. New gazetted reserves are Sankuru Nature Reserve (2007, three million hectares), the Tumba-Lediima Nature Reserve in wetlands (2006, 750,000 ha), the Tanya Nature (gorilla conservation) Reserve (2005, 88,600 ha), the Kisimba-Ikobo (2005, 97,000 ha), the Itombwe Massif Nature Reserve, and the Kokolopori Natural Reserve (2009, 487,500 ha). All of these new initiatives are the result of collaboration between ICCN and international partners.

6.1.2 HUNTING RESERVES

Hunting Reserves (Domaines de Chasse) are a major component in terms of numbers and areas, 35 (out of about 66), covering a documented 80,000 sq km. However, databases of DRC protected areas are

¹⁴ To the assessment team's knowledge, only Salonga and Maiko National Parks have complete management plans but it is generally agreed without international technical and financial assistance, ICCN does not have sufficient resources to implement them.

somewhat vague on hunting reserves, and more than half of them have no size or other information listed, so the area is probably quite a lot larger than this. Hunting Reserves were mostly created in colonial times, to protect larger mammals for sport hunting. They fall into two general types, those that were created to create hunting opportunities near towns, and those created around National Parks or other more strictly protected areas to create a mosaic of land-use designations based on wildlife. In general, reserves in the first category have lost most of their wildlife interest and any other values over decades without management and with uncontrolled poaching. Hunting Reserves adjacent to protected areas include hunting reserves in Katanga around the Upemba and Kundelungu, Hunting Reserves in the north around Garamba National Park and Boma Nature Reserve. These reserves have also lost much of their value, but could be useful again in future if protected area management were reinstated. Clearly a national review of the current status and future management possibilities of the Hunting Reserves is needed.

6.1.3 RESERVES FOR SCIENTIFIC RESEARCH

Except for Yangambi (2500 km²), these reserves are small, and were created during colonial times for scientific research. Many of them still have research stations attached. They differ from all other reserves in their administration, which is through Institutes of the Ministry of Research. The Institut National de Recherche Agronomique (INERA) is responsible for Yangambi and Luki, while CREF has Luo and Mabali. These reserves are listed as Biosphere Reserves, and are important because of their potential for research on conservation biology and reserve management.

Timber, forest reserves, community reserves. By contrast to the national efforts to create conservation areas to protect wildlife, the protection of forest reserves for the sustainable harvest of timber and for community use is not effective in DRC. These forests which could be used for the sustainable production of natural resources are currently outside of the protected area system.

A list of protected areas¹⁵ in the DRC is provided in Table 5 below while a map indicating DRC's major protected areas is provided in Figure 11.

FIGURE 10: ECOSYSTEMS RESEARCH LABORATORY AT LUKI



Photo: DAI

TABLE 5: PROTECTED AREAS IN THE DRC

Reserve	Type DRC/IUCN	Management	Date	Size Km2)
Semliki-Kasenyi	Hunting Zone	ICCN		
Abumonbazi	Reserve?	?		5784
Azande	Hunting Zone VI	ICCN		3200

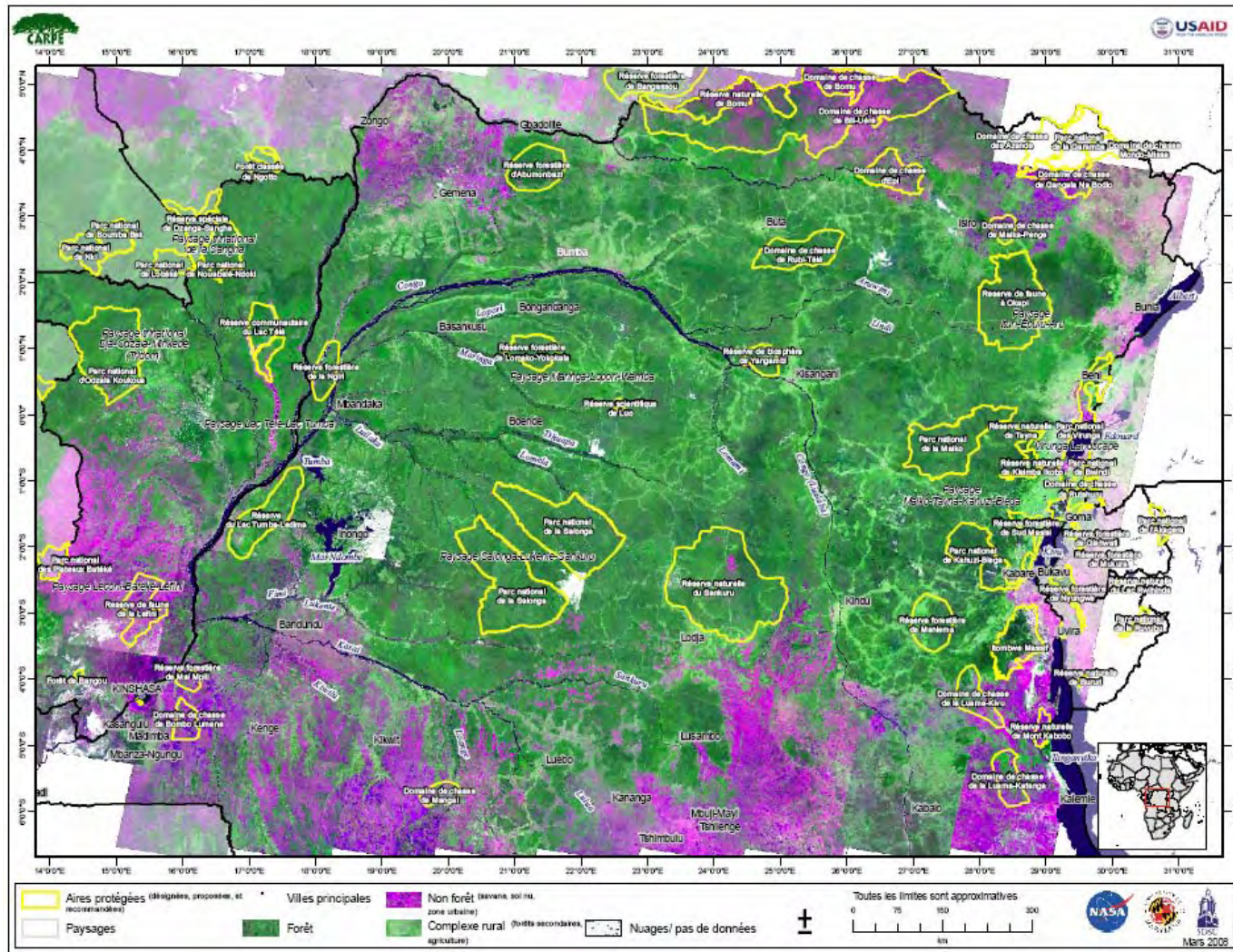
¹⁵ From the World Database on Protected Areas supplemented with additional material.

Reserve	Type DRC/IUCN	Management	Date	Size Km2)
Bakano Forest Reserve	Community Reserve	?	2006	957
Basse Kando	Hunting Zone VI	ICCN		330
Beni (Oicha)	Hunting Zone VI	ICCN		
Bili-Uere	Hunting Zone VI	ICCN		6000
Bombo-Lumene	Hunting Zone VI	ICCN	1930	7000
Bomu	Nature Reserve Ib	ICCN		10671
Botende	Hunting Zone VI	ICCN	1959	10
Bukama	Hunting Zone VI	ICCN		
Bushenyi (Idjwi Island)	Forest Reserve IV	ICCN	1939	41
Bushimaie	Hunting Zone VI	ICCN		600
Epi	Hunting Zone	ICCN		4562
Epulu	Hunting Zone VI	ICCN		
Fizi	Hunting Zone VI	ICCN		
Gangala-na Bodio	Hunting Zone VI	ICCN		9859
Garamba	National Park II	ICCN	1938	4920
Gungu	Hunting Zone	ICCN		3800
Hoyo Mont	Strict Nature Reserve Ia	ICCN	1947	200
Itombwe Massif	Nature Reserve	ICCN	2006	1600
Kahuzi-Biega	National Park II	ICCN	1970-75	6600
Kalemie	Hunting Zone	ICCN		
Kalule	Hunting Zone	ICCN		
Kibali-Ituri	Hunting Zone VI	ICCN		
Kisimba Ikobo	Nature Reserve	ICCN	2006	970
Kokolopori	Nature Reserve	ICCN	2009	4875
Kolwezi	Hunting Zone	ICCN		3313
Kundelungu	National Park II	ICCN	1970	7600
Lac Tumba-Lédira	Strict nature reserve	ICCN	2006	7500
Libenge	Hunting Zone	ICCN		
Lomako	Forest Reserve	ICCN	2006	3625
Lowa Forest	Community Reserve	?	2006	393
Lualaba	Hunting Zone VI	ICCN		
Luama Kivu	Hunting Zone VI	ICCN	1935	3435
Luama/Shaba	Hunting Zone VI	ICCN		4098
Lubudi—Samppa	Hunting Zone VI	ICCN	1968	92
Lubutu	Gorilla Reserve	ICCN	2006	2618
Lueba-Izeba	Hunting Zone	ICCN		
Luki	Forest Reserve	INERA	1937	330
Luo Scientific Reserve	Scientific Reserve	CREF	1990	501
Mabali	Scientific Reserve	CREF		19

Reserve	Type DRC/IUCN	Management	Date	Size Km2)
Mai Mpili	Forest Reserve	ICCN		1142
Maika-Penge	Hunting Zone VI	ICCN		9000
Maiko	National Park II	ICCN	1970	10830
Mangroves	National Park II	ICCN		930
Maniema	Forest Reserve	ICCN		5092
Marungu mountains	Reserve?	?		
Masako	Reserve?	U. Kisangani	1953	21
Massif d'Itombwe	Nature reserve	ICCN		6074
Mitwaba	Hunting Zone	ICCN		
Mondo Missa	Hunting Zone VI	ICCN		10000
Mont Kabobo	Nature Reserve	ICCN		1125
Mulumbu	Hunting Zone	ICCN		
Mwanza	Hunting Zone	ICCN		
Mwekaji	Hunting Zone	ICCN		
Ngaenki	Reserve?	?		509
Ngiri	Reserve?	?		
Okapi Faunal Reserve	Faunal Reserve II	ICCN	1992	13726
Punia	Gorilla Reserve	ICCN	2006	3878
Reserve d'Hippopotame de Mangai	Hunting Zone VI	ICCN		360
Rubi-Tele	Hunting Zone VI	ICCN	1930	9080
Rutshuru	Hunting Zone VI	ICCN	1953	642
Sakanya	Hunting Zone	ICCN		
Salonga	National Park II	ICCN	1970	36560
Sankuru	Nature Reserve Ib	ICCN	2007	30570
Shaba Elephant	Reserve?	?		2050
Swa-Kibula	Hunting Zone VI	ICCN		1400
Tayna	Nature Reserve	ICCN	2002	900
Tshuapa-Lomami-Lualaba	National Park (pending)	?		12590
Ubundu	Strict Nature Reserve Ib	ICCN		
Upemba	National Park II	ICCN	1939	11730
Usala	Gorilla Reserve	ICCN	2005	1152
Utunda and Wassa	Gorilla Reserve	ICCN	2005	3395
Uvira	Reserve?	?		
Virunga	National Park II	ICCN	1925	7835
Wamba	Scientific Reserve	ICCN	1974	3500
Yangambi Biosphere Reserve	Strict Nature Reserve	INERA		2500

Source: World Database on Protected Areas, supplemented with additional material

FIGURE 11: MAJOR PROTECTED AREAS IN THE DRC



Map: CARPE/USAID (2008)

6.2 PROTECTED AREA STAFFING

ICCN maintains staff in 39 of DRC's 66 protected areas (ICCN 2008), which suggests that many of the hunting reserves exist on paper only. In general, ICCN is constrained by limited technical (including guards) and scientific staff in the field. For example, there are only 19 scientific staff assigned to national parks and key reserves, and the area to be covered by technical staff is enormous—e.g., the ratio of staff to area for Salonga National Park is one staff member per 244 km² which makes surveillance and control difficult. Staffing patterns for selected national parks and reserves are presented in Table 6 below, while staffing patterns for all of DRC's protected areas by detailed labor category are presented in Annex E.

TABLE 6: STAFFING PATTERNS FOR SELECTED NATIONAL PARKS AND RESERVES

National Park or Reserve	Staff By Category			Total
	Administrative	Technical	Scientific	
Parc de la N'sele	48	31	2	81
Upemba NP/Nord Lusinga	6	56	0	62
Upemba NP/Sud Kayo	3	46	0	49
Kundelungu NP/Katwe	6	32	0	38
Salonga NP - Nord-Monkoto	4	43	0	47
Salonga NP - Nord-Watsikengo	2	39	0	41
Salonga NP - Nord-Mundjoko	1	29	0	30
Salonga NP - Nord-Yokekelu	2	30	0	32
Salonga NP - Sud-Anga	9	45	1	55
Salonga NP - Sud-Mundja	0	22	2	24
Virunga NP/Centre - Rwindi	11	76	0	87
Virunga NP/Nord - Mutsora	9	98	0	107
Virunga NP/Sud -Rumangabo	34	96	0	130
Virunga NP - Lulimbi	10	68	1	79
Virunga NP- Kabaraza	0	34	0	34
Kahuzi-Biega NP - Tshivanga	15	116	4	135
Garamba NP—Nagero & Gangala	19	180	0	199
Maiko NP/Nord - Loya	2	19	0	21
Maiko NP/Nord - Etaito	3	24	2	29
Maiko NP/Sud -Lubutu	6	24	0	30
Okapi Wildlife Reserve -Epulu	11	84	4	99
Lake Tumba-Ledira S. Nat. Res	12	39	3	54
TOTAL	213	1231	19	1463

Source: ICCN (2008).

6.3 MAJOR THREATS AND CHALLENGES FACING PROTECTED AREAS

Threats facing protected areas fall into two categories, those resulting from human activities, which are fairly well documented, and those resulting from natural threats, which are very poorly understood at present. Threats from human activities are generally the result of poor management, so the lack of effective protected area management throughout DRC is the major threat to the protected area network. This threat manifests itself in several ways, principally through the uncontrolled poaching of megafauna, encroachment and habitat degradation caused by expanding agriculture or by displaced populations relocating into protected areas, and through illegal artisanal logging and mining.

The management problem is being addressed by foreign organizations working with ICCN and other agencies, especially in the moist forest zone. Field projects funded by CARPE, GTZ and other organizations are re-establishing protection and wildlife management in the field. In the short term, this approach will establish conservation of selected protected areas essentially run by foreign organizations. In the longer term, establishing ICCN as a fully effective organization requires adequate numbers of well-trained, well-equipped staff at all levels, national, provincial and local, and there is currently no indication when this might happen. Alternative ways of managing protected areas at the local level, such as those being developed by Conservation International (CI) and local communities for gorilla protection, need to be more actively pursued. Overall, the threat to protected areas from poor management will continue for the foreseeable future, and the challenge of re-establishing protection will continue to be the main thrust of conservation efforts.

Natural threats to protected areas come from catastrophic changes following natural events. Examples include volcanism affecting forests and lakes along the rift valley, or sea level change affecting the mangroves. Climate change is of growing concern as a possible driver of changes in vegetation cover, biodiversity and economic activities in the Congo basin. While climate change probably offers opportunities as well as threats, there is not enough information available to make sound predictions at present. The status of the current vegetation and biodiversity, its relationship to the current climate, and how and how fast it might change in future are all more or less unknown parameters.

6.4 CONSERVATION OUTSIDE THE PROTECTED AREA SYSTEM

Protected areas constitute a relatively small portion of the national territory and tend to be large and focus on the protection of the animals with the largest ranges. A lot of important diversity likely does not occur within these areas. Also, conservation and forest management outside protected areas defines the effectiveness of conservation nationwide. Outcomes can be very different, ranging from isolated protected areas in a matrix of agricultural lands as in, say, Ghana, or protected areas forming cores of natural habitat in a matrix of forest concessions, community forests and savannas that allow the existence of wildlife and other native species throughout landscapes, prevent genetic isolation and maintain forest canopy. The latter model is more desirable from the point of view of biodiversity, but for this to be realized biodiversity and natural habitat need to be managed in forest concessions, community forests, fisheries and in agricultural landscapes. DRC is taking the first steps in this direction with the forest concession management plans, which require zoning within the concession to protect natural values, and preliminary legislation for community forestry. Field projects in the moist forest zone are working with communities to protect selected megafauna species outside protect areas. However, these actions are just the beginning,

and it will be some time before the effectiveness of conservation in timber concessions and community forests will be seen.

Protected area creation is often inappropriate for the protection of natural values in wetlands, because of the multiple uses of these areas, including fishing, transportation, agriculture and port development. Wetlands management involves active collaboration between various agencies and interest groups to prevent overfishing, reduction of pollution from cities and mines, protection of riparian areas, reduction of sedimentation and sound planning of water-related development. The lack of this type of land use management in DRC presents a threat to wetlands, especially the biologically important rift valley lakes, but also to parts of the Congo River system. Although DRC is a Ramsar signatory, wetlands management for biodiversity and other natural values outside protected areas is almost non-existent at the moment.

7. THREATENED AND ENDANGERED SPECIES

The global status of red-listed species is monitored by IUCN and listed online at <http://www.iucnredlist.org/>. IUCN provides the following classification: CR—Critically Endangered, EN—Endangered, VU—Vulnerable, LR/CD—Lower Risk: Conservation Dependent, NT or LR/NT—Near Threatened. Within the DRC, the MENCT maintains two lists of protected species. There is a list of 72 species that are completely protected by law, though in practice this protection is very weak. The second list is 234 partially protected species, whose exploitation requires a permit. The IUCN lists are presented here and organized taxonomically: Mammals, Herps, and Birds include both IUCN and DRC status, while Fish, Arthropods, Molluscs, and Plants have IUCN status only. Overall, knowledge of the distribution and status of most groups of organisms in the DRC is too poor for effective biodiversity measures to be designed and implemented. Given the lack of information, it is generally assumed that habitat degradation is leading to an undocumented and potentially large loss of biodiversity, especially in the east and the west of the country where the human footprint is largest.

Although there has been little research on the possible impact of climate change on biodiversity, most specialists agree that as with tropical forests, loss of habitat through anthropogenic factors will impact biodiversity long before any possible impact from climate change. There are two possible exceptions to this. First, many endemic species with restricted ranges, are most at risk from minor climatic changes. One example is the endangered mountain gorilla (*Gorilla beringei beringei*), which is found in the Virunga Landscape. Migratory species—notably birds and marine turtles—are especially at risk due to climate change because they require separate breeding, wintering, and migration habitats of high quality and in suitable locations.

7.1 MAMMALS

The mammals category contains most of the highest profile endangered species. Some species continue to decline because of illegal trade in wildlife products, especially ivory and rhino horn, with DRC losing both of its rhinoceros species. The northern white rhino, which depended on protection in the Garamba National Park for survival, has apparently become extinct in the wild between the 2003 Environmental Analysis and this one. Elephant populations continue to decline because of a resurgent trade in illegal ivory with Asia. The decline of DRC's elephant population is particularly distressing. As noted in Section 4.2 above, Hart (2009) estimates that total DRC elephant population (forest and forest-savanna hybrids) is likely under 20,000, down from a population estimated at over 100,000 elephants 50 years ago, and still dropping due to poaching and the illegal ivory trade. War in the east has increased pressure on gorillas and other wildlife, and led to the catastrophic decline in hippo numbers in Lake Albert—only 1300 animals remain—a drop of 95% in 30 years. Larger mammals are especially susceptible to poaching, and species continue to decline throughout DRC, both because of the uncontrolled bushmeat/endangered species trade and because of habitat loss. The DRC list of completely protected species lists many mammals, especially primates that are listed by IUCN in lower risk categories. However, wildlife protection for the most part depends upon protected area management rather than species-based initiatives.

TABLE 7: THREATENED AND ENDANGERED MAMMALS

Order	Scientific Name	English Name	Status IUCN ¹⁶	Status DRC
AFROSORICIDA	<i>Micropotamogale ruwenzorii</i>	Rwenzori Otter Shrew	NT	1
CARNIVORA	<i>Acinonyx jubatus</i>	Cheetah	VU	1
CARNIVORA	<i>Caracal aurata</i>	African Golden Cat	NT	2
CARNIVORA	<i>Lycan pictus</i>	African Wild Dog	EN	1
CARNIVORA	<i>Panthera leo</i>	Lion, African Lion	VU	1
CARNIVORA	<i>Panthera pardus</i>	Leopard	NT	2
CETARTIODACTYLA	<i>Hippopotamus amphibius</i>	Hippopotamus	VU	1
CETARTIODACTYLA	<i>Kobus vardonii</i>	Puku	NT	2
CETARTIODACTYLA	<i>Okapia johnstoni</i>	Okapi	NT	1
CETARTIODACTYLA	<i>Tragelaphus eurycerus</i>	Bongo	NT	2
CHIROPTERA	<i>Eidolon helvum</i>	Straw-coloured Fruit Bat	NT	2
CHIROPTERA	<i>Hipposideros vittatus</i>	Striped leaf-nosed bat	NT	0
CHIROPTERA	<i>Otomops martiensseni</i>	Large-eared Free-tailed Bat	NT	2
CHIROPTERA	<i>Rhinolophus ruwenzorii</i>	Rwenzori Horseshoe Bat	VU	0
EULIPOTYPHLA	<i>Crocidura kivuana</i>	Kivu Shrew	VU	1
EULIPOTYPHLA	<i>Crocidura lanosa</i>	Kivu Long-haired Shrew	EN	1
EULIPOTYPHLA	<i>Crocidura niobe</i>	Niobe's Shrew	NT	0
EULIPOTYPHLA	<i>Crocidura stenocephala</i>	Kahuzi Swamp Shrew	EN	1
EULIPOTYPHLA	<i>Crocidura tarella</i>	Tarella Shrew	EN	1
EULIPOTYPHLA	<i>Myosorex babaulti</i>	Babault's Mouse Shrew	NT	0
EULIPOTYPHLA	<i>Myosorex blarina</i>	Montane Mouse Shrew	EN	1
EULIPOTYPHLA	<i>Paracrocidura maxima</i>	Greater Shrew	NT	0
EULIPOTYPHLA	<i>Ruwenzorisorex suncoides</i>	Rwenzori Shrew	VU	1
EULIPOTYPHLA	<i>Sylvisorex lunaris</i>	Moon Forest Shrew	VU	0
EULIPOTYPHLA	<i>Sylvisorex vulcanorum</i>	Volcano Shrew	NT	0
MACROSCELIDEA	<i>Rhynchocyon cirnei</i>	Checkered Elephant Shrew	NT	0
PERISSODACTYLA	<i>Ceratotherium simum cottoni</i>	Northern White Rhinoceros	CR	1
PERISSODACTYLA	<i>Diceros bicornis</i>	Black Rhinoceros	NT	1
PHOLIDOTA	<i>Phataginus tricuspis</i>	Tree Pangolin	NT	2
PHOLIDOTA	<i>Smutsia gigantea</i>	Giant Pangolin	NT	2
PRIMATES	<i>Cercopithecus dryas</i>	Dryas Monkey	CR	2
PRIMATES	<i>Cercopithecus hamlyni</i>	Owl-faced Monkey	VU	1
PRIMATES	<i>Cercopithecus lhoesti</i>	L'hoest's Monkey	VU	2
PRIMATES	<i>Gorilla beringei beringei</i>	Eastern Gorilla	CR	1
PRIMATES	<i>Gorilla beringei graueri</i>	Mountain Gorilla	EN	1

¹⁶ CR—Critically Endangered, EN—Endangered, VU—Vulnerable, LR/cd—Lower Risk: Conservation Dependent, NT or LR/nt—Near Threatened

Order	Scientific Name	English Name	Status IUCN ¹⁶	Status DRC
PRIMATES	<i>Gorilla gorilla gorilla</i>	Western Lowland Gorilla	CR	1
PRIMATES	<i>Lophocebus aterrimus</i>	Black Crested Mangabey	NT	0
PRIMATES	<i>Pan paniscus</i>	Bonobo	EN	1
PRIMATES	<i>Pan troglodytes schweinfurthii</i>	Eastern Chimpanzee	EN	1
PRIMATES	<i>Pan troglodytes troglodytes</i>	Central Chimpanzee	EN	1
PROBOSCIDEA	<i>Loxodonta africana africana</i>	African Elephant	NT	1
PROBOSCIDEA	<i>Loxodonta africana cyclotis</i>	African Elephant	NT	1
RODENTIA	<i>Delanymys brooksi</i>	Delany's Mouse	VU	0
RODENTIA	<i>Dendromus kahuziensis</i>	Mt. Kahuzi Climbing Mouse	CR	0
RODENTIA	<i>Grammomys dryas</i>	Forest Thicket Rat	NT	0
RODENTIA	<i>Hybomys lunaris</i>	Moon Striped Mouse	VU	0
RODENTIA	<i>Lophuromys mediceaudatus</i>	Brush-furred Rat	VU	0
RODENTIA	<i>Lophuromys rahmi</i>	Rahm's Brush-furred Rat	EN	0
RODENTIA	<i>Thamnomys kempi</i>	Kemp's Thicket Rat	VU	0
RODENTIA	<i>Thamnomys venustus</i>	Charming Thicket Rat	VU	0
SIRENIA	<i>Trichechus senegalensis</i>	African Manatee	VU	1

7.2 HERPETOFAUNA

The reptiles list includes four marine turtles, listed by both IUCN and DRC, though it is still uncertain which turtle species of the eastern Atlantic occur regularly along the short DRC coastline. All three crocodile species are listed as fully protected in DRC, though only the dwarf crocodile is listed by IUCN as threatened. For amphibians, three rift valley frogs are listed as endangered, while others are threatened. On the list of species partially protected in DRC are 15 species of chameleon and the large monitor lizards, none of which are listed as threatened or endangered by IUCN.

TABLE 8: THREATENED AND ENDANGERED HERPETOFAUNA

Class	Scientific Name	English Name	Status IUCN	Status DRC
REPTILIA	<i>Dermochelys coriacea</i>	Leatherback turtle	CR	1
REPTILIA	<i>Eretmochelys imbricata</i>	Hawksbill turtle	CR	1
REPTILIA	<i>Caretta caretta</i>	Loggerhead	EN	1
REPTILIA	<i>Chelonia mydas</i>	Green turtle	EN	1
AMPHIBIA	<i>Hyperolius leleupi</i>		EN	0
AMPHIBIA	<i>Hyperolius leucotaenius</i>		EN	0
AMPHIBIA	<i>Leptopelis karissimbensis</i>		EN	0
AMPHIBIA	<i>Afrixalus orophilus</i>		VU	0
AMPHIBIA	<i>Callixalus pictus</i>		VU	0
AMPHIBIA	<i>Hyperolius castaneus</i>		VU	0
AMPHIBIA	<i>Hyperolius chrysogaster</i>		VU	0

Class	Scientific Name	English Name	Status IUCN	Status DRC
AMPHIBIA	<i>Hyperolius discodactylus</i>		VU	0
AMPHIBIA	<i>Hyperolius frontalis</i>		VU	0
AMPHIBIA	<i>Hyperolius polystictus</i>		VU	0
REPTILIA	<i>Kinixys homeana</i>	Home's Hinge-back Tortoise	VU	2
REPTILIA	<i>Osteolaemus tetraspis</i>	African Dwarf Crocodile	VU	1
AMPHIBIA	<i>Phrynobatrachus acutirostris</i>		VU	0
AMPHIBIA	<i>Phrynobatrachus bequaerti</i>		VU	0
AMPHIBIA	<i>Phrynobatrachus versicolor</i>		VU	0
REPTILIA	<i>Crocodylus niloticus</i>	Nile Crocodile	LR/lc	1
AMPHIBIA	<i>Arthroleptis pyrrhoscelis</i>		NT	0
AMPHIBIA	<i>Leptopelis kivuensis</i>		NT	0
REPTILIA	<i>Crocodylus cataphractus</i>	Sharp-nosed Crocodile	DD	1

7.3 BIRDS

Bird distributions are relatively well known for the DRC, especially for the eastern highlands with large numbers of endemics and wetlands areas. The lowland forests are less well explored. Birds are included on the DRC list of completely protected and partially protected species. Eighteen important bird areas have been identified for DRC, mostly in existing protected areas.

TABLE 9: THREATENED AND ENDANGERED BIRDS

Scientific Name	Common Name (ENG)	Status IUCN	status DRC
<i>Apalis argentea</i>	Kungwe Apalis	EN	0
<i>Ardeola idae</i>	Madagascar Pond-heron	EN	0
<i>Bradypterus graueri</i>	Grauer's Swamp-warbler	EN	0
<i>Caprimulgus prigoginei</i>	Itombwe Nightjar	EN	2
<i>Chlorocichla prigoginei</i>	Prigogine's Greenbul	EN	0
<i>Eremomela turneri</i>	Turner's Eremomela	EN	0
<i>Francolinus nahani</i>	Nahan's Francolin	EN	0
<i>Phodilus prigoginei</i>	Congo Bay-owl	EN	1
<i>Ploceus aureonucha</i>	Golden-naped Weaver	EN	0
<i>Zoothera guttata</i>	Spotted Ground-thrush	EN	0
<i>Afropavo congensis</i>	Congo Peacock	VU	1
<i>Balaeniceps rex</i>	Shoebill	VU	1
<i>Chloropeta gracilirostris</i>	Papyrus Yellow Warbler	VU	0
<i>Circaetus beaudouini</i>	Beaudouin's Snake-eagle	VU	0
<i>Cossypha heinrichi</i>	White-headed Robin-chat	VU	0
<i>Cryptospiza shelleyi</i>	Shelley's Crimsonwing	VU	0
<i>Egretta vinaceigula</i>	Slaty Egret	VU	0

Scientific Name	Common Name (ENG)	Status IUCN	status DRC
<i>Falco naumanni</i>	Lesser Kestrel	VU	0
<i>Glaucidium albertinum</i>	Albertine Owlet	VU	1
<i>Grus carunculatus</i>	Wattled Crane	VU	1
<i>Hirundo atrocaerulea</i>	Blue Swallow	VU	0
<i>Muscicapa lendu</i>	Chapin's Flycatcher	VU	0
<i>Nectarinia rockefelleri</i>	Rockefeller's Sunbird	VU	0
<i>Ploceus flavipes</i>	Yellow-legged Weaver	VU	0
<i>Ploceus subpersonatus</i>	Loango Weaver	VU	0
<i>Prionops alberti</i>	Yellow-crested Helmet-shrike	VU	1
<i>Pseudocalyptomena graueri</i>	African Green Broadbill	VU	1
<i>Schoutedenapus schoutedeni</i>	Congo Swift	VU	0
<i>Torgos tracheliotos</i>	Lappet-faced Vulture	VU	2
<i>Trionoceph occipitalis</i>	White-headed Vulture	VU	1
<i>Balearica pavonina</i>	Black Crowned-crane	NT	2
<i>Bubo shelleyi</i>	Shelley's Eagle-owl	NT	0
<i>Circus macrourus</i>	Pallid Harrier, Pale Harrier	NT	2
<i>Columba albinucha</i>	White-naped Pigeon	NT	0
<i>Coracina graueri</i>	Grauer's Cuckoo-shrike	NT	0
<i>Crex crex</i>	Corncrake	NT	0
<i>Ficedula semitorquata</i>	Semi-collared Flycatcher	NT	0
<i>Gallinago media</i>	Great Snipe	NT	0
<i>Glareola nordmanni</i>	Black-winged Pratincole	NT	0
<i>Gyps africanus</i>	White-backed Vulture	NT	2
<i>Indicator pumilio</i>	Dwarf Honeyguide	NT	0
<i>Kupeornis chapini</i>	Chapin's Mountain-babbler	NT	0
<i>Kupeornis rufocinctus</i>	Red-collared Mountain-babbler	NT	0
<i>Laniarius mufumbiri</i>	Papyrus Gonolek	NT	0
<i>Malaconotus lagdeni</i>	Lagden's Bush-shrike	NT	0
<i>Neotis denhami</i>	Denham's Bustard	NT	2
<i>Oxyura maccoa</i>	Maccoa Duck	NT	1
<i>Phoeniconaias minor</i>	Lesser Flamingo	NT	0
<i>Psittacus erithacus</i>	African Grey Parrot	NT	2
<i>Rynchops flavirostris</i>	African Skimmer	NT	0
<i>Sterna balaenarum</i>	Damara Tern	NT	0
<i>Terpsiphone bedfordi</i>	Bedford's Paradise-flycatcher	NT	0
<i>Zoothera crossleyi</i>	Crossley's Ground-thrush	NT	0
<i>Zoothera oberlaenderi</i>	Forest Ground-thrush	NT	0
<i>Zoothera tanganjicae</i>	Kivu Ground-thrush	NT	0
<i>Bucorvus abyssinicus</i>	Abyssinian ground hornbill	LC	1

Scientific Name	Common Name (ENG)	Status IUCN	status DRC
<i>Ciconia ciconia</i>	White stork	LC	1
<i>Falco peregrinus</i>	Peregrine falcon	LC	1
<i>Sagittarius serpentarius</i>	Secretary bird	LC	1
<i>Pseudochelidon eurystomina</i>	African river-martin	DD	1

7.4 FISH

IUCN lists twelve species of freshwater fish from DRC as threatened/endangered and a further five species as near-threatened. Fish are not included on the DRC protected species lists. Most of the listed fish species are from the rift valley lakes (16/17), especially Lake Tanganyika (12/17). One species is a blind fish from a cave complex near the lower Congo. No fish from the Congo River are listed by IUCN, reflecting either the health of the river or lack of inventory and monitoring.

TABLE 10: THREATENED AND ENDANGERED FISH

Family	Scientific Name	Common Name	Status
ALESTIIDAE	<i>Brycinus jacksonii</i>	Victoria Robber	EN
LATIDAE	<i>Lates angustifrons</i>	Tanganyika Lates	EN
LATIDAE	<i>Lates macrophthalmus</i>	Albert Lates	EN
LATIDAE	<i>Lates microlepis</i>	Forktail Lates	EN
CYPRINIDAE	<i>Barbus huloti</i>		VU
CYPRINIDAE	<i>Caecobarbus geertsi</i>	Congo Blind Barb	VU
LATIDAE	<i>Lates mariae</i>	Bigeye Lates	VU
CICHLIDAE	<i>Neolamprologus christyi</i>		VU
CICHLIDAE	<i>Simochromis marginatus</i>		VU
CICHLIDAE	<i>Tropheus duboisi</i>		VU
CICHLIDAE	<i>Tropheus polli</i>		VU
CICHLIDAE	<i>Xenotilapia burtoni</i>		VU
CYPRINIDAE	<i>Barbus lufukiensis</i>		NT
CLARIIDAE	<i>Dinotopterus cunningtoni</i>		NT
CICHLIDAE	<i>Eretmodus cyanostictus</i>	Tanganyika Clown	NT
CICHLIDAE	<i>Haplochromis labiatus</i>		NT
CICHLIDAE	<i>Lepidolamprologus attenuatus</i>		NT

7.5 ARTHROPODA

IUCN lists four species of arthropod from DRC as endangered, and a further two (both dragonflies) as critically endangered. Two of the endangered species are shrimp from Lake Kivu. The arthropod fauna of DRC is huge and most groups are poorly-known, so it will be a long time before a clearer idea of their status emerges. However, recent critical reviews of the status of dragonfly species have greatly improved the listings.

TABLE 11: THREATENED AND ENDANGERED ARTHROPODA

Order	Family	Name	Status
ODONATA	CHLOROCYPHIDAE	Platycypha pinheyi	CR
ODONATA	LIBELLULIDAE	Tetrathemis denticauda	CR
ODONATA	CHLOROCYPHIDAE	Chlorocypha molindica	EN
ODONATA	CHLOROCYPHIDAE	Chlorocypha schmidti	EN
DECAPODA	POTAMONAUTIDAE	Potamonautes gonocristatus	EN
DECAPODA	POTAMONAUTIDAE	Potamonautes idjiwiensis	EN
ODONATA	PROTONEURIDAE	Chlorocnemis pauli	NT
ODONATA	CHLOROCYPHIDAE	Chlorocypha jacksoni	VU
LEPIDOPTERA	LYCAENIDAE	Erikssonia acraeina	VU
HYMENOPTERA	FORMICIDAE	Pheidole neokohli	VU
HYMENOPTERA	FORMICIDAE	Serrastruma inquilina	VU
CALANOIDA	DIAPTOMIDAE	Tropodiatomus simplex	VU

7.6 MOLLUSCS

The IUCN Red Data List includes 11 gasteropods (snails) from DRC listed as endangered. These records were created in 1994 by D.S. Brown¹⁷ for rare snails endemic to the rift valley lakes, but with no threats identified. The listings need to be updated. Molluscs are not included on protected species lists issued by the DRC Government.

TABLE 12: THREATENED AND ENDANGERED MOLLUSCS

Family	Name	Status
THIARIDAE	Anceya terebriformis	EN
THIARIDAE	Bathania howesi	EN
VIVIPARIDAE	Bellamyia contracta	EN
VIVIPARIDAE	Bellamyia crawshayi	EN
VIVIPARIDAE	Bellamyia leopoldvillensis	EN
VIVIPARIDAE	Bellamyia mweruensis	EN
VIVIPARIDAE	Bellamyia pagodiformis	EN
VIVIPARIDAE	Bellamyia rubicunda	EN
THIARIDAE	Hirthia littorina	EN
THIARIDAE	Martelia tanganyicensis	EN
THIARIDAE	Stanleya neritinoidea	EN
AMPULLARIIDAE	Lanistes bicarinatus	VU
AMPULLARIIDAE	Lanistes intortus	VU
THIARIDAE	Lavigera coronata	NT

¹⁷ Brown, D.S. (1994). Freshwater Snails of Africa and Their Medical Importance, 305, CRC Press.

Family	Name	Status
THIARIDAE	Melanoides admirabilis	NT
THIARIDAE	Spekia coheni	NT
THIARIDAE	Tanganyicia rufiflora	NT

7.7 PLANTS

Twelve plant species are listed as endangered by IUCN, including several timber species threatened by over-exploitation (*Millettia laurentii*, *Pericopsis elata*, etc.). A further 57 species are listed by IUCN as vulnerable, including most of the important timber trees in the Meliaceae (mahogany family). By contrast, botanists have been slow to identify plant species threatened by habitat loss, because of the lack of data and lack of field botanists in central Africa. One exception is the Zamiaceae or cycads, long-lived palm-like trees of mountains and rock outcrops, which figure prominently in the list including near-threatened and Data-deficient listings. There does not appear to be any DRC national list of protected plant species.

TABLE 13: THREATENED AND ENDANGERED PLANT SPECIES

Family	Genus/Species	IUCN STATUS
SCYTOPETALACEAE	Brazzeia longipedicellata	EN
RHIZOPHORACEAE	Cassipourea acuminata	EN
LEGUMINOSAE	Dialium excelsum	EN
EBENACEAE	Diospyros crassiflora	EN
LEGUMINOSAE	Gossweilerodendron balsamiferum	EN
MELIACEAE	Lovoa swynnertonii	EN
LEGUMINOSAE	Millettia laurentii	EN
LEGUMINOSAE	Pericopsis elata	EN
LEGUMINOSAE	Swartzia fistuloides	EN
MENISPERMACEAE	Tiliacora lehmbachii	EN
MENISPERMACEAE	Triclisia lanceolata	EN
ANNONACEAE	Uvariopsis vanderystii	EN
LEGUMINOSAE	Baphia incerta ssp. lebrunii	VU
CHRYSOBALANACEAE	Magnistipula butayi var. greenwayi	VU
CELASTRACEAE	Salacia lehmbachii var. uregaensis	VU
RUBIACEAE	Tricalysia anomala var. montana	VU
LEGUMINOSAE	Afzelia africana	VU
LEGUMINOSAE	Afzelia bipindensis	VU
LEGUMINOSAE	Afzelia pachyloba	VU
LEGUMINOSAE	Albizia ferruginea	VU
SAPINDACEAE	Allophylus agbala	VU
COMMELINACEAE	Aneilema silvaticum	VU
LEGUMINOSAE	Anthonotha lebrunii	VU
LEGUMINOSAE	Anthonotha nigerica	VU
ANACARDIACEAE	Antrocaryon micraster	VU

Family	Genus/Species	IUCN STATUS
SAPOTACEAE	Baillonella toxisperma	VU
LAURACEAE	Beilschmiedia ambigua	VU
LAURACEAE	Beilschmiedia bracteata	VU
LAURACEAE	Beilschmiedia giorgii	VU
LAURACEAE	Beilschmiedia mayumbensis	VU
LAURACEAE	Beilschmiedia ugandensis	VU
LAURACEAE	Beilschmiedia vermoesenii	VU
RUBIACEAE	Calycosiphonia macrochlamys	VU
EUPHORBIACEAE	Cleistanthus evrardii	VU
BORAGINACEAE	Cordia mukuensis	VU
MYRSINACEAE	Embelia upembensis	VU
ZAMIACEAE	Encephalartos schaijesii	VU
MELIACEAE	Entandrophragma angolense	VU
MELIACEAE	Entandrophragma candollei	VU
MELIACEAE	Entandrophragma cylindricum	VU
MELIACEAE	Entandrophragma utile	VU
GUTTIFERAE	Garcinia kola	VU
MELIACEAE	Guarea cedrata	VU
MELIACEAE	Guarea mayombensis	VU
MELIACEAE	Guarea thompsonii	VU
RUBIACEAE	Hallea ledermannii	VU
RUBIACEAE	Hallea stipulosa	VU
SIMAROUBACEAE	Hannoa kitombetombe	VU
ANNONACEAE	Isolona dewevrei	VU
MELIACEAE	Khaya anthotheca	VU
MELIACEAE	Khaya grandifoliola	VU
OCHNACEAE	Lophira alata	VU
MELIACEAE	Lovoa trichilioides	VU
CAPPARACEAE	Maerua elegans	VU
MELASTOMATACEAE	Memecylon bequaertii	VU
COMPOSITAE	Mikaniopsis vitalba	VU
LEGUMINOSAE	Millettia lacus-alberti	VU
CUCURBITACEAE	Momordica enneaphylla	VU
RUBIACEAE	Nauclea diderrichii	VU
LAURACEAE	Ocotea kenyensis	VU
RUBIACEAE	Pavetta intermedia	VU
SAPINDACEAE	Placodiscus paniculatus	VU
ROSACEAE	Prunus africana	VU
STERCULIACEAE	Pterygota bequaertii	VU

Family	Genus/Species	IUCN STATUS
BOMBACACEAE	Rhodognaphalon breviscupe	VU
ASCLEPIADACEAE	Secamone racemosa	VU
MELIACEAE	Turraeanthus africanus	VU
RUTACEAE	Vepris mandangoa	VU
SAPOTACEAE	Vitellaria paradoxa	VU
ZAMIACEAE	Encephalartos ituriensis	NT
ZAMIACEAE	Encephalartos marunguensis	NT
ZAMIACEAE	Encephalartos schmitzii	NT
ZAMIACEAE	Encephalartos laurentianus	DD
ZAMIACEAE	Encephalartos septentrionalis	DD

8. THREATS TO BIODIVERSITY AND TROPICAL FORESTS

8.1 UNDERLYING CAUSES

The assessment of national policies and strategies and their effectiveness, institutional capacity, trade, private sector growth, participation in international treaties, and the role of civil society, provided in Sections 9 and 10 below suggest that there are a number of underlying causes of threats to biodiversity and tropical forests.

- ***A war economy.*** The status of DRC's biodiversity and tropical forests has decisively influenced by its war economy. Based on the abundant natural resources of the country, the war economy provided huge spoils to war elites and also resulted in a deep restructuring of Congolese society. Ever since the end of the formal war in December 2002, the situation in the DRC still remains fragile; political transition is threatened by endemic violence in the eastern provinces and instability in many other areas. The issue is that despite positive changes in economic and political structures, former war elites—military, political, and economic—still remain influential. They defend their positions and benefits of the war era—including the exploitation of the country's natural resources—and try to transfer them to the changed situation.
- ***Corruption and the lack of good governance.*** These two problems are undermining progress towards conservation and sustainable management of forest resources and biodiversity in the DRC. Corruption and bad business practices are causing or maintaining a lack of transparency and good governance in the awarding of forest and mining concessions, often in contravention of the laws and regulations in force. This situation, along with growing formal and informal tax pressure on companies, is perhaps discouraging long term investments vital to improving the sustainability of DRC's natural resources. Poor governance also diverts part of the profits from the exploitation of natural resources and reduces equitable distribution of benefits among DRC's populations, particularly rural communities.
- ***Weak institutional capacity.*** Institutions managing forest and conservation interests were basically abandoned after the war without a budgetary allocation and left to fend for themselves. Employees tend to be older with many near retirement age and only a small percentage has had any educational training beyond secondary school. DRC's universities have barely functioned for the past 20 years; the lack of university-level courses in natural resources management, biodiversity and taxonomy, means there are few prospects to replace retiring cadres and rejuvenate these institutions. An inflated civil service based on political patronage means that salaries are low, often paid late and with very few resources available for office equipment or transport. This saps the offices and employees of dynamism, encourages a resistance to change, weakens their motivation, and affects the quality of their work.
- ***Lack of data, monitoring and evaluation.*** Lack of knowledge about the distribution and state of biodiversity, a poor understanding of the ecology of the forest/savanna mosaic areas and their carbon dynamics, and a poor understanding of vegetation, dynamics, significance, and effects of long term climate change are major obstacles for conservation and sustainable development in the DRC.

Moreover, a reliance on satellite imagery, analyses and procedures for monitoring changes in vegetation combined with little effective ground truthing means that any planning and monitoring is based on canopy cover with little understanding of what's going on beneath the canopy. Not only are the exact distribution and current size of the populations of most species unknown, but also very few reliable historical data exist. Furthermore, the few existing historical data are often either ignored or called into question. It is therefore virtually impossible to set realistic baselines for monitoring and evaluation. Improving monitoring and evaluation tools and capacity is therefore essential so that decision-makers can have permanent access to the information in order to make the best possible decisions. The lack of available data is primarily due to the slow-down in research since the end of the 1970s, combined with a reduction of GDRC and donor funding allocated to research.

- ***Weak law enforcement.*** One of the key challenges facing environmental protection and management is the lack of enforcement of the existing laws. There are several reasons for this. First, the DRC's civil conflict, and the resulting shortages in travel budgets, supplies, and equipment have limited the ability of most GDRC agencies to actively implement law enforcement operations. When agency personnel do go into the field to monitor compliance, transport and expenses are usually paid by the entity being monitored. Second, given the post conflict situation and new mandates, there seems to be a certain hesitancy among environmental agencies to enforce laws given current socio political and economic interests and concerns. In addition to these issues, there are two other contributing factors to the weak law enforcement problem:
 - *Legislation is far removed from the realities that it is trying to influence.* Drafted by Kinshasa-based lawyers and technicians with much external support, DRC's biodiversity/forest legislation is not based on realities in the field but on the assumption that field reality is manageable and that the future is predictable. This view has resulted in top down 'technical' solutions to environment/natural resource development problems, including overly comprehensive and difficult to implement legislative mandates. Complicated legislation results in poor understanding and contributes to difficulties in enforcement. The net result of this technical approach is that the majority of codes are far removed from the reality they are trying to influence.
 - *Low community awareness of policies and legislation.* The problem of weak law enforcement is also exacerbated by the fact that many communities/resource users are unaware of the new Forest Code. For example, although MENCT and many NGOs maintain that they have made every effort to consult with communities on the new legislation, many people interviewed stated that there is relatively little awareness on the details of the new code, particularly with regard to conceptual clarity on community and conservation forestry. In particular, they cited an overall lack of understanding of the rules and procedures regarding community decisions on issues such as allowing land for logging and lack of clarity on what actual decision-making powers communities have at the local level regarding forest management as major problems.
- ***Lack of a holistic approach to environment/natural resource management.*** In general, MENCT tends to view commercial logging as the sole indicator of economic value in the forest sector. There is little appreciation of the economic value of non-timber forest products (NTFP—including bushmeat) in terms of the restrictions posed by the protected areas, community access to NTFPs in logging concessions or an acknowledgement that NTFPs from forests and wetlands are also a major source of economic benefits for DRC's rural populations. In most instances, MENCT and ICCN focus on curtailing negative practices with regard to hunting and the bush meat trade rather than on positive economic ventures that could be properly regulated.

- **Barriers to alternative livelihoods.** Although there are few alternative livelihood programs in the DRC, the ones that do exist have had very limited success; the livelihood options presented to communities by these programs cannot compete with incomes gained from illegal logging, the bushmeat trade or mining in the parks and reserves. A major part of the reason for this is that the livelihoods offered are based on an assessment of what communities “want to do” rather than any kind of value chain analysis of several subsectors to identify products and services that show the greatest potential for increasing household income, and what elements along the value chain—from access to technical information and capital to market access—act as barriers to alternative livelihood development.

The problem of alternative livelihoods is particularly apparent around DRC’s National Parks. The Forest Code provides that 40% of revenues from logging concessions will be returned to the communities. Communities that live around strictly protected areas, however, receive no compensation for the loss of rights to forest products but are expected to make up the difference through donor supported alternative livelihood programs. As these programs fail to generate income, communities continue to illegally log, hunt bushmeat, and dig for diamonds and cassiterite.

- **Insecure land and resource tenure.** Poverty, land, and the environment are inextricably linked. The rural poor of DRC depend almost entirely upon land and other natural resources for their livelihoods, including their food, fuel, shelter, water and medicines. Unequal access to and ownership of land and other resources have contributed significantly to economic and political inequities and environmental degradation throughout DRC’s history, and have exacerbated tensions and conflict. The existing systems of land acquisition favor the wealthy and the elite. Women in particular have had limited land and resource rights. The need for and importance of rapidly developing a land tenure policy and legislation is becoming increasingly critical, not only for forestry issues but for the country as a whole.
- **Absence of a strategy to address the compromises between environment and economic development.** Sustainable development is based on the notion that growth strategy should take into account environmental and social concerns, as well as the efficient management of resources to achieve long-term prosperity. This concept has been endorsed by the international development declarations and their initiatives, starting with the Rio Summit in 1992 and the World Summit on Sustainable Development in Johannesburg in 2002, and finishing with the recent launch of the Millennium Development Goals (MDGs). DRC’s Poverty Reduction Strategy Paper does not address this issue, and the assessment team is concerned that without a strategy or policy that specifically addresses tradeoffs between the environment and economic development, mining, logging and agro industrial concessions will continue to take precedence over the environment as they have done in the past.

8.2 DIRECT THREATS

8.2.1 AGRICULTURE EXPANSION

Shifting Cultivation

As the human population grows, so does the need to sustain it. With a population growth of 3.2 %, DRC’s population has gone from approximately 40 million in 1990 to an estimated 2009 population of 68,692,542, and is expected to roughly double in the next 20 years. Although agriculture is a primary cause of deforestation, estimated at 0.4-0.6% by FAO, for the most part, its impact is still localized,

affecting a small part of the landscape. For example, in DRC's central basin which is relatively sparsely populated, shifting cultivation results in only minimal losses of forest cover.

Shifting cultivation is poorly understood despite its widespread use in the lowland tropics. It is basically a rotation agroforestry system, where one to several years of cultivation is followed by fallow, during which scrub or secondary forests develop. In a traditional shifting cultivation system, only a small percentage of a village's agriculture lands are in cultivation in any given year, sometimes less than 10%. The non-cultivated lands support scrub and forest, and supply a diversity of forest products, including bush meat, fuel wood, wild food plants, medicinal plants, and plants producing natural fibers and construction materials such as building poles, thatch, rattan and raffia. Passive cultivation of woody plants is also a feature of shifting cultivation. Besides forest products, fallows provide two important services: they restore soil fertility and they eliminate weeds from crop lands.

FIGURE 12: SHIFTING CULTIVATION IN WESTERN DRC



Photo: Bruce G. Marcot

Shifting cultivation also has few inbuilt protections against intensifying land use, since in its traditional form shifting agriculture is regulated by economics alone, it is simply not practical to bring too much land into cultivation. Soil infertility and weed problems will increase, increasing the labor required to produce crops. Urban demand for food and increased crop values through easier market access tip the scale in favor of more intensive cultivation, with the reduction or elimination of fallows, and this process is occurring around Kinshasa and the densely populated areas in Eastern DRC.

Thus, when it is suited to a local context, shifting cultivation in itself is not destructive, especially if it is practiced on a small scale. But when demographic pressures, civil strife, poorly planned infrastructure projects and unfair land-tenure regimes occur, they undermine traditional shifting agricultural systems and threaten natural forests. This is the case of Eastern DRC—Ituri, Maiko-Tayna-Kahuzi-Biega and Virunga—where the most urgent problems are related to demography. These landscapes are seeing an influx of people from the densely populated regions of the Albertine Rift. This is not a new phenomenon, but it has accelerated substantially over the last few decades and could become totally uncontrollable in the years to come with the return of security and the rehabilitation of roads.

Agro-Industrial Crops—Oil Palm

DRC was the world's second largest palm oil producer in the 1960s but years of economic decline have left it as a minor producer. Current oil palm production in DR Congo stands at around 240,000 metric tons, while demand is expected to grow to 465,000 metric tons in 2010 and 540,000 metric tons in 2015. Gas and diesel imports to DRC were 251,000 metric tons in 2006 according to the International Energy Agency (IEA), suggesting that biodiesel production from palm oil could meet the country's entire demand for diesel and palm oil.

Thus, future deforestation may be driven largely by the expansion of palm oil plantations into forest regions. Indeed, Chinese companies are currently paying more than \$300 per hectare for forest lands with the goal of transforming these areas into palm plantations. AllAfrica.com reported on July 10, 2009 that ZTE Agribusiness Company Ltd, a Chinese firm, plans to establish a three million hectare oil palm plantation in the DRC for biofuel production, although the report did not specify whether production would be for local consumption or export, nor did it note the location of the plantation. The bottom line is that the opportunity costs of slowing the expansion of palm oil into dense forests may be higher than the costs of slowing shifting agriculture. Virtually all of the dense humid (high carbon) forests of the DRC are on soils and in climatic conditions that are suitable for palm oil production.

8.2.2 ILLEGAL LOGGING

With some exceptions, notably from the Rainforest Foundation and Greenpeace, it is generally thought that at least short-term, the impact from industrial logging on DRC's tropical forests will be minimal. Industrial timber exports from DRC are modest, less than 15% the exports of Gabon or Cameroon which have only a fraction of DRC's forest resources. Along with the new Forest Code, the GDRC has also launched a forest reform agenda that included: (i) cancellation of 25.5 million hectares of patently illegal logging contracts; (ii) a legal review (assisted by a third party) of the remaining logging contracts; (iii) a moratorium on all new logging contracts; (iv) a new forest tax system that discourages speculation and directs 40 percent of the revenue from area taxes to forest communities and local governing bodies; (v) the conversion of old logging contracts into new long-term sustainable management concession contracts that require the concessionaire to fulfill strict social and environmental obligations; (vi) participatory forest zoning to build consensus on which forest areas should be biodiversity reserves, production forests, rural community forests, or converted to other uses; and (vii) the integration of participatory approaches, public dissemination of information, and communication at all levels to disseminate the new policy directions and garner support from civil society.

Discussions with the Fédération des Industries du Bois (FIB) appear to confirm this assertion. Given high transportation costs and the high costs of externalities (bribes), nearly all of the concessions under FIB are only cutting high value species at a rate of about 1-2 cubic meters per hectare or less than one tree per hectare. Although this practice—referred to as high grading—is said to have an impact on regeneration of commercial species, there is no literature or research available which would support this hypothesis. On the contrary, some argue that opening of the forest canopy through selective logging actually enhances biodiversity by providing more diverse habitats for different species.

While the impact from industrial logging appears minimal, the same cannot be said for artisanal logging which supplies the majority of local and regional markets. In 1998, WRI¹⁸ stated that “artisanal logging for local furniture-making and construction, which is poorly monitored, consumes three times more timber than industrial logging for export. Most artisanal loggers operate at the edge of forests and therefore do not increase access to forests. However, farmers often clear these areas once artisanal loggers have removed the largest trees.”

¹⁸ Wolfire, D., Brunner, J & Sizer N. (1998). Forests and the Democratic Republic of Congo: Opportunity in a Time of Crisis. Washington, DC; World Resources Institute.

Unfortunately, since 1998, the artisanal logging situation has not improved. The Forest Code does not as yet have a framework or set of regulations governing artisanal logging; in theory only MENCT can issue artisanal logging permits (maximum size of 50 ha), but in practice provincial governments have been issuing permits as well. Moreover, MENCT has no accurate record of the number of permits issued and there is no routine monitoring of artisanal sites. Additionally, many of the artisanal operations are pre-financed by industrial concessions. This is particularly worrisome as the Minister MENCT has come under pressure to add additional concessions due to the current economic situation, and that most of the concession to be added have links to and support illegal artisanal mining. Considering the fact that artisanal logging is one of the most lucrative activities—particularly for high value species such as *Afromosia spp.*—in eastern DR Congo due to available markets in neighboring countries—Uganda, Kenya and Rwanda (IUCN 2008), the assessment team suspects that artisanal concessions have moved operations to the center of the forests, and that artisanal operations followed by shifting agriculture are a major cause of forest loss.

8.2.3 THE BUSHMEAT TRADE

Only recently has bushmeat become an important source of income in the DRC. In rural areas, people once made money growing and selling palm oil, cacao, coffee, rice and peanuts. Over the past 20 years, livelihoods have suffered as a result of the civil conflict, lack of agriculture extension services, and increasingly poor transport systems that make it more difficult and costly to transport goods to markets. With farming unprofitable and almost no off-farm jobs available, many rural people have resorted to commercial hunting and trading of bushmeat because high returns can be made from a relatively small investment, and wildlife are free-for-the-taking. DRC's urban populations fuel the demand for bushmeat; these populations have grown substantially since the 1960s and their buying power has declined with the weak economy. Families that were once able to afford to eat beef, chicken, and pork have now shifted to typically less expensive wildlife as their meat of choice. Bushmeat is relatively inexpensive because hunters do not pay the costs of producing wildlife as do farmers who raise livestock. Moreover, logging companies have opened up once-isolated forests, providing hunters with easy access to abundant wildlife and traders with cheap transportation, which in turn reduces bushmeat production costs and increases supply to urban markets.

As a result, the DRC has the highest rate of bush meat consumption in the Congo Basin, estimated by Wilkey to be over 1 billion kg annually or roughly 897 kg per hectare of forest area per year. In terms of species, although country-wide data are not available, one study in the Ituri forest found that 60–95% of bushmeat consumption was from ungulates (mainly duikers), 5–40% from primates (including Graul's gorilla), and only 2 percent from rodents and other species. Quantitative studies show that: a) bushmeat remains the primary source of animal protein for the majority of DRC families; b) bushmeat hunting can constitute a significant source of revenue for forest families, from \$300 to \$1000 annually, considerably more than the average household income for the DRC and comparable to the salaries of those responsible

FIGURE 13: PALM CIVET FOR SALE IN BAS CONGO



Photo: DAI

for controlling the bushmeat trade.; c) bushmeat consumption by low density populations living in the forest may be sustainable at present; d) demand for bushmeat by growing numbers of urban consumers has created a substantial market for bushmeat that is resulting in a halo of defaunation around population centers, and may be driving unsustainable levels of hunting, even in relatively isolated regions; and e) large-bodied animals (ungulates and primates) with low reproductive rates are most susceptible to over-exploitation compared with more r-selected species (rodents) that can tolerate relatively intensive hunting

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 the DRC. The scale of commercial hunting to supply large, rapidly growing urban populations with meat is now exceeding levels that can be tolerated by most large-bodied, slow-reproducing forest animals. At current levels of exploitation this will result in the progressive depletion and local extinction of most species of apes and other primates, large antelope, and elephant from hunted forests. Only small, rapidly reproducing animals such as rodents and the smallest of antelope are likely to survive the pressure from commercial hunters.

Moreover, hunting indirectly impacts the forest by (1) threatening the survival of forest carnivores such as leopard, golden cat, crowned eagles, and snakes that rely on bushmeat species as prey and (2) significantly reducing the number of seed dispersing animals, thus changing tree species regeneration rates and forest structure and composition. The direct and indirect impacts of unsustainable hunting will have both immediate and long-term adverse impacts on the structure and function of the forest. In addition, bushmeat consumption may place people in increased jeopardy of contracting and transmitting animal-derived (epizootic) diseases such as Ebola or other emerging pathogens.

With the exception of some command and control measures in logging concessions, GDRC attempts to control the bushmeat trade have been largely ineffective due to pervasive corruption, the involvement of political elites in the bushmeat trade, reluctance to enforce existing regulations due to the number of players in the bushmeat value chain (traders, transporters, market sellers and restaurateurs) that benefit from the bushmeat trade, and a reluctance to devolve ownership and management rights of forest resources to local communities. However, as demand for bushmeat increases, more people will be encouraged to become involved in the trade, increasing the pressure on wildlife populations, threatening the survival of rare species, and jeopardizing access of future families to the nutritional and income benefits from wildlife.

FIGURE 14 : THE LANDSCAPE AT KUNDULUNGU NATIONAL PARK IN KATANGA

The park's animal populations have been decimated as a result of commercial bushmeat hunting led by Mobutu's sons in the early 1990s and continue today by local political elites.



Photo: DAI

8.2.4 MINING

The DRC is endowed with exceptional mineral resources; it contains some of Africa's largest deposits of copper, cobalt, and coltan (80% of the world's deposits) and significant reserves of gold, diamonds, cadmium, zinc, cassiterite, magnesium, and other minerals. In the past, the DRC has been unable to harness its mineral wealth for economic development, due largely to corrupt management and political interference in the parastatal mining companies, and to inappropriate policies that limited private sector investment.

The GDRC has taken some important steps to stimulate development of the sector, including restructuring the parastatals and allowing private sector investment, and the passage of the 2002 Mining Code, and is counting on growth in the mining sector as a means of contributing significantly to employment, income generation and infrastructure development. However, the World Bank (2008) argues that these measures "will not result in a positive economic outcome or improved well-being of the Congolese, because the administration of the sector is dysfunctional—handicapped by insufficient institutional capacity, continuing political instability, corruption, and fundamental deficiencies in governance."

As Figure 15 indicates, there is a high degree of geographic overlap between mineral reserves and DRC's tropical forests, Miombo woodlands and the protected area network. The danger is that as investment in the mining sector increases without a concurrent change in administration of the sector, mining activities will continue to threaten the DRC's forests and biodiversity, and by extension affect global climate change. In short, if exploitation continues to occur and expand within these areas as expected, the potential to significantly affect biodiversity and forest cover should be considered very high. Forest destruction will be locally extensive and permanent. In almost all cases, the impacts can only be mitigated and never eliminated.

Industrial Mining

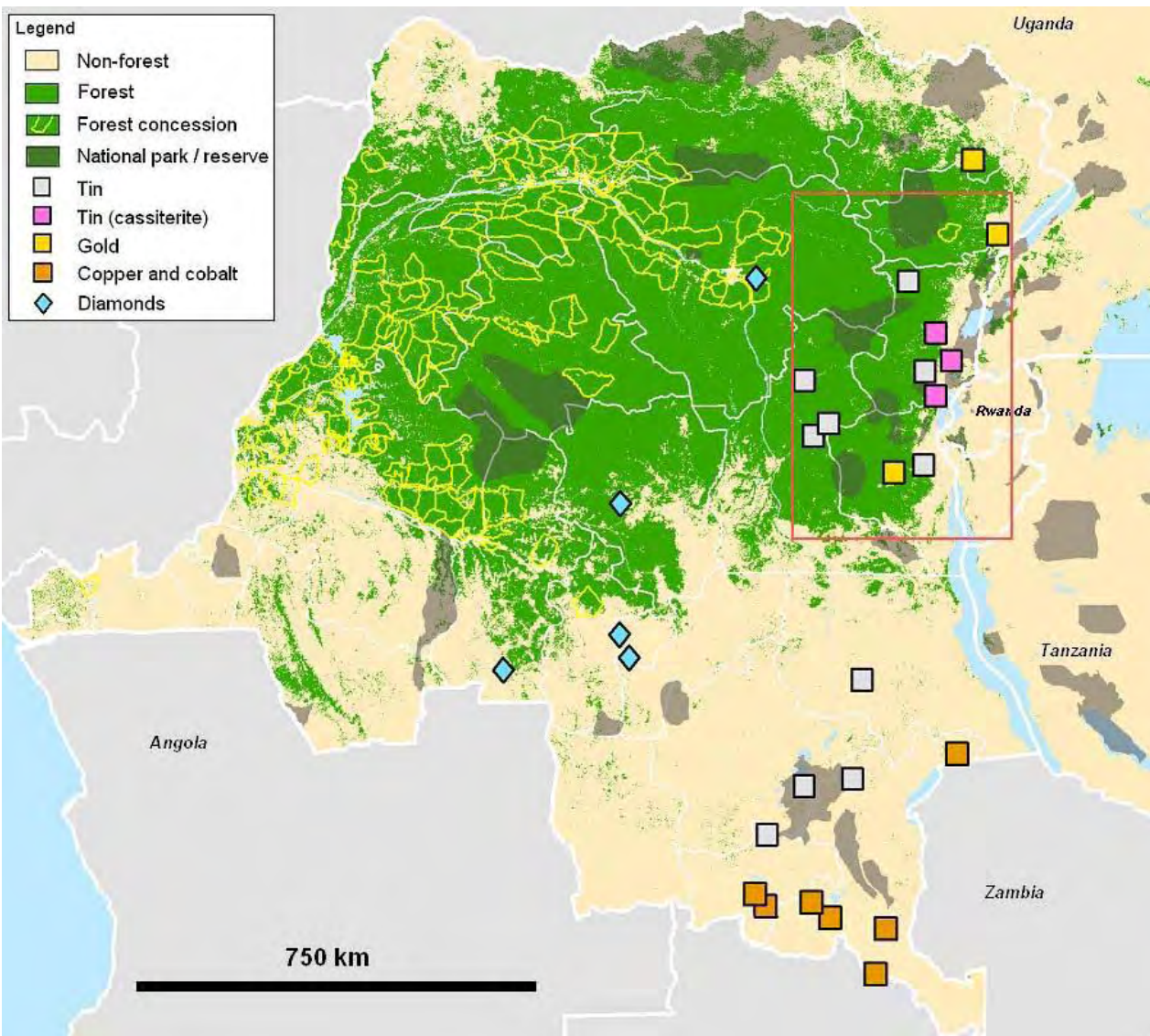
New investments. Private investment in Congo is beginning. According to the World Bank, Congo has seen nearly \$3 billion in new private sector investment since 2003, mainly in the mining sector. U.S.-based Freeport McMoran has begun activities at one of the largest mining concessions in the world, in Tenke-Fungurume, located in Katanga. The GDRC, like other African states, is working with Beijing. Reports indicate that China and the Congo are likely to agree to a multiyear set of business deals worth approximately \$9 billion. China's central focus is to facilitate its access to Congo's enormous deposits of copper and cobalt, which it needs for its own development. Given the number of mining permits and their proximity to DRC's protected areas (see Figure 17), the issue is whether the GDRC has the capacity and political will to enforce environmental regulations under the new Mining Code. To the assessment's team's knowledge, of the new investments, only Freeport has submitted the required environmental and social impact assessment (in March 2007), but has yet to hear from the Ministry of Mines on its status.

Yet the potential environmental impacts of mining are enormous and can include:

- Siltation of dams and rivers;
- Indiscriminate deforestation;
- Additional degraded lands from settlement patterns of miners;
- Ground and surface water pollution, including acidic mine drainage and heavy metal pollution from copper, lead, arsenic, mercury, or cyanide, if the excavation is in highly mineralized zones;

- Dust pollution;
- Water table depression as a result of pumping water through shafts, and in some cases through boreholes;
- Oil pollution from leaks from vehicles and machinery; and
- Habitat fragmentation, decreased habitat effectiveness, and increased mortality of wildlife, through increased bush meat consumption

FIGURE 15: OVERLAP BETWEEN MINERAL RESERVES AND DRC'S TROPICAL FORESTS, MIOMBO WOODLANDS AND THE PROTECTED AREA NETWORK



Source: Institute for Environmental Security (2008)

Legacy issues, pollution stocks, and pollution

flows. Mining has taken place in many areas of DRC since the early 1900s. Over the years, significant stocks of pollution have accumulated, and old mine workings have not been properly closed or rehabilitated. For example, there are allegations that a number of furnaces and processing plants in Katanga are polluting the water supply for the City of Lubumbashi. The GDRC has not prepared a comprehensive inventory of the legacy sites and a national environmental remediation plan for the pollution stocks. Importantly, the partnership agreements signed between the state-owned enterprises and private partners generally explicitly waive any responsibility for existing environmental liabilities by the private partner or the new entity which is created to operate the mine. Furthermore,

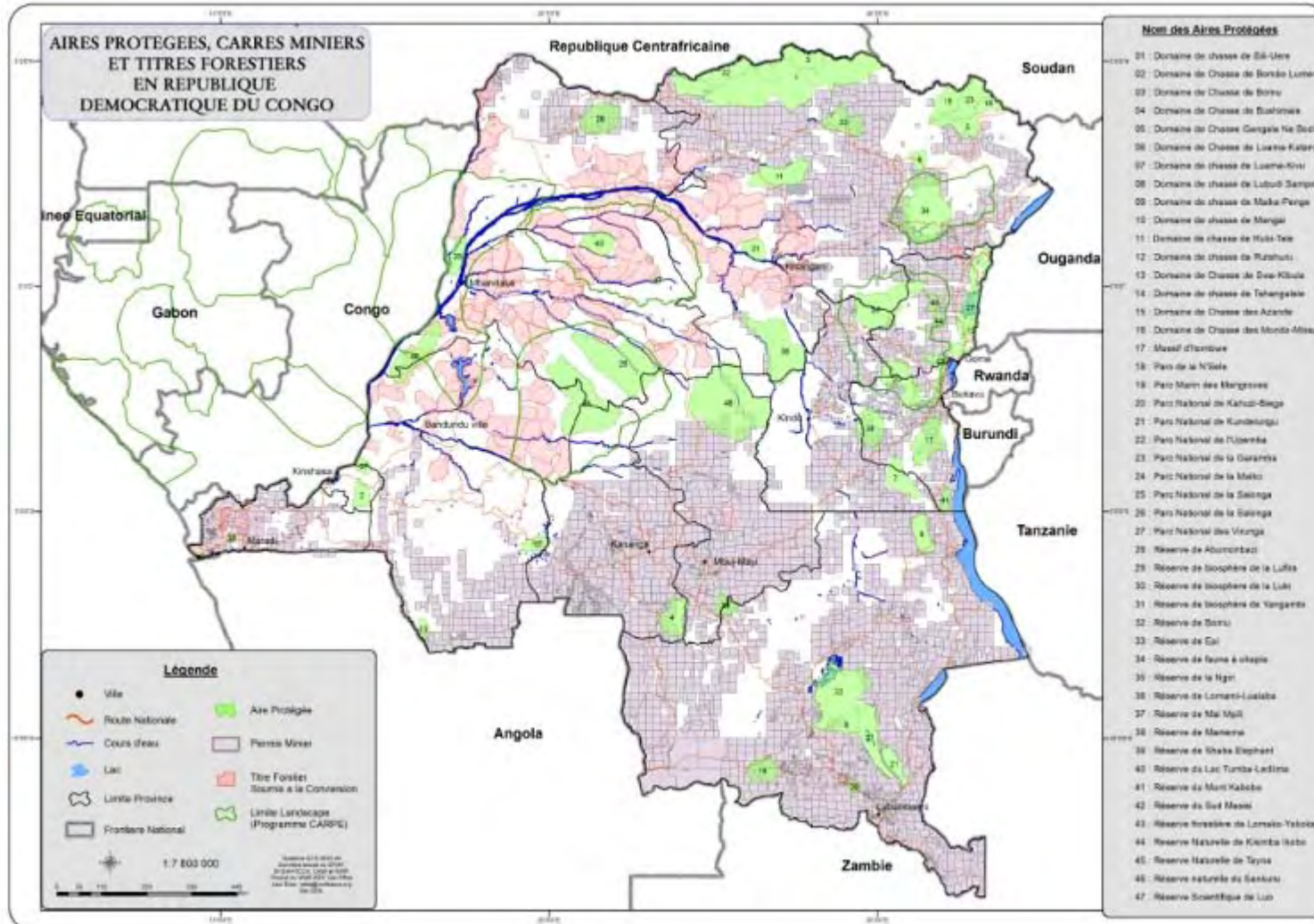
the Mining Code specifies that all mineral rights holders need to establish an environmental rehabilitation guarantee in favor of the government. International practice is generally for the mineral rights holder to arrange for the posting of a bond or guarantee through a reputable financial institution, and the establishment of a special reserve account within the financial statements of the company to cover the eventual costs of rehabilitation. In practice, since there are no international or local banks in Congo willing to issue these guarantees, the company must pay substantial sums up-front as rehabilitation guarantees upon issuance or renewal of the mineral right. But according to the World Bank (2008) no evidence can be found of effective government agency control of the rehabilitation funds that the companies have paid, and the funds that have been paid are unaccounted for.

FIGURE 16: OLD GECAMINES SITE NEAR LUBUMBASHI



Photo: DAI

FIGURE 17: GEOGRAPHIC DISTRIBUTION OF PROTECTED AREAS, MINING PERMITS, AND FOREST TITLES IN THE DRC



Source: ICCN/SYGIAP (2008). Artisanal Mining

It is estimated that 90 percent of minerals production in DRC comes from artisanal miners. Estimates vary on the number of artisanal miners in DRC: 500,000 to 2,000,000 diggers (*creuseurs*) are thought to be actively and directly involved in extraction of minerals. With an average of four to five dependents for each digger, the total number of persons whose livelihood depends on this activity for could be as high as 8 to 10 million—or 14 to 16 percent of the total population of Congo.

Artisanal and small-scale mining takes place in virtually all of DRC's mineral producing areas:

- Gold is mined by artisans principally in the east of the country (Orientale, Ituri, Kivus);
- Cassiterite is exploited by artisans in the Kivus;
- Diamonds are mined by an estimated 700,000 to 1,000,000 artisans, principally in Kasai Orientale and Kasai Occidentale;
- Heterogenite (25 percent copper, 10 percent cobalt) is produced by an estimated 150,000 diggers, principally in Katanga (estimates range from 50,000 to 250,000).

Small-scale gold and diamond artisanal operations typically involve the digging of pits within alluvial river channels and excavating for black sands that are associated with diamond-bearing gravels. Up to 100 individuals work on a one-acre site. The diggers use shovels to extract the target gravel, which is most often carried off in pans or sacks to an area where the gravels are washed using a sieve. Cassiterite and heterogenite mining is more extensive and takes place on the hillsides.

FIGURE 18: CASSITERITE MINING IN EASTERN DRC



Photo: British Broadcasting Corporation.

Artisanal mining has had and continues to have an impact on the DRC's forests and biodiversity, including an impact on national parks and wildlife reserves. In 2002, a reported 10,000 artisanal miners moved into Kahuzi-Biega and 4,000 to the Okapi Wildlife Reserve. Currently, the Ministry of Mines acknowledges that there are still many artisanal miners in the parks and reserves, but can provide no estimate of the total number.

The majority of the artisanal activity may have individually insignificant effects on biodiversity and tropical forests but cumulatively significant effects. In combination with the lack of any effective reclamation programs for mined areas, artisanal mining has led to significant areas with decreased habitat capability and increased erosion, although the extent of this area is not known. Biodiversity is impacted by the change in habitat, water quality, and land use after extraction. Reportedly, artisanal mining has also facilitated DRC's trade in endangered species through increased access to remote sites.

Other potential environmental impacts from artisanal mining are similar to those of industrial mining and include:

- Siltation of rivers;
- Indiscriminate deforestation;

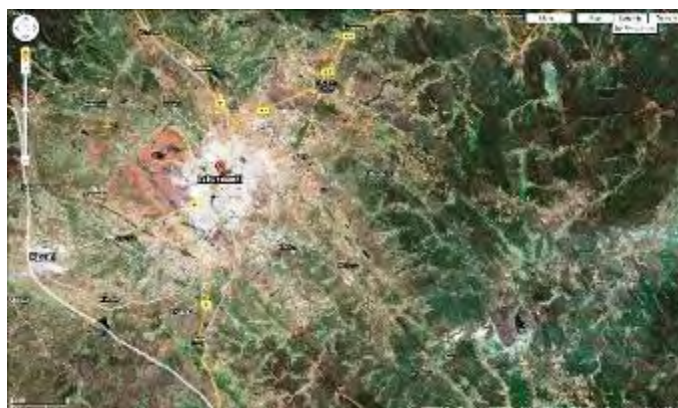
- Additional degraded lands from settlement patterns of miners (e.g., the establishment of mining camps);
- Ground and surface water pollution, including acidic mine drainage and heavy metal pollution from copper, lead, arsenic, mercury, or cyanide, if the excavation is in highly mineralized zones; and
- Habitat fragmentation, decreased habitat effectiveness, and increased mortality of wildlife, through increased bush meat consumption.

Current artisanal mining practices will likely lead to continued environmental impacts, unless improved methods and management activities are introduced. Although the Mining Code provides for special artisanal mining zones, for the most part, these have not been established, and where they have been established, they have not functioned. Similarly, the Code authorizes provincial authorities to issue a “diggers card” (carte de creseur), which costs the artisan US\$25 per year and authorizes the digger to mine within a certain zone. In reality, virtually no artisanal miner possesses the card (in 2007, only 59 small-scale mining permits were issued). Even if they recognize the legal requirement to have the card, they are unable or unwilling to pay US\$25 to obtain one. Furthermore, the card is valid only for a certain zone, while the miners are mobile and migrate from zone to zone. Also, the authorization is subordinate to a mining right (exploration or exploitation permit), and thus companies can (and frequently do) take over permit areas which are actively worked by artisans.

8.2.5 FUELWOOD

Wood accounts for 85% of domestic energy use in the DRC. Fuel wood consumption varies between 1 and 1.6 m³ of fuel wood per person per annum, and from 85 to 90 kg of charcoal per person per annum, based on FAO 2005 figures. The UN’s Energy Statistics Database estimates that from 2001 to 2005, annual household fuelwood consumption increased from 12,935,000m³ to 14,507,874 m³ while industrial consumption increased from 66,080m³ to 71,066m³ during the same period. Fuelwood consumption is undoubtedly a major cause of forest degradation particularly for peri- urban forests, although the extent of the degradation is not known. There are reports that fuelwood for Kinshasa is now coming from distances of up to 400 km. In Lubumbashi, ICCN reports that most of the fuelwood supplying Lubumbashi is now coming from distances of over 40 kilometers, and even a casual observer to Lubumbashi can see the impact of cutting for fuelwood on the miombo woodlands surrounding the city. As one Centre de Coopération Internationale en Recherche Agronomique (CIRAD) researcher put it, "as the population has grown, we have almost reached the point of no return as regards forest degradation, particularly in peri-urban areas, where wood is the main energy source". Unfortunately, the GDRC and donors have accorded little attention to this issue, and as a result, little is known about the fuelwood value chain.

FIGURE 19: IMPACT OF CUTTING FOR FUELWOOD AROUND LUBUMBASHI



Satellite Image: Google Maps

8.2.6 ILLEGAL TRADE IN ENDANGERED SPECIES

The DRC continues to suffer from illegal trade in endangered species. For the most part this trade involves a complex network of dealers and civil servants (often members of the army, police and other political or economic elites), the ‘heads’ of which are located in the urban centers. More often than not, these local networks are supported and financed by international networks (e.g., Chinese “syndicates” in the case of ivory). A by no means exhaustive summary of traded endangered species is presented below:

- The Northern white rhino, found only in National Park is probably extinct. There were only a male and a female left as of early 2009, and they have not been sighted for several months according to ICCN. Unfortunately, when their numbers fell to just ten in 2007, an emergency plan to translocate half the population to Kenya in an attempt to guarantee the survival of the species was not approved by DRC’s Parliament;
- Although trade in elephant ivory has been prohibited since 1990 by the Convention on International Trade in Endangered Species (CITES), in vast regions of DRC, particularly in the Maiko-Tayna-Kahuzi-Biega and Salonga-Lukenie-Sankuru Landscapes, elephants have become very rare. ICCN estimates that 17 tons of elephant ivory was smuggled out of the Okapi Wildlife Reserve, in eastern Congo’s Ituri forest, between June and December 2004. ICCN also estimates that the elephant population in Ituri as decreased from an estimated population of 6700 in 2001 to a current population of around 2000, with most of the loss attributed to the illegal ivory trade. Elephant hunters are also increasingly using the meat of the animals that they kill, which is an alarming trend. Although bushmeat is not as valuable as ivory on a unit measure basis, the large volume of meat available on an elephant means that the total value of the elephant is high. In some cases, the total value of the meat surpasses the total value of the ivory, especially when the animals have only small-tusks. Thus the economics of supply and demand of bushmeat, like that of ivory, drive illegal elephant killing in the DRC;
- Orphaned (usually a result of the mother being killed) bonobos, chimps and gorillas continue to supply the illegal pet trade;
- African Grey Parrots are also at risk from the illegal pet trade. For example, in December 2007, an estimated 550 rare birds of various species were brought into Pakistan without the required documentation. The birds, including African grey parrots, canaries and budgerigars, were brought into Karachi in three consignments, two directly from the DRC, and one from the DRC via the Netherlands;
- Africa’s largest remaining natural stands of *Prunus africana* (whose bark used to treat pre -prostate cancer) located in Eastern DRC are at risk due to uncontrolled harvesting in combination with the use of unsustainable harvesting techniques;

FIGURE 20: ROAD CONSTRUCTION IN CENTRAL AFRICA’S TROPICAL MOIST FOREST



Photo: Nadine Laporte

- The demand for hippo teeth sold in the illegal ivory trade has decreased the hippo population in Lake Albert (Virunga National Park) to about 1300 animals, a drop of 95% in 30 years.

8.2.7 ROAD CONSTRUCTION

Part of the legacy of the Mobutu era in DRC is a complete neglect of all but the most important roads. This is generally believed to have been a strategic decision by the former dictator to make it difficult for potential aggressors (be it rebellious populations or invading armies) to advance on his strongholds and take over the country. Thus, river transportation has been the major mode of access to remote forests in the DRC. River boats have long been transporters of bushmeat from the forest to important urban areas.

As peace and stability return to the DRC, improving the country's road network will be absolutely essential for development, but roads fragment the forests, favor the advance of agriculture and facilitate hunting and trade in bushmeat. The damage that they cause is usually the result of a lack of planning and non-compliance with the laws in force. In certain cases, roads have positive effects and attract populations away from the forests, sometimes even out of protected areas. In effect, they allow these populations to develop activities other than hunting and gathering. The construction or rehabilitation of roads is therefore a very ambiguous problem that, more than any other problem requires an objective, rational and multidisciplinary approach.

8.2.8 DISEASES

Animal health, human health and biodiversity are closely linked. The best examples of this relationship are provided by malaria, HIV/AIDS and Ebola, all of which are having devastating effects on local human capacity in forest management, conservation and the environment. In addition to its occasional effects on humans, the Ebola virus has been exterminating great apes and other species of fauna in great swathes of forest in the Congo Basin for thirty years. Insufficient knowledge of the links between human health and animal health, combined with a lack of infrastructure capable of minimizing the effects of epidemics, constitute major threats to sustainability in the DRC.

8.2.9 ALIEN INVASIVE SPECIES

Alien invasive species (AIS) are those that have crossed natural barriers and entered ecosystems where they have not existed previously in recorded history. They can include plants, animals, fungi, bacteria, algae or viruses. Impacts on the environment from AIS can include:

- Displacement of native species through competition for food and other resources, through predation, alteration of habitat and food webs;
- Dilution and potential loss of locally adapted gene pools caused by the introduction of non-locally adapted strains of the same species, or closely related species that are able to hybridize; and
- Infection of native animal and plant species by a variety of parasitological organism, such as bacteria, viruses, and fungi.

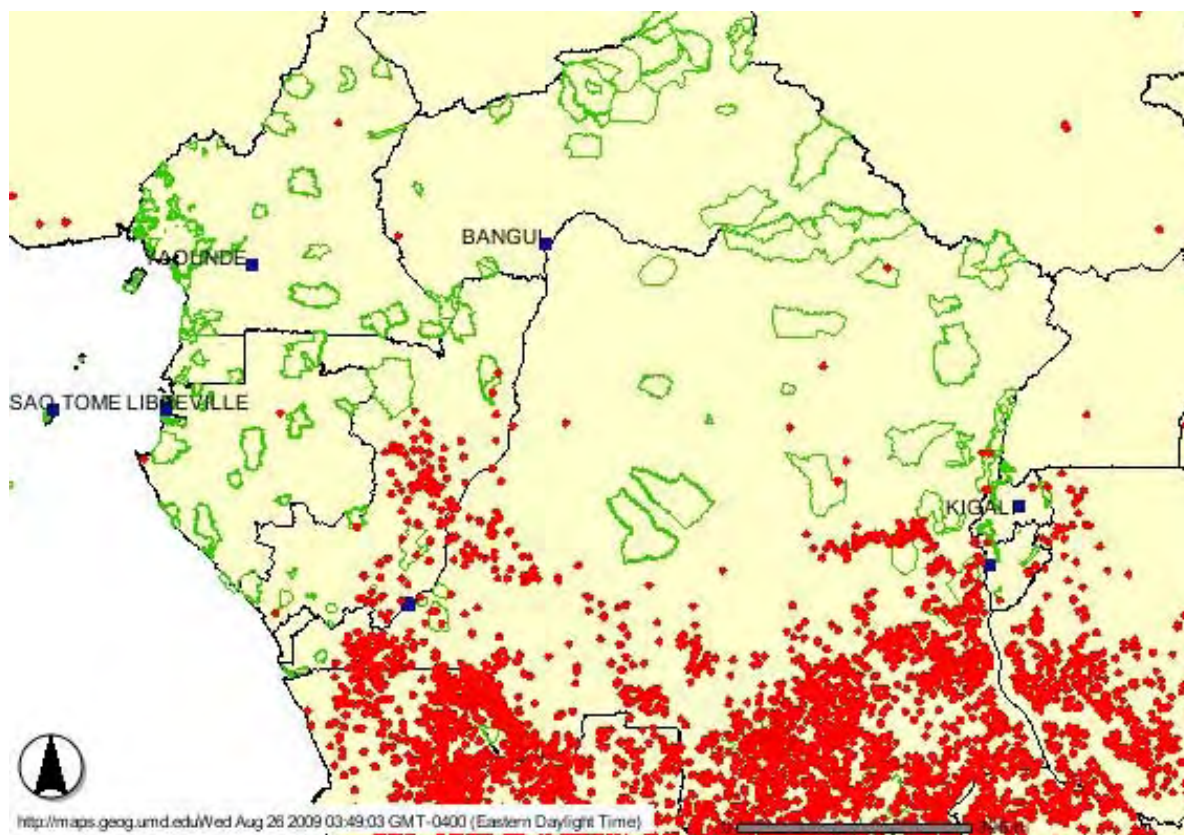
There are many floral and faunal species that have invaded DRC over the decades. Although no inventory has as yet been done on AIS in DRC, nor have the impacts of AIS been quantified, there are at least three species that are thought to have an impact on forest ecosystems:

- *Chromolaena odorata* is an herb, and a typical pioneer species of secondary forest succession with a strong heliophilic character and vigorous vegetative development. Initially it spreads through seed dispersion, but after establishment it may also reproduce vegetatively from lateral branches. Regrowth occurs after slash and burn cultivation. Due to abundant vegetative development, *C. odorata* out-competes young trees leading to poor natural regeneration. It also provides a habitat and breeding spaces for harmful insects such as the variegated grasshopper, *Zonocerus variegates*, which attacks cassava fields causing substantial yield losses. During the dry season, it constitutes a fire hazard.
- *Water hyacinth*. One of the most globally well-known waterweeds is the Water Hyacinth (*Eichornia crassipes*), which occurs in the Congo River and its tributaries. The Water hyacinth is an exotic, free-floating aquatic plant that can form small colonies, “floating islands” or extensive mats that can cover thousands of hectares of previously open water. When invasive, water hyacinth forms a complete covering of the water surface that excludes most light and air for submerged organisms thus depriving them of essentials for survival. A significant reduction of general aquatic biodiversity and a change of fisheries results from invasion. The mats can also have serious mechanical impacts on water supply systems, drainage canals, inflows to hydropower generators, and movement of shipping and river flows. The hyacinth increases evapotranspiration leading to significant water loss from reservoirs and other water bodies. The crowding of plants at the edges of water bodies prevents access to the water for collecting water or fishing.
- *Sericostachys scandens*. *S. scandens* is a keystone species, a semi-woody climber capable of growing 20-30 m in length. In the 1990s, this species has come to dominate large expanses of the forest in Kahuzi-Biega National Park in Eastern DRC and other mountain forests in the region, as a result of declining elephant populations which kept the species under control. Where present, this liana has created a mono-dominant understory and mid canopy patches that cover large areas which causes the decline of local plant species important for the nutrition of gorillas.

8.2.10 BUSHFIRES

Bushfires are undoubtedly having an impact on DRC’s forests and biodiversity although there is very little information available on the extent of this impact. In many areas fires are lit several times a year by peasants for various reasons (clearing for agriculture, pasture regeneration and for hunting buffalos, antelopes or even small rodents), which results in the progressive disappearance of the woody species most sensitive to fire and the re-growth of herbaceous species. As Figure 21 indicates, in 2009, the most serious areas for bushfires in the DRC are in Bas Congo, Kahuzi-Biega, and the Miombo woodland areas of Katanga.

FIGURE 21: BUSHFIRES IN THE CONGO BASIN 2009



Source: CARPE Mapper (2009).

8.2.11 THREATS TO AQUATIC BIODIVERSITY

The DRC is endowed with extensive fisheries resources, found mostly in the eastern Rift Valley lakes and in the riverine and swamp fisheries of the vast Congo Basin. FAO Food Balance Sheet estimates for 1997 put national fisheries production at 162 961 metric tons, and report that fish products contributed nearly one third of the total national animal protein supply for that year. However, following years of political and economic collapse leading up to the civil war of 1996-97 and the subsequent period of instability, it is not possible to construct a reliable picture of the current state of the DRC fisheries sector. Fisheries administration in the country effectively does not exist, and statistical and other information on specific water bodies is either lacking or very outdated.

IUCN (2008) does provide an indication of some of the threats to aquatic biodiversity, including:

FIGURE 22: OVER-EXPLOITATION OF OYSTERS NEAR MANGROVE NATIONAL PARK



Photo: DAI

- DRC's fish populations are menaced by overexploitation, pollution, alteration of habitat and destruction of shore zones;
- Aquatic invertebrates, used for food (harvested at moderate levels), are menaced by hydrocarbon pollution (habitat alteration);
- There are no regulations governing aquatic organisms, and no protected zones established for their conservation;
- Aquatic ecosystems and natural habitats of DRC have never been considered in government planning, not even for their possible contribution to the national aquatic production to reduce the enormous imports of fish products. The hope of reducing imports justified the elaboration, with the participation of FAO, of a Master Plan for Fisheries in 2008 whose implementation has yet to begin.
- Current legislation, dating from 1937, is not adapted to the current reality. Similarly, international, regional and sub-regional accords that represent opportunities of action for sustainable use of fisheries resources are not appropriately monitored or enforced.

8.3 INDIRECT THREATS

8.3.1 CLIMATE CHANGE IMPACT

Forests

The impact of the current level of climate change on tropical forests is a matter of considerable controversy, with estimates ranging from massive uptakes to massive emissions of carbon by standing tropical forests. The amount of monitoring data—although much greater than what was available only a few years ago—is still inadequate to resolve some of the controversies. Other parts are a matter of interpretation of the data at hand. Of course, not all interpretations, and not all data sets, are equal in terms of their consistency.

Generally speaking, in recent decades, carbon losses from tropical deforestation have been partly or largely offset by a tropical sink. Forest sinks are, however, unlikely to continue indefinitely, and continued warming will likely diminish and potentially even override any fertilization effects of increasing CO₂. Climate change might also adversely impact tropical forests by reducing precipitation and evapotranspiration, making them drier, more susceptible to fires, and more prone to replacement by shrublands, grasslands, or savanna ecosystems, which store much less carbon. Continued deforestation may disrupt forest water cycling, amplifying the negative impacts of climate change.

A new generation of coupled climate/carbon models is being used to explore the prospects for the persistence of tropical forests in a changing climate. Early studies projected that business-as-usual increases in CO₂ and temperature could lead to dramatic dieback and carbon release from tropical forests, raising concerns that high sensitivity of tropical forests to climate change might compromise the long-term value of reduced deforestation, with dieback releasing much of the carbon originally conserved. However, more recent climate-carbon cycle models project that tropical forests will continue to act as carbon sinks, albeit declining sinks, throughout the century. The moderate sensitivity indicated by the new results suggests that reducing deforestation can result in long-term carbon storage, even with substantial climate change. More importantly, all models project that even in extreme scenarios, direct deforestation will impact tropical forests before climate-driven dieback.

Biodiversity

Although there has been little research on the possible impact of climate change on biodiversity, most specialists agree that as with tropical forests, loss of habitat through anthropogenic factors will impact biodiversity long before any possible impact from climate change. There are two possible exceptions to this. First, many endemic species with restricted ranges, are most at risk from minor climatic changes. One example is the endangered mountain gorilla (*Gorilla beringei beringei*), which is found on the borders of the DRC (Virunga NP), Rwanda and Uganda. The second exception would be for migratory animals. The unique way of life of migratory animals, be it birds, marine or terrestrial mammals, fish, marine turtles, or insects, illustrates like no other phenomenon the connectivity of ecosystems across the globe. While climate change has and will have very different faces in different regions, migratory animals will need to adjust their migration patterns accordingly if they are to survive. Migratory species are especially at risk due to climate change because they require separate breeding, wintering, and migration habitats of high quality and in suitable locations. Often, one or more of these habitats could be at risk because of changing temperature ranges and hydrological patterns.

8.3.2 DISPLACED POPULATIONS AND CONFLICTS

Conflict and war in the DRC have led to large numbers of refugees and displaced persons. Despite United Nations assistance, these populations have been forced to depend on the country's natural resources and live in places where their impact has been very severe, both on natural ecosystems and on local populations. Resource degradation and forest loss as a result of displaced populations is particularly acute in eastern DRC, in the Virunga Landscape and the Maiko-Tayna-Kahuzi-Biega Landscape.

9. CURRENT CONSERVATION EFFORTS—SCOPE AND EFFECTIVENESS

9.1 BILATERAL AND MULTILATERAL ORGANIZATIONS

A large number of donors have been and continue to be keen on assisting DRC in the field of conservation. The World Bank estimates that the current level of donor support over the next 2-3 years will reach approximately \$360 million.¹⁹ Indeed, without this sustained support, it is probable that many of the most important protected areas, particularly those in the east of the country, would have ceased to exist by now. Annex D provides a summary of past and currently active initiatives that support tropical forests and biodiversity.

A review of donor activities brings to the forefront several key issues:

- Most donor emphasis has been placed on the tropical moist forest. With the exception of the United Nations Development Program's (UNDP) work in Upemba and Kundulungu National Parks, and GTZ and the EC's work in Garamba, DRC's other ecoregions have received little support. Yet these ecoregions harbor significant forest and biodiversity resources;
- To date, most donor emphasis has placed on creating the minimum conditions for principled access to and use of moist forest resources- specifically timber. Although this emphasis has addressed corruption and democracy and governance issues with regard to timber resources, very few projects are addressing core issues such as corruption, civil service reform, democracy and governance outside of the timber sector. The exception to this is GTZ's work in initiating a pilot civil service reform agenda in MENCT;
- Although donors have emphasized "in service" capacity building at MENCT and ICCN, and the EU supports the Ecole Régionale d'Aménagement et de Gestion Intégrée des Forêts Tropicales²⁰ (ERAIFT), only the Canadian International Development Agency (CIDA) is addressing the core issue of replacing a cadre of retiring professionals by strengthening the University of Kinshasa's Forestry Department—which has in essence not functioned in the last 30 years;
- Although perhaps embedded as sub components of certain programs, there appears to be almost a complete neglect of alternative income generation activities. Yet such activities will be critical to stemming the bushmeat, illegal logging, and endangered species trade.

In sum, the assessment team is doubtful where current donor efforts will yield immediate results unless they are integrated into a broader and longer term agenda aimed at counteracting poverty, corruption, insecurity and civil conflict, which are the major drivers of forest degradation and biodiversity loss in the

¹⁹ World Bank (2009).

²⁰ ERAIFT is a regional UNESCO project and forms an integral part of the Man and the Biosphere Program (MAB). Students come from more than ten African countries. Degree programs include Ph.D. and Diplôme d'Études Supérieures Spécialisées (DESS).

DRC. In this sense, sustainable resource management and improved wellbeing of DRC’s people cannot be achieved in isolation from a number of more general development aims, including widespread peace and civil security, better infrastructure and communications, a strengthened democracy, and wider community participation. As one MENCT employee put it, “most donor programs in the DRC seem to focus on curing the symptoms of the disease rather than curing the disease itself.”

Finally, improved donor coordination in the environment/natural resource sector is becoming increasingly important in DRC in light of the increased volume of aid, proliferation of projects, and the administrative weaknesses of the GDRC noted in Section 9.4 below. Theoretically, the GDRC’s National Forest and Conservation Program (PNFoCo) should take on this role as PNFoCo is a national program which serves as a common framework for all nationally and donor-assisted interventions in the sector. However, as PNFoCo has only recently been formally established, it is unclear whether it will play a donor coordination role—or at a minimum develop an environment/natural resource project database. Moreover, it is unclear whether PNFoCo’s mandate will extend beyond the tropical moist forest.

9.2 UNIVERSITIES AND RESEARCH INSTITUTIONS

In 1954, the Belgian colonial authorities founded the first university in the sprawling Congo territory, and two years later they established a second. The first university had its campus in Leopoldville (now Kinshasa) and was called Université Lovanium. The second university was the Université Nationale du Congo in Elizabethville (now Lubumbashi). A third institution, Université Libre du Congo, was established with Protestant-sourced funding in Stanleyville (now Kisangani) at the headwaters of the Congo River. In 1971, the Mobutu government of the newly named Zaire, decided to nationalize all three universities and pull them together into one institution—the University of Zaire—with its headquarters in Kinshasa. Ten years later, the government reversed its earlier decision and unbundled the University of Zaire into its three original components. A fourth university, Goma University, was established in the early 1990s as the ‘university centre’ of North Kivu that was originally attached to the established University of Kisangani, but during the war, became a de facto independent university run by the rebels. In 2005, several years after peace had more or less been restored to the DRC, the University Centre of North Kivu was officially transformed into the autonomous but centrally supported l’Université Libre des Pays des Grands Lacs.

These universities remain the most important educational centers in the country in terms of the number of students they enroll annually. Enrollment figures for 2007 by University are presented in Table 14 below.

TABLE 14: 2007 UNIVERSITY ENROLLMENT FIGURES

University	Total Enrollment	Undergraduate Degree/Diploma	Post-Graduate Degree
University of Kinshasa	26,186	20,754	5,432
University of Lubumbashi ²¹	21,898	13,898	(104 M.Sc. and 64 Ph.D.)
University of Kisangani ¹⁹	6,058	1,591	(37 plus 17 PhD)
University of Goma ¹⁹	4,522	4,490	(32 M.Sc. degrees)

Source: SARUA (2009).

²¹ Totals for student numbers do not tally. Verification was sought from the university by the South African regional Universities Association, but was not received.

Biology and its related branches are taught in most of the universities. However the biological curricula taught at most university institutions have been limited to basic biological concepts or laboratory biology, though some courses in practical botany with a brief introduction to the concept of ecology have been taught in certain biology departments (University of Kinshasa). Few institutions focus specifically on conservation biology in the DRC, and where this has been initiated the modules are still at a very early stage of development. Furthermore, provinces of high biodiversity importance like Equateur and Kivu have no university institutions providing training in conservation.

The faculty of sciences of the University of Kisangani has a long history in teaching ecology, zoology and botany and has produced a remarkable number of university graduates over the years. Currently, Ghent University is supporting a small remote sensing laboratory at the University and is training staff members in remote sensing and GIS, and the Royal Belgian Institute of Natural Sciences is providing support for a training program for the study of biodiversity and management of terrestrial and aquatic vertebrates. The Canadian International Development Agency (CIDA) is also supporting forestry curricula development under its Support to Natural Resource Management Training Project.

The University of Kinshasa has a curriculum in natural resource management at the Faculty of Agriculture, with an option in wildlife management. The University of Kinshasa also hosts ERAIFT, a central African regional postgraduate school financed by UNESCO. The school trains central African citizens in sustainable natural resource management and places a particular accent on the human dimension of conservation practice. There is also a private organization based at the University of Kinshasa known as Environmental Resources Management and Global Security (ERGS), founded since 1998 to promote the rational management of natural resources for global security. The OSFAC program maintains a GIS/RS lab within the School of Agronomy at the University of Kinshasa. The University's Forestry Department has basically not functioned since 1979, but CIDA, through the University of Laval, is now supporting the Department in terms of infrastructure, curriculum development, faculty training and distance learning programs.

In response to the nearby mining activity, nearly 200 of the 769 academic and research staff employed at the University of Lubumbashi is active in the science, engineering and technology fields. There are active geology, engineering, and information science departments, and the geology department supports research on ecology and site rehabilitation for the Tenke Fungurume Mining Company. Tripartite co-operation between the University of Lubumbashi, the University of Liege in Belgium, and the University of KwaZulu-Natal in South Africa focuses on mining and metallurgy, as well as HIV/AIDs and blood transfusions.

In spite of the extraordinarily difficult circumstances of the first 15 years of its existence, the L'Université Libre des Pays des Grands Lacs (ULPGL—Goma University) has enjoyed remarkable growth. The university has five faculties: law, economic sciences and management, health and community development, and education sciences. Although the university does not have a biological sciences program, the law faculty organizes field trips for students to both sensitize local communities on legal issues, and new legislation and policies (including the Forest Code) and better prepare future lawyers.

After independence the DRC created a number of other specialized higher education institutions. These include the Instituts Supérieurs Pédagogiques (ISP), the Instituts Supérieurs de Développement Rural (ISDR), the Instituts Supérieurs Techniques (IST), the Institut Supérieure Agro Vétérinaire (ISAV), the Institut Supérieur des Techniques Appliqués (ISTA) and the Institut d'Etudes Agronomiques (ISEA).

Biology and its related branches are taught in most of the ISPs. ISTA includes environmental studies in its curriculum, focusing on environmental health questions (water and waste treatment, urban environment, etc.). CIDA is currently assisting ISAV to develop an agroforestry option, and ISEA to develop an “Eaux et Forets” option.

Additionally, a new institution called the Tayna College of Conservation Biology, supported initially by USAID/CARPE, is in its fifth year of operations and has graduated over 200 students. It is located in the eastern region of the country with a view to training students that will manage the forests of the community reserves.

A number of research institutions were also created including the Centre de Recherche en Ecologie et Foresterie (CREF), the Centre de Recherche en Sciences Naturelles (CRSN), the Institut National de Recherche Biomédicale (INRB), the Institut National de Recherche Agronomique (INERA), and some aspects of ecological research are covered by these organizations. INERA is supported by the EU funded, FAO implemented Program for Relaunching Agricultural and Forest Research in the DRC (REAFOR) program.

In general, however, if the DRC is to develop the quality and quantity of human resources necessary to ensure sound management of its exceptional natural heritage, a number of core issues will need to be addressed. The World Bank’s Country Study “Education in the Democratic Republic of Congo: Priorities and Options for Regeneration” (World Bank, 2005), provides a concise summary of these issues.

Higher Education in the DRC

With an almost complete reliance on household financing for the last 15 years and in the conditions of economic decline, the quality of higher education has deteriorated very rapidly. Curricula and programs are outdated. There has been little or no investment in infrastructure, laboratories or libraries for many years. Students have limited access to textbooks or other materials. Professional staff has no opportunities for professional development, which earlier used to be offered by exchanges with universities in Europe.

An uncontrolled expansion in student numbers has led to a lowering in standards, reinforced by the decline in quality of secondary education. The high transition rate between upper secondary education and higher education has led to an explosive growth in student numbers, which has reduced quality further. Universities are under pressure to admit more students because of their heavy reliance on student fees to pay teachers’ salaries. Increasing student numbers have been accommodated by converting hostels and dining facilities into lecture rooms, while many classrooms are extremely overcrowded.

A decline in the number of teaching staff is one of the main issues in higher education, caused by the limited number of students entering doctoral programs and willing to enter the profession. Most private universities use staff from public universities, who therefore teach simultaneously in several universities, compounding the problems of providing quality instruction.

Among the other structural problems of the higher education system are the multiplicity of courses and options, the limited academic autonomy of Universities to introduce courses, the fragmentation of provision across a number of small institutions and an excess of administrative staff both at the Ministry and in the institutions. These factors lead to the inefficient use of resources and high unit costs.

Although the private sector has contributed to the expansion of the higher education system, it is a largely unregulated and operates in a confusing policy framework. A large number of ad hoc decisions implemented over the last twenty years have contributed to this confusion, with the result that degrees from private institutions are still not officially “recognized.”

9.3 INTERNATIONAL AND NATIONAL NONGOVERNMENTAL ORGANIZATIONS

9.3.1 INTERNATIONAL NGOS AND ORGANIZATIONS

Conservation NGOs

A large number of international conservation NGOs working with a wide variety of public and private funding sources (EC, USAID, Belgium, GEF, UNDP, World Bank, UNF, Foundations, private donors) implement a wide range of conservation and applied conservation research projects throughout the country. Several of them remained in the country and continued to provide direct support to ICCN in the field throughout the war and it was largely thanks these organizations that the major public funding agencies were able to channel their funds to DRC. In addition to the funds that they receive from the public funding agencies, including USAID/CARPE (which represents the major part of their funds) these NGOs also mobilize funds from their own networks of private funders. Their interventions cover a wide range of activities including all aspects of protected area management, surveys and monitoring, community conservation, environmental education, conservation-based research, capacity building. Several of them (Wildlife Conservation Society—WCS, WWF, and Gillman International Conservation—GIC) have been supporting the DRC uninterrupted for over 20 years. WWF is particularly active in Virungas NP and has secured several funding sources (\$US1.7m) for park management, community conservation, participatory management and land use planning activities in the Virungas over the next 2-3 years. Table 15 provides a list of the major conservation NGOs operating in the DRC along with a summary of their major activity areas.

TABLE 15: INTERNATIONAL CONSERVATION NGOS

Organization	Activity Areas
Africa Parks Foundation (APF)	Working in Garamba National Park, APF supports anti-poaching initiatives to ensure the protection of the northern white rhino and implements an action plan to recover the population.
African Wildlife Foundation (AWF)	AWF is the lead CARPE partner for Landscape 9 (Maringa—Lopori—Wamba) in collaboration with consortium members World Agroforestry Centre (ICRAF), the WorldFish Center (WFC), the Netherlands development organization (SNV), and REFADD (a local NGO). AWF has helped establish the Faunal Reserve of Lomako-Yokokala—a reserve of more than 3,600 square kilometers. This is a landmark achievement as it is the DRC's first reserve that formally recognizes the local community in the development of its management plan. As part of the process to identify an appropriate protected area, AWF conducted biological surveys which confirmed rich biodiversity, including the endangered bonobo. The data collected helped AWF to develop a map with proposed boundaries that would ensure the adequate protection of bonobos. The established 3,625 square kilometer Faunal Reserve not only offers protection for the bonobos, but it also harbors critical populations of the endemic Congo peacock, golden cat, giant pangolin, ten species of primates and other key species. AWF is also one of the first CARPE partners to establish a formal steering committee for program oversight composed of ICCN, local government and MOE officials.
Conservation International (CI)	CI is the lead for Landscape 10 (Maiko—Tayna- Kahuzi-Biega Forest) with Consortium members Dian Fossey Gorilla Fund International (DFGFI), WWF, and Jane Goodall Institute (JGI). CI and the Dian Fossey Gorilla Fund International support the Tayna Gorilla Reserve, a community-managed protected area that safeguards vital gorilla habitat. Through this program, Congolese scientists have reported larger than previously recorded populations of Grauer's gorilla, once feared to be at risk of local extinction. The program has expanded to include seven reserves that link Maiko and Kahuzi-Biega National Parks. The parks and reserves together form a landscape corridor of more than 17 million acres, protecting roughly 90% of the Grauer's gorilla's range. CI is also providing support to

Organization	Activity Areas
	conservation efforts for mountain gorillas and is developing a carbon trading pilot project.
Dian Fossey Gorilla Fund International (DFGFI)	Beginning in 2000 with the Tayna Nature Reserve, DFGFI has been heavily involved with the creation and support of a series of community-based reserves, which are home to the endangered Grauer's gorilla and many other unique and rare species. The Tayna Nature Reserve) was created by local chiefs and their communities, to protect their remaining forests. The success of Tayna became a model for additional community-created and managed reserves, which now help create a wildlife corridor that runs between Maiko and Kahuzi-Biega national parks. The Tayna Nature Reserve has now become a government-sanctioned entity and serves as the model for other community-based reserves that have formed. In the Kisimba-Ikobo Nature Reserve, for example, local communities and customary powers have been working on creating a completely protected (non-extractive) zone since 2002. They modeled their efforts after their neighbors in Tayna, and are members of UGADEC (Union of Associations for Gorilla Conservation and Community Development in eastern DRC), a federation of eight local associations working to build community-managed reserves, providing a biological corridor zone between Maiko and Kahuzi-Biega National Parks in eastern DRC. DFGFI has also helped create the Tayna Center for Conservation Biology (TCCB), which was created by the local community and is now a government-recognized university. Located near the Tayna Nature Reserve, TCCB's curriculum is focused on conservation biology.
Fauna and Flora International (FFI)	FFI is a partner in the International Gorilla Conservation Program for Uganda, the DRC and Rwanda
Gillman International Conservation (GIC)	GIC, a consortium member with WCS for Landscape 11 (Ituri—Epulu- Aru) has been operating in Eastern DRC for over two decades. GIC's Okapi Conservation Project (OCP) is located within the Ituri Forest which covers 175,000 square kilometers of lowland tropical forest and contains some of the most important closed canopy rainforest and species diversity in the world. In recognition of the importance of this unique ecosystem, which harbors high levels of endemism, including a large population of okapi, the Okapi Wildlife Reserve was gazetted in 1992, encompassing 13,700 square kilometers. In 1996, it was designated as a United Nation's World Heritage Site.
International Rhino Foundation (IRF)	Conducted census of N. rhino populations in Garamba National Park.
Jane Goodall Institute (JGI)	A consortium partner with CI and DFGFI in Landscape 10 (Maiko—Tayna- Kahuzi- Biega Forest), JGI is working with DFGFI in a 7.4 million-acre conservation corridor stretching from Maiko National Park and the Tayna Gorilla Reserve to Kahuzi-Biega National Park. The corridor is home to an estimated 5,000 eastern lowland gorillas and 15,000 chimpanzees. Despite its high ecological and biodiversity value, this region is experiencing a severe conservation crisis due to agricultural/pastoral expansion, high levels of subsistence hunting, bushmeat extraction, exotic animal trade, extensive gold, coltan and other mining, as well as socio-economic depression resulting from more than a decade of civil war. JGI's contribution is to organize and help implement community-centered conservation initiatives modeled after TACARE (Lake Tanganyika Catchment Reforestation and Education Project), a holistic and participatory program supporting locally managed education, socio-economic development, and sustainable natural resource management in western Tanzania. The DRC program works to improve health care, provide family planning training and methods, and support local people in the development of sustainable and more efficient agricultural and livestock practices. The program also focuses on improving local governance, empowering communities, and the application of information technology to support sustainable practices.
Lukuru Wildlife Research Project (LWRP)	The mission of the Lukuru Wildlife Research Project (LWRP) is to conduct scientific research on, conservation of, and educational activities about fauna, primarily the bonobo (<i>Pan paniscus</i>), and flora within the region corresponding to the administrative Zone Dekese, Kasai Province.
Max Planck Institute (MPI)	Working in Salonga National Park, MPI conducts research on Bonobo feeding behavior and nutritional ecology, population genetics and socioecology and behavioral physiology.

Organization	Activity Areas
Nouvelles Approches/ Biodiversity in Katanga (BAK)	Works to safeguard of the natural inheritance of Katanga Province.
PACT	<p>PACT works in two landscapes: Salonga-Lukenia-Sankuru landscape, and the Ituri-Epulu-Aru landscape, in collaboration with landscape leads and consortium partners. In June 2008 PACT and WCS received additional funds from the Office for Conflict Mitigation and Management (CMM) of USAID. These funds were targeted at improving the skills and knowledge of the Consortium partners to mitigate and manage natural resource based conflicts in the Ituri- Epulu-Aru Landscape specifically. Key activities included:</p> <ul style="list-style-type: none"> • mapping conflicts and identifying potential risks in the landscape; and • training Government departments and other stakeholders involved in the CARPE work in conflict analysis, mapping and dialogue <p>Through the Extractive Industries Network (EIN), PACT established a network of responsible, internationally-listed mining companies, international development organizations and local and national non-governmental organizations. The goal of the EIN is to achieve sustainable and equitable economic recovery and improved governance in the Democratic Republic of the Congo. Through the network, PACT works with companies and local communities to identify social needs and develop solutions. The first phase of this project came to a close in January of 2009. USAID has provided additional funding under this project for work in Oriental province in northeast DRC. PACT is also continuing its relationship with Tenke Fungurume Mining (TFM) in Katanga province, to monitor/implement TFM's social component.</p>
Therese and John Hart—TL2 Project	Initiated in 2006 and with the support from the Arcus Foundation, US Fish and Wildlife Service, Wallace Global Fund, Abraham Foundation, and Edith McBean, the TL2 project is a group of people with a mission to find out how many bonobos are in the central unknown forests of Congo between the three north flowing rivers -the Tshuapa on the west, Lomami through the center and Lualaba (or southern Congo River) on its far east, for an area of about 25,000 square miles. The team's mission also is to find out what other large animals are in this forest, what threatens them and is it possible to protect them. The ultimate goal of the TL2 project is the creation of a new national park at the center of the area.
The World Conservation Union (IUCN)	IUCN, through CARPE supports a Small Grants Program which aims to strengthen civil society for conservation as an essential requisite to reach sustainable forest conservation in Central Africa. The program targets interested NGOs and local associations, non Governmental research centers, independent researchers, women and minority groups in all nine countries covered by the activities of CARPE (Burundi, Cameroon, Central African Republic, Congo-Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tomé and Principe). IUCN also implements the Strengthening Voices for Better Choices (SVBC) program—an EU supported initiative. SVBC is pursuing this goal in Bikoro territory, Equator province, a sparsely populated and heavily forested region lying just below the equator in the north-west of the country. Three logging companies are active here, but its forests are also under growing pressure from illegal artisanal logging and charcoal production. Several social groups, including pygmies and women, are marginalized and there are few alternative livelihood options for those involved in illegal logging. Additionally, with French co-operation support, IUCN is restoring the botanical garden of Kinshasa.
Wildlife Conservation Society (WCS)	<p>WCS is the lead for Landscape 7—Lac Tele—Lac Tumba Swamp Forest with consortium partners WWF and PACT. The Congo River runs through the heart of this landscape and separates many species including the regions highest density of western lowland gorillas in the Republic of Congo and a population of bonobos in the DRC. WCS operates in Lac Tele on the ROC side, while WWF works in Lac Tumba on the DRC side</p> <p>WCS is also the lead for Landscape 11 (Ituri—Epulu- Aru) with consortium partners GIC and PACT. Here, WCS works closely with villagers to rebuild respect for protected areas and to initiate a firm basis for their protection through a number of innovative community conservation programs. These include a zoning program that addresses immigration into</p>

Organization	Activity Areas
	<p>the Okapi Reserve, and the development of community organizations to build consensus regarding challenges to the Park and Park limits in Salonga and Kahuzi Biega NPs.</p> <p>As a consortium partner in the Virunga landscape, WCS works with the governments of Uganda, Rwanda and the DRC to develop a strategic plan for the conservation of this rich landscape. The goal is an effectively co-managed, protected area network allowing wildlife numbers to be maintained or increase. WCS is training park authorities in wildlife surveying and monitoring, as well as effective law enforcement. WCS is also supporting transborder collaboration between the countries and reducing conflicts between the parks' staff and surrounding communities so they can successfully protect this diverse ecosystem.</p>
Worldfish Center (WFC)	<p>WFC is a consortium partner in Landscape 9 (Maringa—Lopori—Wamba) and in Landscape 8 (Salonga—Lukenie- Sankuru). WFC conducted a study of the existing systems of management of Salonga National Park's boundary rivers and future possibilities of co-management between communities and ICCN. The results will be used to guide the building of capacity and collaborative platforms in support of the recently determined free-fishing zones of the park.</p>
World Wildlife Fund (WWF)	<p>WWF is the lead for Landscape 12—Virungas with consortium partners WCS, SNV and AWF. WWF's work in the Virunga landscape builds on more than 20 years of supporting Virunga National Park and its surrounding communities. In that time, WWF has helped promote sustainable livelihoods, provided environmental education and increased protection of critically endangered species like the mountain gorilla. WWF is currently active on the ground to reduce the environmental impacts of this conflict in concert with those addressing humanitarian needs. WWF and ICCN are currently working to restore patrols and assess the health of the park's wildlife whenever the security situation will permit us to do so.</p> <p>WWF is also the lead for Landscape 8 (Salonga—Lukenie- Sankuru) with consortium partners WCS, PACT and the Zoological Society of Milwaukee (ZSM). Six ICCN stations have been positioned on Salonga National Park boundaries. ICCN's ability to protect the park, however, is impeded by a lack of strategic planning, equipment, management and planning capacity, and long-term funding in support of surveillance and monitoring activities. WWF is assisting ICCN by establishing sustainable funding mechanisms, by providing training and improved transport and communication equipment for antipoaching activities, and by enhancing their capacity to work strategically, and with local communities. WWF has also launched a landscape-wide program to monitor and protect bonobos, forest elephants and other wildlife species. WWF and its international partners—the Zoological Society of Milwaukee, the Wildlife Conservation Society, and PACT—have completed large mammal surveys focused on bonobos and elephants over much of the landscape. These efforts have been complemented by socioeconomic studies documenting the importance of natural resources to the rural communities and emphasizing opportunities for sustainable livelihoods. Another component focuses on building national partner capacity by providing training, equipment and support for antipoaching operations, and technical advice to park service personnel protecting Salonga.</p> <p>As a consortium partner in Landscape 7(Lac Tele—Lac Tumba Swamp Forest), WWF works with local communities and international partners to improve sustainable development in the landscape and preserve biodiversity, ensuring that local economies are based on sustainably managed natural resources. WWF works for the conservation of bonobos through strengthening local communities and helping them partner with local governments. WWF also works with the Bonobo Conservation Initiative to improve conservation awareness on the DRC side of the landscape.</p>
Zoological Society of Milwaukee (ZSM)	<p>ZSM has built a program of activities in DRC called the Bonobo and Congo Biodiversity Initiative (BCBI). The program's objectives are to:</p> <ul style="list-style-type: none"> • Determine the status and distribution of the bonobo and other large mammals by conducting a comprehensive survey of the Salonga National Park; • Train and develop a cadre of Congolese experts who can assess bonobo populations and contribute to a range-wide conservation strategy; • Strengthen the ability of ICCN to promote bonobo conservation;

Organization	Activity Areas
	<ul style="list-style-type: none"> • Aid ICCN by providing support to the Salonga National Park to increase protection of bonobos and other wildlife; and • Educate the public (in DRC and the U.S.) about the bonobo and its habitat.

Advocacy NGOs

Advocacy NGOs including Greenpeace, the Rainforest Foundation and Global Witness have been active in the DRC in the areas of environmental advocacy and in filling the leadership void where they seek to compensate for national weaknesses in enacting and enforcing strong environmental rules and regulations. In the DRC, they engage in lobbying, serve as representatives and advisory experts to decision-makers, conduct research, hold conferences, stage citizen tribunals, monitor and expose actions (and inactions) of others, disseminate information to key constituencies, set/define agendas, develop and promote codes of conduct and organize boycotts or investor actions. They have been powerful in influencing companies (particular mining companies) to change their policies, although success at influencing national policies has been limited, due in part to the absence of a consensus-based approach between the NGO, major donors (particularly the World Bank) and Government. As one World Bank official put it, “negative criticism alone without recognition of positive steps risks undermining reformers. It may eventually end up in an unintended coalition with vested interests that seek to maintain the status quo²².” Table 16 provides a list of the major advocacy NGOs operating in the DRC along with a summary of their major activity areas.

TABLE 16: ADVOCACY NGOS

Organization	Activity Areas
Rainforest Foundation UK (RFUK)	RFUK works to ensure the long-term protection of rainforests by securing the rights of indigenous communities to land, life and livelihoods. In the DRC, RFUK has actively advocated for and won commitment to a series of key principles on community consultation, community rights, proper participatory zoning and upholding the moratorium on issuing new logging concessions in DRC. RFUK is also contributing the empowerment and development of indigenous Twa peoples and rolling out a community-based rainforest mapping projects in a bid to help indigenous people protect six million acres of endangered rainforest. RFUK has trained 66 Congolese ‘Master Mappers’ who will work with local communities in Inongo territory to produce a sketch map of their area and then use the hand-held GPS units, to record accurately the important points on their maps. Once all the data from the field has been collected, it will be transferred from the GPS units to a computer to produce a map of the entire territory.
Greenpeace	Greenpeace’s goal is to defend the natural world and promote peace by investigating, exposing and confronting environmental abuse, and championing environmentally responsible solutions. In the DRC, Greenpeace has had a number of advocacy campaigns including “exposes” on how international logging companies are causing social chaos and wreaking environmental havoc, and how the World Bank is “failing to stop this destruction whilst the rainforest is being sold off under the illusion that it will alleviate poverty.”

²² See CIFOR (2007).

Organization	Activity Areas
Global Witness	Global Witness's advocacy campaign in the DRC covers a broad range of issues relating to the exploitation of the country's rich and diverse natural resources. Resources such as timber, diamonds, gold, coltan and cassiterite (tin ore) have directly fuelled one of Africa's most brutal wars and have contributed to grave human rights abuses by Congolese and foreign actors during the conflict. Politicians, military and militia groups have plundered the country's natural wealth and used it to enrich themselves at the detriment of the population. Global Witness's campaign aims to document, expose and ultimately break these links. Global Witness has also documented other problems in the natural resource sector in the DRC, including extensive corruption, lack of transparency and life-threatening labor conditions. The findings of their research are published in reports, briefings and news releases which are widely distributed inside and outside the DRC.
South African Resource Watch (SARW)	SARW has developed guidelines to provide a framework which the DRC can use to ensure that the revision of mining contracts is fair, just and transparent.

9.3.2 OTHER USG SUPPORT

Through CARPE, the USG also supports the U.S. Fish and Wildlife Service and U.S. Department of Agriculture Forest Service initiatives in the DRC. A summary of activities for these organizations is presented in Table 17.

TABLE 17: OTHER USG ACTIVITIES AND PROGRAMS

Organization	Activity Areas
U.S. Fish and Wildlife Service (USFWS)	The USFWS receives a portion of funding for the Great Apes Conservation Fund. USFWS conservation efforts in the Congo Basin are closely coordinated with CARPE partners' activities and governmental and NGO conservation partners. USFWS support emphasizes direct action in the field including: building institutional and human resource capacity, improving law enforcement, outreach to local communities, providing economic incentives for conservation, and applied research to provide scientific information for conservation and management.
U.S. Department of Agriculture Forest Service (USDA/FS)	<p>The USDA/FS is working with USAID and other CARPE partners, as well as host country natural resource management agencies to develop planning processes and management planning guides for comprehensive landscape level planning and for the landscapes as a whole and the three different use zones within those landscapes: protected areas, community use zone, and extractive use zone, by providing planning tools and standards to support the promotion of sustainable natural resource management in the landscapes. Specific USDAFS activities in the DRC include:</p> <ul style="list-style-type: none"> • Protected Area Planning at Salonga National Park. Working with WWF and their partners, particularly the Congolese Institute for the Conservation of Nature (ICCN), the USDAFS provided guidance on the structure and the process for the creation of an effective management plan for the national park; • Community Use Zone Management Planning, Lac Tumba. Working with WWF on identifying the components and processes involved with the creation of a community use management plan for the region. • Landscape Level Planning. Working with AWF and WCS on landscape scale land use planning for the I Maringa-Lopori-Wamba and Ituri landscapes; • Supporting the Forest Inventory and Management Department, of MENCT, and the inter-ministerial and multi-stakeholder National Forestry Zoning Steering Committee, as they outline a national land use planning policy and process.

9.3.3 NATIONAL NGOS

The majority of environment/natural resource NGOs (réseaux or networks) were established in the late 1990s/early 2000s with donor support, as a mechanism for donors to channel resources given that most direct aid to the Government of the DRC (GDRC) was suspended. Currently, DRC's civil society derives its legitimacy from the Constitution and the *Décret-loi du 29 janvier 1999 portant réglementation des associations sans but lucratif et des établissements d'utilité publique* (ASBL). This law recognizes NGOs as partners in economic and social development and gives them a mandate to work with and represent local communities. However, the law also specifies that development NGOs must ensure that in the design and development of their programs, they follow GDRC guidelines. The law also provides for their participation as advisors to GDRC institutions, granting them the right to represent the legal interests of local communities.

Despite some MENCT resistance, it has nevertheless involved a number of NGOs in the development of the new Forest Code, particularly in writing and posting texts for Code application. NGOs have also been stakeholders in the MENCT's review of forest titles, have identified community representatives to participate in this review, and have also contributed to the decisions taken by the Commission Interministérielle (CIM) on the conversion of old forest titles. Currently a number of NGOs are actively involved in translating elements for the Forest Code into local languages and sensitizing local communities on their rights and responsibilities under the code.

Although it is generally recognized that DRC's environment networks play an important role in lobbying, awareness raising and education at local and national levels, and in forest management, monitoring and conservation projects in the field, several issues were raised during the course of the assessment:

- As most networks are dependent on donor support, some are now representing donor interests at the community level, and in some instances, representing community interests has taken a back seat to advocating a particular donor agenda;
- Indigenous peoples (Pygmy) NGOs derive their legitimacy and recognition of the concept of indigenous peoples at international level. However, the most influential of the organizations originate in the Kivu areas (with little representation from Pygmies in the Equateur area), and a number of these organizations do not even have Pygmies in their management structure;
- There is some resentment among MENCT staff regarding the networks. As one MENCT employee put it, "most of the directors and staff of these networks used to be MENCT employees, and were a major part of the problems we face today. Now that they are on the 'other side' and we are more like adversaries than partners."

Table 18 provides a list of the major environment/natural resource networks in the DRC. Most of these operate under the Coalition des Réseaux des ONGs de l'Environnement (CRON), which serves as a coordinating body.

TABLE 18: NATIONAL NONGOVERNMENTAL ORGANIZATIONS

Organization	Activity Areas
Organizations Under CRON	
Réseau Femmes Africaines pour le Développement Durable (REFADD)	<p>Created during the first Conference on the Ecosystems of the Dense and Wet Forests of Central Africa (CEFDHAC), and focusing on women, environment and sustainable development, REFADD aims to: (i) identify the ways and the methods to increase the participation of the women in natural resource management and the conservation of the biodiversity; (ii) identify environmental strategies to support the participation of NGOs of the Congo basin in the development and the realization of the national and regional programs on natural resource management and the conservation of the biodiversity; (iii) support the participation of women in the natural resource management, with information, training and through the active participation of women in decision-making on questions related to the management of forests and the environmental protection; and (iv) improve communications between NGOs in the Congo Basin. REFADD's network is both regional and national. Regionally, REFADD works with a number of NGOs in Burundi, Cameroun, Congo, Gabon, Guinea Equatorial and the Central African Republic. Nationally, REFADD is active in the provinces of Bas Congo, Bandundu, and Kasai Oriental.</p>
La Ligue Nationale des Associations Autochtones Pygmées du Congo (LINAPYCO)	<p>LINAPYCO is a framework of consultation and dialogue for the integral development of the DRC's Batwa/Bambuti communities. It has 30 association members at the provincial level, with active programs in South Kivu, North Kivu, Katanga and Eastern Province representing about 200 Batwa/Bambuti communities. LINAPYCO's vision is the internal and external self-determination of Batwa/Bambuti of the DRC. Its mission is to improve the living conditions of the Batwa/Bambuti in all the sectors of life—political, social, economic, cultural, environment and religious. LINAPYCO areas of intervention include human rights, community development, women and youth programs and the environment (forest, coastal and marine ecosystems).</p>
Réseau des Associations Autochtones Pygmées (RAPY)	<p>RAPY, created in 2002 in Bukavu, has the objective of developing a dynamic of solidarity and dialogue between DRC organizations working with Pygmy communities for better coordination and promotion of minority rights. RAPY coordinates its action with regional organizations such as Heirs to Justice, Action pour la Promotion des Droits des Minorités Autochtones en Afrique Centrale (APDMAC), the Centre d'Accompagnement des Autochtones Pygmées et Minorités Vulnérables (CAMV) and the Union pour l'Émancipation de la Femme Autochtone (UEFA). RAPY also produces guidebooks in local languages to inform local communities on the country's new mining and forestry codes and continues to document human rights abuses against Batwa and Bambuti communities in eastern DRC.</p>
Groupe de Travail Forêts (GTF)	<p>Created in 2001 and active in the Provinces of Equateur, Orientale, Bandundu , Bas Congo, and Kasai Occidentale, GTF's objective is to contribute to the improvement of forest governance. GTF works in the areas of advocacy for sustainable natural resource management, forest governance monitoring, community conservation, and community development for forest populations. GTF has been active in popularization of the forest code, the legal review of forest concessions, and strengthening local community capacity.</p>
Réseau des Organisations Communautaires Francophones d'Appui au Développement Local (ROCFAD)	<p>Created in 2003, ROCFAD's vision is to become within 10 years, a framework of reference to consolidate decentralization, good local governance, and participatory and sustainable community development at the local, national, and regional levels. Currently, ROCFAD has 35 nongovernmental organizations members distributed among six Provinces (Kinshasa, Bandundu, Bas Congo, Katanga, Eastern and Equateur. Province Eastern and Ecuador). To carry out its mission, ROCFAD promotes exchanges and dialogue between community organizations, decision makers (local, provincial and national) and international partners; strengthens capacities of local communities through training in sustainable development and good governance; defends the interests of the promoters of local sustainable development initiatives; promotes techniques, practices and the popular knowledge likely to contribute</p>

Organization	Activity Areas
	to the development of the local communities; and carries out collective and individual actions to develop local potential including natural resources, human, financial, cultural, historical and touristic.
Réseau Ressources Naturelles (RRN)	Created in Kinshasa in 2003 and with 11 current provincial focal points and 256 member organizations, RRN's goal is to visions is to safeguard ecosystems while striving to bring the interests of local communities and indigenous groups into DRC's natural resource management equations, by promoting and defending the rights of these groups. RRN works on a number of themes including: ensuring the participation of local communities in the forest title conversion process; active local participation in forest zoning; the promotion of new alternatives to the industrial exploitation of wood; ensuring local participation in the renegotiation of the mining contracts and the legal framework for artisanal mining; popularization of the Mining and Forest Codes and application measures; and the popularization and the application of the Corporate and Social Responsibilities Code.
Non CRON NGOs	
Organisation Concertée des Ecologistes et Amis de la Nature (OCEAN)	OCEAN's goal is to help communities attain sustainable development in equilibrium with their environment while ensuring food security. OCEAN's objectives are to: (i) promote sustainable agriculture based on ecological principles; (ii) fight against food insecurity by promoting improved production and increased value of local resources; (iii) promote improved health by increasing the availability of potable water and a better understanding/use of medicinal plants; (iv) advocate for the more rational and sustainable use of natural resources and the equitable distribution of benefits; (v) ensure permanent monitoring of logging and mining concessions; (vi) promote the conservation of protected areas through ecotourism and sensitizing border communities; and, (vii) increase awareness of communities on natural resource—related legislation. Specific areas of intervention include; environmental education, protection of natural ecosystems, food security, conservation of protected areas, forest certification, environmental impact assessments, and monitoring natural resource exploitation. OCEAN is active in North and South Kivu, Maniema and Eastern Provinces.
Conseil National des ONG de Développement (CNONGD)	Founded in 2004, CNONGD strives for a society in which people can satisfy their basic needs, influence political decisions, participate in the management of the country, integrate gender and help take charge through the development of well organized and structured development NGOs. CNONGD's mission is to promote good governance in the network, promote ethics and transparency, and ensure respect of rules as well as all tasks and functions. Its objectives are to: (i) ensure the promotion and defense of the network's interests; (ii) ensure resource mobilization; (iii) develop a culture of advocacy, lobbying and resource management in the network; (iv) reinforce the dynamics of civil society to establish and maintain peace and law and order in the DRC; (v) promote integration of the "gender" approach in the network and in society in general; (vi) encourage and reinforce research-action as well as capitalize on existing experience; and (vii) improve communication within and outside the network. Activities include organizing meetings, documentation, publications, press conferences, training (project writing, organizing training for trainers, advocacy and lobbying techniques, strengthening capacity of members), fundraising, advocacy, etc. CNONGD has working groups on forest protection and promotion of ecosystems, and sustainable forest management.

9.4 GOVERNMENT OF DRC INSTITUTIONS

Forest and biodiversity suffer from the same institutional shortcomings as other sectors. Public administration in the DRC has historically suffered from corruption and abuse of authority, and large numbers of public servants equipped with limited means and training. The war made this situation worse.

The central government lost much of its territorial presence, including in most of the forested regions of the north and east. The previously meager government allocations for environment and forests ceased altogether. The average civil servant wage is about 37 dollars per month at the director level.

Against this backdrop, there are four GDRC institutions whose mandates cover tropical forests and biodiversity to one extent or another: the Ministry of Environment, Nature Conservation and Tourism (MENCT), the Congolese Institute for Nature Conservation (l'Institut Congolais pour la Conservation de la Nature—ICCN), the Department in Charge of the Protection of the Mining Environment, Directorate of Mines, Ministry of Mines, and the National Service for Development of Fisheries.

An overview of the mandates of these institutions along with a brief analysis of some the major institutional issues facing each organization are presented below.

9.4.1 MINISTRY OF ENVIRONMENT, NATURE CONSERVATION AND TOURISM

MENCT's mandate is to “promote, supervise, and coordinate all activities relating to the environment with the realization of this mandate based on the current progress of science.” MENCT currently has eleven Directorates, eight Specialized Services, and four “cellules,” the majority of which deal with biodiversity and tropical forestry to one extent or another. MENCT's presence at the provincial level is through Provincial Coordinators, District and Town Coordinators, Territory and Communal Supervisors, and Cell Chiefs at the collectivity level. Competencies are delegated to the provincial level via Article 190 of the law 80 and include issuing permits and controlling ‘dangerous’ institutions, confiscating and transferring (to Kinshasa) animal trophies (ivory, skins), the power to open or close hunting and fishing seasons, issue hunting and fishing permits, and issue permits for the legitimate detention of protected animals.

Much like other public institutions in DRC, institutions managing forest and conservation interests were abandoned without a budgetary allocation and left to fend for themselves. MENCT employees tend to be older (the average age is 50 years, and more than 26% of employees are above retirement age), and poorly educated (less than 15% of employees total¹⁵ have educational training beyond secondary school). Salaries are often paid late, and no office equipment or means of transport are provided. Numerous agents under temporary contracts (new units) may not receive a salary at all pending formal admission to the civil service and inclusion in the payroll. This saps the offices and employees of MENCT of dynamism, encourages a resistance to change, weakens their motivation, and affects the quality of their work.

Administrative management systems (financial management, human resources, and planning, monitoring, and evaluation) are manual, often in-operational, hardly transparent or effective. Files are poorly protected and are often incomplete, causing numerous irregularities to continue. One notices equally the overlap of responsibilities and a lack of collaboration between the different components of the Ministry. The absence of means for travel at the provincial level results in ineffective monitoring of industrial forest operations because controls need to use the transportation facilities offered by industry and take place at times and locations convenient to industry.

MENCT's current workforce consists of 4,881 regular employees and 408 contractors and new recruits (not yet in the payroll). 2,292 work at the central level and 6,670 in provinces, districts and sub districts. 2,261 of the regular staff are eligible for retirement (having exceeded both retirement age and 30 years of service). 1,265 of them work in provinces and lower territorial levels. In collaboration with the Ministry of Public Administration and the ad-hoc Working Group that was set up under the auspices of the President to facilitate the fair and smooth retirement of eligible public servants, MENCT has requested

funding for the retirement of the 2,261 employees (637 from the Kinshasa and 1,624 from field locations) and the recruitment of 1,000 new employees.

Field services comprise 11 provincial departments, 40 districts and 144 territories. These teams are left largely on their own, without equipment, and having little contact with Kinshasa. At present, the forestry department is unable to enforce the policies of the new Forest Code in the field. The danger is that state employees, private operators and local authorities could act with little or no reference to national policy or to the concerns of local communities.

MENCT has started a process of profound institutional reform involving a reduction in the total number of Directorates from 23 to 12, the creation of a new Division of Community Forestry, mandatory retirement of overage staff, new recruitments and improved synergy with ICCN. The restructured Ministry intends to give priority attention to rebuilding capacity in the field and at HQ and emphasize the following thematic areas: administration and financial management, human resources management, planning, monitoring and donor coordination, forest management systems and control functions, impact assessment, community forestry, wildlife and national park management (through ICCN). MENCT offices at the province, district and sub-district level will receive particular attention in this effort.

MENCT's efforts will be supported by the World Bank's Forest and Nature Conservation Project. The objective of this \$64 million activity is to increase the capacity of the MENCT and ICCN, and increase collaboration among government institutions, civil society, and other stakeholders in order to manage forests sustainably and equitably for multiple uses in pilot provinces. There are three components to the project. The first component of the project is institutional strengthening of MENCT. This component will: (a) improve the institutional capacity of MENCT's and Provincial Ministries; (b) strengthen MENCT's forest management technical capacity; (c) carry out an institutional reform within MENCT; and (d) support project implementation. The second component of the project is community participation in forest management. This component will: (a) increase local community and civil society participation in forest management; (b) support increased use of environmental services; and (c) assist with implementation the project's environmental and social documents and safeguard plans. The third component of the project is management of protected areas and support to ICCN. This component will: (a) provide Institutional Strengthening for ICCN; and (b) help rehabilitate the Maiko National Park.

9.4.2 CONGOLESE INSTITUTE FOR NATURE CONSERVATION

ICCN is a parastatal organization under MENCT charged with the management of DRC's protected areas. ICCN's mandate is to control and patrol these protected areas, to collect and analyze data from the field and to facilitate tourism activities where possible. ICCN's vision is to ensure the conservation and the effective and sustainable management of biodiversity in the national network of protected areas of the DRC in cooperation with local communities and other partners for the well-being of the Congolese people and all humanity.

ICCN operates under two statutory bodies, the Board of Directors and the Management Committee. ICCN's Board provides direction and policy orientation while the Management Committee oversees day-to-day operations. ICCN's national management structure is presented in Figure 23²³.

²³ ICCN was in the process of reorganizing during the Assessment Team's visit. The organigram is the Team's best approximation of ICCN's new structure.

ICCN's staffing pattern at headquarters by employment category is presented in Table 19.

TABLE 19: ICCN HEADQUARTERS STAFFING BY EMPLOYMENT CATEGORY

Employment Category	Director General	Asst. Director General	Technical Director	Scientific Director	Director Admin.	Director Finance	Total
Administrative	12	4	10	1	16	17	60
Technical			6				6
Scientific				6			6
Total	12	4	16	7	16	17	72

Source: AGRECO (2006).

At the provincial level, ICCN has five provincial directorates, notably.

- North Kivu at Goma;
- South Kivu at Bukavu;
- Katanga at Lubumbashi;
- Orientale at Kisangani; and
- Equateur at Mbandaka.

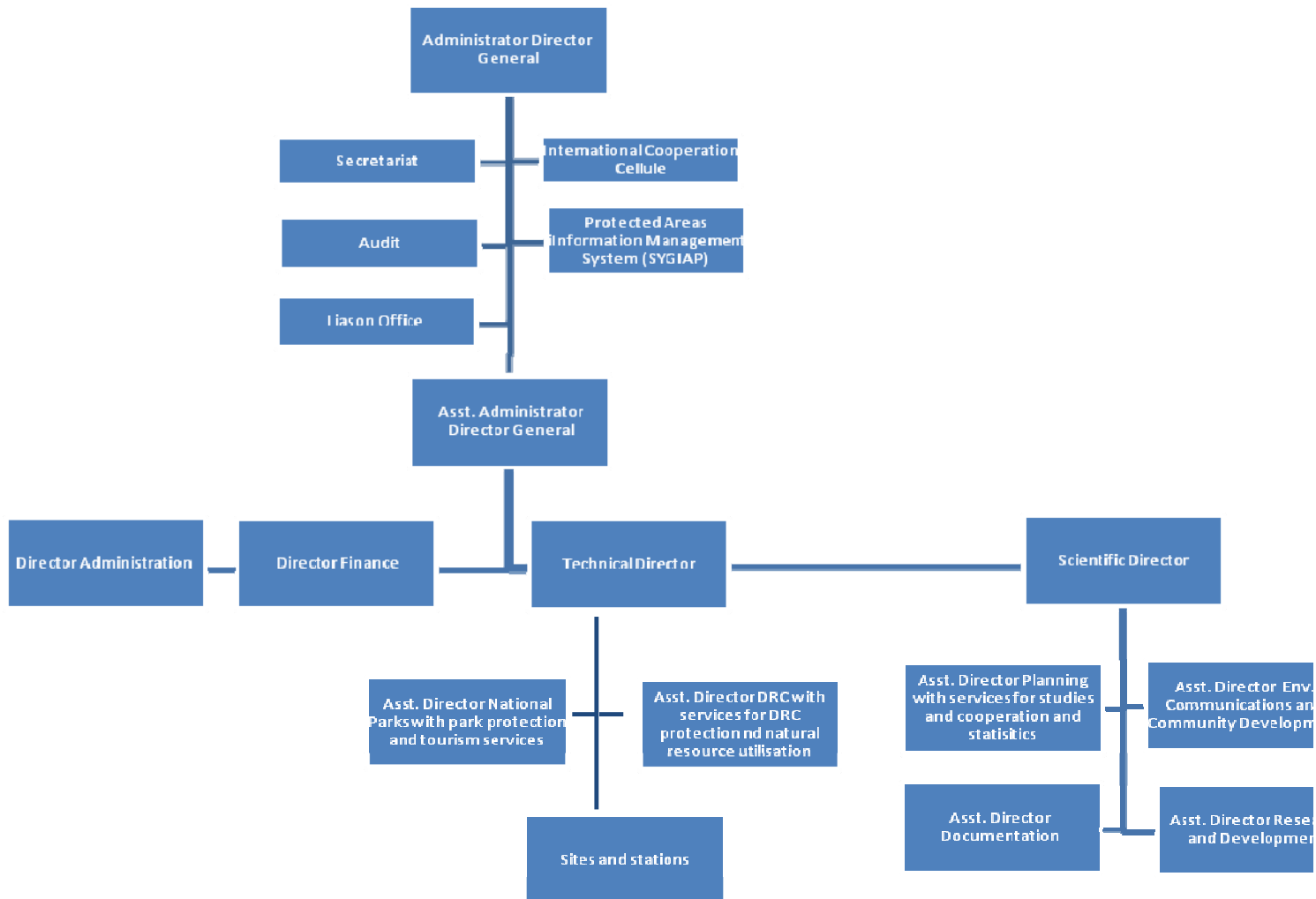
Although staffing patterns were not available for the provincial directorates, each directorate generally has 2-3 technical staff and 2-3 administrative staff operating under a Provincial Director. Provincial Directorates are responsible for the overall management of protected areas within their respective regions.

At the protected area level, although staffing patterns may vary by site, the general schema for protected areas management is presented in Figure 24.²⁴

To meet the challenges of managing a 215.000 km² protected area network, ICCN has established a Congo Conservation Coalition (Coalition pour la Conservation au Congo- CocoCongo) whose objective is to strengthen the capacity of the ICCN as well as the mechanisms for strengthening partnerships in implementing DRC's national conservation strategy and protected areas action plan. At the site level, ICCN's establishes Site Coordination Committees (Comité de Coordination du Site - CoCoSi). Composed of local and regional stakeholders and partners, the CoCoSi is charged with planning, coordinating and monitoring and evaluating all site level activities to ensure harmony of relations between partners at the site, and to encourage exchange of experiences with other sites.

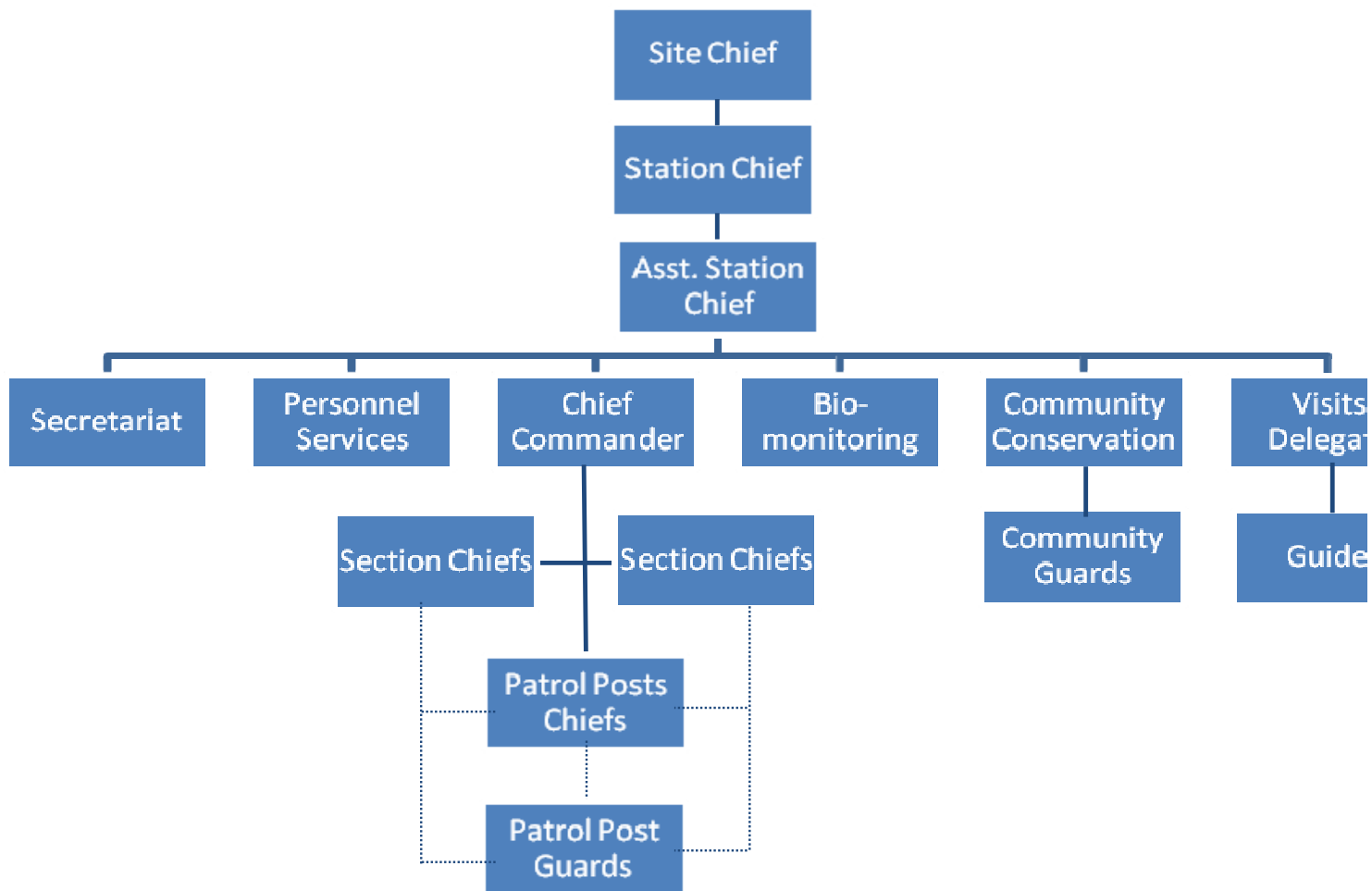
²⁴ ICCN was in the process of reorganizing during the Assessment Team's visit. The organigram is the Team's best approximation of ICCN's new site structure.

FIGURE 23: ICCN ORGANIGRAM—KINSHASA



Source: AGRECO (2006).

FIGURE 24: ICCN GENERIC SITE ORGANIGRAM



Source: AGRECO (2006).

Issues

AGRECO (2006) in conducting an institutional review for the European Union on ICCN's capacity strengthening program identified a number of issues with regard to ICCN capacity to conserve biodiversity. A brief summary of these issues follows:

- Despite piloting planning, monitoring and evaluation program activities at the national level, these efforts have not generated the degree of stakeholder participation and delegation required for effective strategy implementation;
- Despite some achievements, ICCN does not yet have sufficient internal capacity to develop proposals for funding, to manage important funding and ensure implementation of major projects according to standards required by donors;
- Although ICCN has extensive experience in participatory boundary delimitation for protected areas (PA), it does not formally participate in the initiatives and processes of zoning outside the PA network, particularly for emerging new initiatives such as community and private reserves;
- ICCN does not have the capacity to pilot the inventories and studies required for PA classification leading to the expansion of the PA network to 15% of the territory;
- Although management plans have been developed for some sites, ICCN does not have the ability to control their development and has not proposed a harmonized management plan model; developing operational plans is the consolidation of the interventions of the partners, monitoring their implementation is entrusted to the CoCoSi and overall evaluation to a delegate of the CEO;
- The absence of a donor coordination forum causes a geographical and thematic, concentration of effort as well as imbalanced support for the real needs of the institution. There is an effort to strengthening information management, but capacity at all levels is still insufficient for SYGIAP an effective tool for tracking, planning, communication and marketing network level;
- Surveillance operations fail to address the magnitude of the pressure and very serious threats still weigh on all PAs; patrol organization is based on emergencies and not longer-term planning. The number of guards and trained cadres is generally insufficient, and the distribution of stations and PP should be based on spatial analysis and incorporated into management plans. Outside of the PAs, ICCN has formalized systematic collaboration with the population and local authorities, but public understanding and support for punishing offenses are greatly inadequate;
- Limited financial and human resources preclude ICCN's ability to undertake needed PA infrastructure development (roads, tracks, bridges firebreaks, views, etc.);
- Hunting concession contracts are being developed between ICCN and foreign companies for the Domaines de Chasses, but no hunting operation has taken place since its closing in 1984; no hunting or tourism plans exist and ICCN has not been proactive in developing them;
- In terms of scientific support, there is vigorous bio monitoring capacity building to internalize the use of data collected on the ground; the extension of the Système de Gestion d'Information pour les Aires Protégées (SYGIAP) to the other PAs is an important challenge. In the absence of a master plan research (until recently) and site management plans, any research done is a result of partner efforts, with ICCN only assigning counterparts to these efforts;

- Due to lack of experience in this area, ICCN does not currently have the technical capacity to validate the PA management plans and to support their implementation with the information, training, and technical support required;
- ICCN created five provincial directorates to serve as an administrative relay and tracking system, but so far, Provincial Directors have not taken on this role given low capacity, limited resources, and lack of internal recognition. Moreover, ICCN management tends to keep direct lines of communication with the sites, often bypassing the provincial offices. Additionally, the exact role of the provincial offices has not been effectively communicated to sites and partners.

Since the AGRECO study, ICCN has begun addressing some of these issues and with the support of the World Bank, through the National Parks Network Rehabilitation Project, many of them are expected to be resolved. The objective of this project is to enhance the capacity of ICCN for management of targeted protected areas. There are three components to the project. The first component of the project is support to institutional rehabilitation. This component will focus on re-establishing a functional financial directorate within ICCN headquarters, will strengthen ICCN's coordination, communication, monitoring and evaluation (M&E), and social impact management systems, and will help ICCN develop a sustainable funding strategy. The second component of the project is support to national parks. This component will help rehabilitate the Garamba National Park and the Virunga National Park—Mikeno Sector. The third component of the project is technical studies and consultations. This component will strengthen the capacity of ICCN to conduct the technical studies, surveys, and local consultations needed to identify new protected areas to ensure better representativeness of the national protected areas network.

9.4.3 DEPARTMENT IN CHARGE OF THE PROTECTION OF THE MINING ENVIRONMENT, DIRECTORATE OF MINES, MINISTRY OF MINES

The Directorate of Mines is responsible for inspecting and supervising mining activities and quarry works with regard to safety, health, work procedures, production, transport, sale and social matters. The Department in Charge of the Protection of the Mining Environment, in collaboration with MENCT:

- Undertakes the technical evaluation of the Mitigation and Rehabilitation Plans (MRP) in relation to the prospecting operations for mineral substances classified as mines and quarries; and
- Undertakes the technical evaluation of Environmental Impact Studies (EIS) and Environmental Mitigation and Monitoring Plans for projects presented by applicants requesting mining or quarry exploitation rights.

The Department has about 40 technical staff of which more than half have specialized degrees in geology, mining, engineering, etc., and the majority have either formal or informal Environmental Impact Assessment (EIA) training and experience. Like most GDRC institutions, the Department suffers from insufficient resources making sites visits difficult and/or putting the staff at the mercy of the operators. Although the Mining Code calls for the collaboration between the Department and MENCT, in practice this does not happen, and there is even an apparent animosity between the two organizations.

9.4.4 NATIONAL SERVICE FOR DEVELOPMENT OF FISHERIES

Overall fisheries management responsibility in the DRC nominally lies with the National Service for Development of Fisheries (SENADEP—Service National pour le Développement des Pêches), under

MENCT²⁵. SENADEP is theoretically represented within each of the country's eight regions by a 'regional coordinator.' At the sub-regional level there are SENADEP 'heads of office,' and at the lower zone level by there are 'supervisors.' Fisheries administration at all levels has for some years been moribund due to civil strife and national economic collapse. Specifically, SENADEP's various offices cannot function due to: isolation between stations and central establishment (remote areas, deteriorated infrastructure, and civil war zones); insufficient or nonexistent budget; low staff motivation (poor or nonexistent pay); inadequate staffing and training at all levels of administration; lack of basic office and field equipment and facilities; inability to enforce regulations; and absence of reliable data. Theoretically, MENCT with FAO support is elaborating a new fisheries master plan for the DRC but the assessment team was not able to secure a copy of this plan.

9.5 CROSS CUTTING INSTITUTIONAL ISSUES

In addition to specific institutional issues discussed above, there are four cross cutting issues that affect institutional capacity to address threats to tropical forests and biodiversity.

9.5.1 WEAK CONTROL AND LAW ENFORCEMENT

Ministerial control services are poorly equipped (communications, travel means, etc.) to fulfill their mandates to control Forest and Mining Code infractions, and to combat illegal exploitation and fraud. Control officers are poorly and irregularly paid and the control missions that are undertaken are usually paid for by the concession owners/operators. In these conditions, no real control or law enforcement is possible.

In 2007, the European Commission engaged Global Witness to conduct a feasibility study to establish an Independent Observer of Forests (OIF) position. Considering Global Witness's openly hostile bias against industrial logging operations and the absence of any control structures on the ground, the study made little contribution to better control operations.

For its part, the MENCT has requested Société Générale de Surveillance S.A. (SGS) to conduct a study on monitoring and verification of forest logging and timber chain-of-custody. Preliminary recommendations from the study suggest that a chain of custody program could be paid for by revenue generated from control operations. However, the experience from other countries (particularly Cameroon) tends to suggest that this type of external control cannot be funded by control revenues (fines) and

FIGURE 25: THE GUARD DETACHMENT IN KUNDULUNGU NATIONAL PARK



Photo: DAI

²⁵ The Ministry of Agriculture also has a Department of Fisheries, which mainly focuses on aquaculture, although the lines between SENADEP and this Department are not clear.

governments revert to increasing taxes on the concession operators, thus decreasing profits and hampering their ability to invest in other programs such as green certification.

9.5.2 COORDINATION ACROSS GOVERNMENT INSTITUTIONS

Coordination across government institutions is currently very limited. However, as DRC's economy begins to grow and as new agriculture and mining concessions are awarded, coordination will become increasingly important. Examples that illustrate the need for improved collaboration include:

- Logging and mining on the same tract of land and the separation of mining claim holders from that of forest concession holders;
- Competing land uses being considered by different government agencies for land proposed as protected areas, and the absence of a common land use policy between MENCT, the Ministry of Agriculture, and the Ministry of Mines; and
- Granting agricultural concessions (e.g., oil palm) without or with limited reference to MENCT.

9.5.3 COORDINATION BETWEEN INTERNATIONAL NGOS AND GOVERNMENT

During the course of assessment team consultations with ICCN and MENCT staff, several people pointed out that information sharing between CARPE implementing partners and ICCN/MENCT was much better than had been in the past. However, they also remarked that with some exceptions, CARPE partner efforts to engage national and local staff in the strategic planning of activities was still very limited. As noted in the CARPE mid-term evaluation (Weidemann, 2006), the CARPE structure envisages a CARPE-funded "Focal Point" as the linchpin to ensure country level coordination and communication among CARPE partners and between CARPE and the host government. However, the focal point mechanism has not been effective in carrying out these responsibilities. Informal coordination often takes place among the key implementing NGOs operating in the DRC, other donors and USAID, but these informal processes often leave out the GDRC. CARPE/DRC has not yet established a mechanism for bringing together the host government, CARPE partners, and the CARPE SO team to plan and review progress in meeting CARPE objectives.

9.5.4 INFORMATION AND DATA COLLECTION

DRC government institutions are also facing shortages of scientific information pertaining to tropical forest and biodiversity conservation and management. The use of remote sensing technology (through CARPE) to monitor forest cover, area, and change (through degradation or conversion), has been very effective. However, the assessment team is concerned that in the absence of sound 'on the ground' forest science, managers are making assumptions about the stability of the forest, the regeneration of timber trees, and especially about the impacts of long-term climate change and the degradation of forest by human activity.

In terms of biodiversity, in the early years of independence, the DRC was fairly well-positioned to begin biodiversity conservation. Biological inventory was well-advanced at the national level, with some sites fairly well documented. There was an active flora project and a network of large protected areas. Since that time, conditions have deteriorated to the point where DRC has very limited capacity for biodiversity research, inventory and conservation and the nation's conservation priorities (and research agendas) are

developed by international conservation organizations, whose main focus is on retaining the protected areas and any megafauna that they still support.

To move from a traditional protected areas approach to more sophisticated biodiversity and forest conservation and management approach, large amounts of information are needed on species distributions and habitats, and the ecology of the forest/savanna mosaic areas and their carbon dynamics. In the absence of such information, effective biodiversity and tropical forest conservation and management will be compromised.

9.5.5 OVERLAPPING MANDATES

Although there are several examples of overlapping institutional mandates, the situation between MENCT's Direction of Human Establishments and Environmental Protection and the Ministry of Mines Department in Charge of the Protection of the Mining Environment is perhaps the most relevant. The Direction's mandate is to ensure and monitor the execution of tasks related to the protection of the environment including, the development of spaces, the evaluation of the effects of the human activities on the environment, and the prevention of activities which result in air, water and soil pollution. Specifically, the Direction is charged with environmental rehabilitation in mining areas as well as the conduct of environmental assessments, which is essentially the same mandate as Ministry of Mines Environmental Department. Furthermore, it is not clear how the new environmental framework law will address this issue as there is no specific mention in the draft of the relationship between the proposed National Environment Protection Agency and the Ministry of Mines. Additionally, Ministry of Mines' staff maintains that the Mining Code will take precedence over any framework environmental law.

10. LEGISLATION RELATED TO THE ENVIRONMENT AND BIODIVERSITY

10.1 FOREST CODE

Until 2002, forest management in DRC was governed by the Forest Decree dating from 1949. In practice, implementation was based on a technical paper called “The Logger’s Guide.” This guide lacked clear legal status. It focused on the timber industry without providing a balanced overall view or providing a focus on forest conservation. In April 1999, an Inter-Ministerial Committee on Timber recommended the cancellation all contacts for “non-inventoried, abandoned, and/or undeveloped forests.”

State ownership over forest lands was established by a series of laws including the Forest Decree of 1949, the Bakajika Land Law of 1966, the 1973 Land Law, and the 1980 Revised Land Law.

In May 29, 2002, the GDRC imposed a Moratorium on the issuance of new concessions until new rules for the awarding of forest concessions had been published. Following the Moratorium, the Forest Code, law 11/2002, dated August 29, 2002 was published in DRC’s Journal Officiel in November 2003. Among several other issues, the Forest Code deals with forest concessions (defined as rental contracts without transfer of ownership) but not with, land concessions.

The Forest Code only sets general principles. Of the thirty-eight regulations or implementing decrees deemed necessary to implement the 2002 Forest Code, thirty-five have been published and three – regulations for the cahier des charges, artisanal logging and community forestry—are under various stages of development. A list of published Forest Code implementing decrees is presented in Annex F.

The discussion below notes certain important elements of the Code relevant to biodiversity and tropical forest conservation.

Objective1 Article 2 of the Forest Code (“the Code”) describes its objective: to “foster rational and sustainable management of forest resources with a view to increasing their contribution to the economic, social and cultural development of today’s generations, while preserving forest ecosystems and forest biodiversity for future generations.” The Code provides several major concepts that generally apply to all categories of forests addressed under the Code. Additionally, the Forest Codes provides for the classification of different types of forests, and includes provisions that differ according to the category of the forest.

Categories of Forest Uses. Article 10 establishes three broad categories of forest uses: (1) “gazetted forests” which are devoted to conservation; (2) “permanent production forests” where timber can be harvested based on forest concession contracts and forest management plans: and (3) ‘protected forests’ devoted to rural development. The Code states that these are priority uses, but not necessarily exclusive ones.

Consultations. Article 15 provides for prior consultations with local people before a forest is designated for conservation or production: “Gazettement takes place by Ministerial Order after due notification from the Provincial Forest Advisory Council based on prior consultations with local populations”. And Article 84 states: “Forest concession contracts shall be preceded by a public inquiry. The inquiry aims to establish any rights third parties might have on the forest to be granted for the purposes of compensation, if any.”

User Rights. According to Article 44: “Populations neighboring a forest concession shall continue to exercise their traditional users’ rights on said concession insofar as it is compatible with forestry exploitation, with the exclusion of agriculture. The concession holder shall not claim any sort of compensation following the exercise of such rights.” In the case of indigenous people, Article 84 calls for inquiries to determine any “third party” rights that might be compensated.

Sustainable Forest Management Plans. Articles 71, 99 and 100 refer to implementation of sustainable forest management plans in all production forests with the last stipulating: “loggers must comply with the legal provisions pertaining to nature protection, hunting and fishing.” And Article 14 requires that: “Gazetted forests must account for at least 15% of the national territory’s total area.”

Concession Allocation System. The Forest Code also establishes, in Articles 83, 85 and 86, a concession allocation system based on transparent auctions rather than arbitrary decisions. In Article 122 it provides that 40 % of the concession fees will be transferred to provincial governments.

Sole Sourcing. Articles 83 and 86 of the Code state that under exceptional circumstances, sole sourcing, authorized by the Minister, may be used to allocate concessions.

Cahier de Charges. Article 89 makes the ‘cahier de charge’ with local communities) mandatory. These are social contracts and components of forest concession agreements in Central Africa. They vary from place to place, but call for the logging company to build facilities directly for the community. These could include roads, bridges, schools, health clinics, etc.

Consultations and Conservation Concessions. In several articles, the Forest Code refers to a system of consultation including Provincial Forest Advisory Councils and regular public information on forest allocations and concessions. It refers numerous times to including the private sector, local communities and NGOs in consultations. It also refers explicitly to conservation concessions, biological prospecting, tourism, and environmental services.

Article 119 states that Articles 115 to 118 (relating to forest exploitation) do not apply to “conservation concessions.” Under Article 115, a concession holder has the obligation to exploit the forest in the 18 months after the signing of the contract. Article 116 addresses the case in which the concession holder does not use his concession and states that if the concession is not used for 2 years then it goes back to the government. Article 117 deals with the case in which the concession stops. Article 118 addresses the case of non-payment or insolvency of the concession holder. The Code thus specifies the need to exempt conservation concessions from obligations that would, presumably, be at odds with their creation and use (e.g. to exploit the forest).

Community Forests. Another important issue that has been raised in the context of the legal framework is the recognition of community forests in DRC. Article 22 opens some possibilities for forest management by local communities: “Upon request, a local community may obtain as a concession part or all of the protected forests among the forests properly owned according to custom. The Forest Code

defines “local communities” as “people organized in a traditional manner according to custom and united by bonds of tribal or parental solidarity that establish its internal consistency. A local community is further characterized by its attachment to a specific territory.”

Forest Zoning. The “*Arrête Ministériel No. 107/CAB/MIN/ECN-T/15/JEB/09 of August 20, 2009 on the creation, composition, organization and functioning of a National Forestry Zoning Steering Committee*” is a critical first in improved land use land use planning in the DRC. Composed of Government, private sector, civil society, international NGOs, and research organizations, the Committee is charged with assisting MENCT with forest zoning issues, and is specifically tasked with:

- Providing orientation on forest zoning in relationship to other Government priorities;
- Providing a forum for exchanging and harmonizing different points of view from different sectors with regard to zoning;
- Harmonizing the needs and interests of different parties who are concerned with space utilization and natural resources;
- Proposing reforms required to resolve legislative conflicts;
- Providing advice on the limits of proposed forests for zoning and assure that these limits are not in conflict with other potential uses; and
- Developing a tenure map at a national scale noting the categories of forests, mining sites, agro-industrial plantations, hydro-electric projects, and other infrastructure.

An operational guide for forest zoning standards was prepared by SPIAF in September 2009 with assistance from the World Bank, USAID/CARPE, USDAFS, FAO, WWF, the Rainforest Foundation, and IUCN.

10.2 MINING CODE

The discussion below notes certain important elements of the Mining Code (Law No. 007/2002 of July 11, 2002 Relating to the Mining Code) relevant to biodiversity and tropical forest conservation.

Prohibited Areas. Article 6 states that “if national security, the safety of the population, the incompatibility of the mining and quarry activities with other existing or planned uses of the soil or sub-soil, as well as in the case that the protection of the environment so requires, the President of the Republic may, on his own initiative or on the proposal of the Minister, after having obtained the opinion of the Mining Registry, declare an area to be off-limits for mining activities and/or quarry works.”

Department in Charge of the Protection of the Mining Environment. Article 15 states that “in coordination with the other State entities responsible for the protection of the environment, the Department in charge of the Protection of the Mining Environment within the Ministry of Mines exercises the powers which are devolved to it by the present Code and by all other regulations regarding the protection of the environment...”

Conditions for Prospecting. Article 20 requires the holder of a Prospecting Certificate to comply with the applicable regulation which applies with regard to protection of the environment.

Environmental Evaluation. Article 42 states that “in accordance with the provisions of article 15 of the Present Code and the provisions concerning each type of mining and/or quarry right, the department responsible for the protection of the mining environment evaluates the Environmental Impact Study (EIS) and the Environmental Mitigation and Monitoring Plan (EMPP) relating to the application for mining exploitation rights or Permanent Quarry Exploitation Authorization, as well as the MRP relating to an application for a Temporary Quarry Exploitation Authorization in accordance with the provisions of the present Code. At the end of the evaluation, it provides its opinion on the environmental aspects to the Mining Registry, within the deadline/time period set forth for each type of mining and/or quarry right.” It also requires that the environmental opinion must be publicly displayed.

The Ministry’s Decision. Article 76 states that “if the registrar and technical opinions following the processing of the application for the Exploitation License are favorable but the environmental opinion has not been issued yet, the Minister makes a preliminary and conditional decision within a period of twenty working days, as of the date the file containing the application is sent to him by the Mining Registry and postpones his final decision to grant or refuse the Exploitation License until he has received the environmental opinion. The Minister’s preliminary and conditional decision has the effect of definitively ratifying the registrar and technical opinions. The final decision on the granting of the application is conditional on receipt of a favorable environmental opinion.”

Processing or Transformation Plants. Article 83 states that “the installation and functioning of a plant for the processing or transformation of mineral substances are subject to the regulations with regard to the protection of the environment which are set forth in the present Code and by specific environmental legislation.”

Authorization for Artisanal Mining. Article 111 states that artisanal miners’ cards are issued by the Head of the provincial division of Mines in the area, to eligible persons who apply for them and undertake to comply with the regulations on protection of the environment, health, and safety in the artisanal exploitation areas.

During Exploitation. Article 204 states that “any applicant for an Exploitation License, an Exploitation License for Tailings, a Small-scale Mining Exploitation License, or an Authorization for Quarry Exploitation must submit an environmental impact study together with an environmental management plan for the project, and obtain the approval of his EIS and EMPP, as well as implement the EMPP. The environmental impact study will include a description of the ecosystem before commencing mining operations, including the flora and fauna, soil and topography, air quality, underground and surface water. It specifies the aspects which may be affected qualitatively and quantitatively by the mining or quarry exploitation activity. It will include as well, the measures planned for the protection of the environment, the elimination or the reduction of pollution, the rehabilitation of the sites, as well as the verification of the effectiveness of said measures.”

Provision for Site Rehabilitation. Article 258 requires that “the holder must make, free of tax on profits, a provision for rehabilitation of the site on which the mining activities take place. The maximum amount to be allocated for this provision is equal to 0.5% of the turnover for the tax year during which it is made. In case the holder is required to make a provision or to fulfill other financial obligations in compliance with the regulations on the protection of the environment, the amount of this second provision or of these financial obligations shall be deducted from the maximum authorized amount of the provision for the rehabilitation of the site. This provision must be used within a period of ten years as of the end of the tax year during which it was made. The unused amount of the provision is reintegrated into the taxable profits

for the eleventh tax year following the one during which said provision was made. The unused amount of the provision at the end of the last tax year of the project is reintegrated into the taxable profits for said tax year.”

Compensation for the Occupants of the Land. Article 281 states “any occupation of land depriving the rightful holders of enjoyment of the surface rights, any modification rendering the land unfit for cultivation, shall cause the holder or lessee of the mining and/or quarry rights, at the request of the rightful holders of the surface rights, and at their convenience, to pay fair compensation, corresponding either to the rent or the value of the land at the time of its occupation, plus fifty per cent.”

Suspension. Article 292 states that “any serious offence defined in the Mining Regulations committed by the Holder is punishable by immediate suspension of works, decided by the Minister, with prior official notification. The duration of the suspension is set by regulation depending on the extent of the gravity of the offence committed and of its impact on the environment, public health and safety.”

10.3 FISHERIES LEGISLATION

The main fisheries regulations include the following:

- 1932 Decree on Exclusive Fishing Rights;
- 1937 Decree on Fishing and Hunting;
- Ordinance No. 432/Agri. of 26 December 1947;
- 1981 regulation of fishing devices;
- 1979 ordinance (amended 1983) on fees and license categories.

To the assessment team’s knowledge, the basic legislation on fisheries remains the 1937 Decree on Fishing and Hunting (as amended for its fisheries provisions by a decree of 17 January 1957, a legislative ordinance No. 52/273 of 24 June 1958 and a decree of 27 June 1960). This decree applied throughout the territories then administered by Belgium (Ruanda-Urundi and Belgian Congo).

The 1932 Decree on Exclusive Fishing Rights enables competent authorities to grant exclusive fishing rights in a designated area to any person. The decree outlines the general terms and conditions governing the agreement to be entered into and spells out the rights and obligations of each contracting party. Where the existence of traditional fishing rights has been clearly established in the area to be designated, the grant of exclusive fishing rights may be denied or subject to certain conditions designed to ensure the protection of such rights.

The Ordinance No. 432/Agri. of 26 December 1947 (as amended in 1952 and 1954) provides for the status and powers of fish controllers.

A regulation of 1981 prohibits fishing by means of electrical devices, explosives or toxic substances throughout the then Zairian territory and provides for the seizure by the authorities of any such articles and any catch caught by such means.

A 1979 ordinance (as amended by a regulation of 1983) provides for the rate of fishing permits fees and determines the various issuing authorities. Authorization to fish is required for all types of fishing operations and is subject to the payment of a prescribed fee. Conditions to a fishing permit include the

prohibition of discarding any fish or part thereof. Industrial fishing permits are issued by the Governor of the Province on the advice of a consultative commission. Fishing in Southern Lake Tanganyika using drag nets or nets of a mesh size less than 4mm is prohibited. The use of beach nets, however, remains lawful. Lastly, industrial fishing is prohibited within a 5 km-wide area measured from the shoreline.

A similar regulation was enacted within Kivu Region (northern Lake Tanganyika), also in 1958. Regulations include industrial fishing unit specifications extending the total length of set nets to 5,000 m. Likewise, the total length of set nets that can be used by an artisanal fishing unit in the northern area of Lake Tanganyika was extended to 4,500 m. A further regulation enacted in 1959 for Kivu Region limits to six the total number of industrial fishing permits that can be issued in respect of the northern portion of the lake (north of Lake Nyanza parallel).

In 1985, a draft law providing a general legal framework for both marine and inland fisheries was devised with the assistance of FAO. The law was composed of 70 articles primarily directed at regulating inland fisheries. Insofar as is known, this law was not submitted to Parliament due to political turmoil at the time. The Ministry of Agriculture's (MOA) Department of Fisheries and SENADEP, in collaboration with FAO is apparently formulating a fisheries master plan which will include a new fisheries code.

10.4 BIODIVERSITY CONSERVATION LEGISLATION

MENCT has prepared a new Framework Law on Nature Conservation. However, the law has not as yet been adopted. Pending adoption, biodiversity conservation currently falls under a law dealing in a general way with wildlife resources, namely, law No. 082-002 of 28 May 1982, which regulates hunting of certain species under total protection status, a list of which is contained in Table 1 of the annexes to the law.

Together with this law there is also ordinance-law No. 69-041 of 22 August 1969 on the conservation of nature, which sets out the framework for improved conservation of wildlife in general, especially great apes, who are covered under the notion of "nature reserves", and law No.75- 024 of 22 July 1975, concerning the establishment of "sanctuary areas".

In regulatory terms, arrangements for species protection derive from the combination of certain provisions of the hunting regulations under law No. 082-002. For example, article 26 states that:

"For hunting purposes animals are divided into three categories:

1. *Fully protected animals listed in table I of the annex to the present law;*
2. *Partially protected animals listed in table II of the annex;*
3. *Non-protected animals not listed in tables I or II."*

On these grounds, Article 27 states that "it is forbidden to kill, capture, hunt, pursue, deliberately disturb, or illegally and with prejudicial intent cause any of these animals to flee, unless furnished with a scientific permit issued by the ministry responsible for hunting issues."

The draft nature conservation law introduces major reforms to law No. 69-041 of 22 August 1969 in that it:

- Obliges the Congolese State to develop a national policy aimed at ensuring the conservation and sustainable use of biological diversity, the preservation of landscapes, sites and monuments;

- Obliges the State to ensure that any policy, program or project likely to significantly affect natural habitats, wetlands and wild fauna and flora and their habitats, including foreign and national investments, provide safeguard measures to be defined via an impact study;
- Obliges the Ministry in charge of the conservation of nature, in consultation with other agencies concerned (including universities and other training institutions and research organizations), to implement and provide financial resources for training program and encourage the exploitation of the results of scientific research on biological diversity and genetic resources;
- Obliges the Government to ensure the financing of national activities retained as priorities in national and biological diversity action plan strategy as well as in the parks as per the DRC conservation policy;
- Is based on the principle of the establishment of a system of parks for which special measures must be taken to conserve biological diversity, the protection of ecosystems and natural habitats and maintain viable populations of species in their natural environment;
- Highlights the need to train, inform and involve local communities living in and/or around parks in conservation matters with the assistance the competent authority, public bodies, and non-governmental organizations;
- Obliges the State to ensure the protection of knowledge, innovations and practices of local communities that embody the traditional ways of life, sustainable use of biological diversity and the equitable sharing of genetic resources from profits.
- Obliges that the State guarantee all Congolese fair access to genetic resources.
- Recognizes any Congolese citizen and any authorized non-governmental organization and operating in the environmental sector the right to act in justice to obtain the cancellation of a decision taken by an administrative authority in violation of this Act;
- Gives conservators of protected areas, hunting inspectors, and guards paramilitary status and enforcement/offences functions.

10.5 ENVIRONMENTAL LAW

MENCT is in the process of elaborating a new environmental law (Projet de loi-cadre sur l'environnement au Congo). Chapter 10 of the draft environmental legislation provides for the protection of wildlife and flora. Specific articles include:

- Article 66 provides for the protection of spaces and natural landscapes, the preservation of the maintenance of biological balances in which they are involved and the protection of natural resources against all causes of degradation that threaten animal and plant species;
- Article 67 provides for the conservation and rational management of fauna and flora; the Department responsible for the environment establishes protected according to the procedures in force areas;
- Article 68 gives right to compensation on the part of the administration for the benefit of local communities when the classification of recognized areas of particular interest to the protection of fauna and flora causes direct harm to those communities;

- Article 69 prohibits bush fires or brush fires, sizes of wood and other plants in protected areas, while Article 70 excludes prescriptive and other forms of preventive fires from Article 69 to be allowed by the services of the Department responsible for the environment, according to regulations in force;
- Article 71 states that traditional fires and fires for clearing areas to plant crops or for the development of pastoral areas are tolerated subject to compliance with the conditions that will be determined by the Department responsible for the environment;
- Article 72 provides for fines not exceeding 6 million to 120 million NZ and to imprisonment for 3 to 6 months, for an infraction of Articles 69 to 71 above.

Finally, Article 80 provides for the creation of a public establishment of ‘industrial and commercial nature’, with civil personality and financial autonomy, referred to as the National Environmental Protection Agency. The Agency will be governed by the law on public companies and placed under the Department responsible for the environment. Administrative and financial organization of the Agency and its terms of its operation will be established by a Council of Ministers Decree.

10.6 POLICY/LEGISLATIVE ISSUES AFFECTING THE GOVERNMENT’S CAPACITY TO ADDRESS THREATS TO TROPICAL FORESTS AND BIODIVERSITY

In general terms the above legislation is sufficient to provide the enabling environment for the conservation of DRC’s biodiversity and tropical forests. However, there are still a number of issues that need to be addressed. These issues—both cross cutting and sector specific—are discussed below.

10.6.1 CROSS CUTTING

Absence of a Strategy or Policy to Address the Compromises Between Environment and Economic Development

Sustainable development is based on the notion that growth strategy should take into account environmental and social concerns, as well as the efficient management of resources to achieve long-term prosperity. This concept has been endorsed by the international development declarations and their initiatives, starting with the Rio Summit in 1992 and the World Summit on Sustainable Development in Johannesburg in 2002, and finishing with the recent launch of the Millennium Development Goals (MDGs).

Although DRC’s Poverty Reduction Strategy Paper (PRSP), addresses environmental, and climate change adaptation concerns, they are not explicitly mainstreamed throughout the PRSP, but are mentioned in some of the sector documents. Environmental protection is referred to separately in the PRSP under rural development/agriculture and relates to biodiversity conservation, forestry, and the convention on climate change. The vision of the PRSP is a 2-digit Gross Domestic Product (GDP) growth rate, equitable distribution of wealth, and achievement of the MDGs by 2015. These growth targets are predicated for the most part on the anticipated dynamism of activities in construction and public works, trade and transportation, as well as a diversification and increase in the products from the primary sector, including

mines and forests and an upward trend in agricultural production. However, none of the sector strategies address sustainability issues, nor do any of the Strategy's five pillars²⁶.

Without a strategy or policy that specifically addresses tradeoffs between the environment and economic development, the assessment team is concerned that economic development—in the form of mining, logging and agro industrial concessions—will continue to take precedence over the environment as they have done in the past.

Absence of Any Sectoral Policies

A policy is typically described as a deliberate plan of action to guide decisions and achieve rational outcome(s). Policies usually incorporate a vision and statements on how a particular authority is to achieve its goals and objectives with regard to a specific subject area or class of subject areas. Legislation, on the other hand, is drafted to implement the policy. The assessment team was surprised to learn that there are no sectoral policies in the DRC and tropical forests and biodiversity are managed through legislation only—much of which was imposed by external actors.

The Gap between Legislation and Practice

Drafted by Kinshasa-based lawyers and technicians, DRC's environment/natural resource legislation is based on the assumptions that reality is manageable and that the future is predictable. This view has resulted in 'technical' solutions to environment/natural resource development 'problems', including overly comprehensive legislative mandates. Complicated legislation results in poor understanding and contributes to difficulties in enforcement. The net result of this technical approach is that the majority of "codes" are far removed from the reality they are trying to influence.

10.6.2 SECTOR SPECIFIC

The Forest Code

Limited on the ground implementation

Although the majority of the Forest Code's implementing decrees have been drafted and finalized²⁷ (see Appendix F for a complete list), the Code and many of its implementing provisions have not yet been applied on the ground for several reasons, including:

- Delays in publishing Appendices (different license models and forms that they imposed) to the signed texts;
- MENCT continues to use earlier legislation (prior to the Forest Code) on the grounds that they had to wait the outcome of the statutory old forest titles review. Between 2007 and 2008, notes were circulated by the Minister to central and provincial authorities suspending the application of the new texts;

²⁶ These include good governance and consolidating peace; economic stability and growth; improving access to social services and reducing vulnerability; combating HIV/AIDS; and supporting communities.

²⁷ There are only three texts remaining; two for community forests—procedures for the award of concessions to local communities and management modes for community forest exploitation, and the text on artisanal operations.

- Delays in scaling up efforts to disseminate the Forest Code. The GDRC and its NGO partners have undertaken efforts to ensure that government, civil society, forest populations, and forest companies are well informed of the Forest Code, through the integration of participatory approaches, public dissemination of information, and communication at all levels. Indeed, in a widely disseminated statement, Minister Endundo (MENCT), on October 6, 2008, stated that efforts to scale up dissemination for the Forest Code are a policy priority for MENCT, as is fostering the adoption of Forest Code regulations not yet adopted. As noted in Section 9.33 above, a number of NGOs, particularly those under CRON, are actively involved in translating elements for the Forest Code into local languages and sensitizing local communities on their rights and responsibilities under the Code. However, during the course of the assessment, a number of people interviewed in Kinshasa and the field felt that the new texts have not been well publicized and are not well known by communities and other stakeholders. The assessment team expects that this situation will change as funds under the World Bank-funded Forest and Nature Project become available. A major component of this project is to support information campaigns to disseminate the Forestry Code across the country through workshops, the printed media, radio, television, printing, and dissemination of information materials, and translation into local languages.
- Certain texts have a different status based on the degree to which they were developed using a participatory process. This is the case of Decree 011 April 2007 which established the “*l’autorisation de coupe industrielle de bois d’œuvre*,” and repealed the provisions of Decree No. 036 October 2006 on the “*permis de coupe ordinaire*;”
- The emergence of conflicts between the central Government and the provinces on the application of new provisions with regard to the division of powers is becoming a major problem. Indeed, a number of matters that fell within the central Government have been transferred to the provinces by the decentralization initiative (e.g., royalties and all the issues related to artisanal operations), but there is a great reluctance on behalf of the central government to relinquish these powers;
- Finally, DRC’s weak judiciary has not been able to sufficiently clarify irregularities in the legislation. This observation contrasts somewhat with the commitments the GDRC made in terms of the Africa Forest Law Enforcement and Governance (AFLEG) process enforcement, the Forest Law Enforcement, Governance and Trade (FLEGT) action plan of the Commission des Ministères des Forêts d’Afrique Centrale (COMIFAC) convergence plan and other international agreements.

No guidelines for the cahier des charges

As noted above, the Forest Code provides that any forest concession contract should have two parts; the first is the contract itself, and the second is the cahier des charges which is a social contract that requires a logging company to build facilities directly for the community. Prior to the Forest Code, the cahier de charge was basically a discretionary practice. Under the pressure of local communities and NGOs, the titles review process was used as an opportunity to assess social agreements negotiated since 2002. The assessment suggested that while there were concrete achievements, they were not always consistent with local expectations, negotiations and sometimes subject to pressure (and misuse) by local authorities.

Currently, there are two issues with regard to the cahier des charges. First, there are no guidelines (or regulations) to govern their development. Although, MENCT has developed a scope of work for a consultant to develop these guidelines, delays caused by World Bank procurement practices has essentially put this critical activity on hold for over a year.

Second, the signing of the social agreements is a prerequisite to the signing of new contracts for forest concessions for those with converted titles. According to the Forest Code, in the absence of such contracts, no licenses can be issued and any harvesting is illegal. In practice, however, although officially no cutting permit was issued for 2009 (which can be understood in the context of current crisis in the sector), a number of permit extensions have been requested and granted without the requisite social agreements.

Unequal compensation for equal loss

The Forest Code, via the cahier des charges, provides for community compensation in timber concession areas. Communities that live around strictly protected areas, however, receive no compensation for the loss of rights to forest products but are expected to make up the difference through GDRC and donor supported alternative livelihood programs. Unfortunately, the few alternative livelihood programs that exist in DRC have had very limited success; the livelihood options presented to communities by these programs cannot compete with incomes gained from illegal logging, the bush meat trade or artisanal mining. The assessment team believes that a community losing rights of forest use in a strictly protected area should be compensated at least as highly as timber concession communities. Pending development of viable alternative livelihood programs, the GDRC needs to explore options in establishing a compensation plan for communities around strictly protected areas using existing resources or those of any eventual (e.g., REDD) conservation trust fund.

The challenge of decentralization in forestry governance

The 2006 Constitution provides for the transition from 11 to 26 provinces, the new provinces replacing districts, there where they exist. In addition to the provinces, it grants judicial authority to cities and municipalities (in urban areas), sectors, and chefferies (in rural areas). The latter (chefferies) have at their head a customary authority. The GDRC initially planned to develop a framework law on decentralization to give content to constitutional provisions relating to decentralization. Unable to reach a global consensus on all the issues, a series of organic laws were developed, approved and implemented. These include: the *Loi Portant Principes Relatifs a la Libre Administration Des Provinces* (31 juillet 2008), and the *Loi Instituant la Conférence Des Gouverneurs De Province et la Loi Portant Composition, Organisation et Fonctionnement des ETD* (7 octobre 2008).

The Constitution provides transfers of competencies to the provinces, distinguishing exclusive competencies of the State, provinces and shared competencies. In the forest sector, the transfer of competencies does not fundamentally change the equilibrium in the sector; the provinces main function is to apply national legislation and participate in the regulation of various forest regimes.

Competencies include:

- Exclusive jurisdiction of the central government
 - National forest program development and coordination of general interest programs;
 - Forest administration and rules governing hunting, fishing and nature conservation (Art. 202.25);
 - Legislation governing the conservation of natural resources (Art. 202.36-e).
- Exclusive jurisdiction of the provincial governments

- Development of forest programs and their delivery pursuant to national planning;
- Application of national legislation concerning forests (art. 204.20)
- Shared competencies
 - Forest administration (Art. 203.16)
 - Regulations governing forest administration (Art. 203.19).

Legislation regarding the retention of revenues at the national or provincial level is perhaps the most confusing and contentious part of the decentralization process. Article 122 of the Forest Code provides that 60 % of issued timber revenues/royalties go to the National Treasury while 40 % goes to decentralized administrative entities (25 % for the province and 15 % for the territory), and that these funds should be exclusively assigned to the achievement of community interest-based infrastructure.

The Constitution (Article 175) states that the share of receipts allocated to the provinces is 40 %. The Constitution does not impose any prior assignment to these resources. Article 54 of the 31 July 2008 law *08/012 Portent Principes Fondamentaux Relatifs à la Libre Administration des Provinces* (LAP) stipulates that withholding is done by an automatic 40 % retention in the account of the province and 60% in the Treasury ledger account. Article 55 of the LAP goes on to state that state-owned receipts, revenues and revenue from taxes recovered on large enterprises, oil production, as well as other taxes can be retained at their place of achievement. Under the terms of articles 49 and 50 of the LAP, taxes on forest concession area are among the resources that Provinces can recover in accordance with procedures laid down by national legislation (art. 48). Here, the proceeds from taxes of common interest between the provinces and between decentralized territorial entities is set by legislation that establishes such taxes (i.e., from the Forest Code), after notice of the Conference of Provincial Governors.

Although there is an obvious need to harmonize the above legislation to be in line with the constitution, the major issue to be resolved is that the Central Government does not want any fees to be collected by the Provinces. However, the three forest provinces, led by the Eastern Province seized article 50 of the LAP to require direct payment by all forest concessions of land rent as they maintain that this is under their competency as one of their own resource area fees. Pursuant to article 49 of the LAP, the Eastern Provincial Assembly adopted an edict establishing the Directorate of Receipts of Eastern Province responsible for recovering these and other fees. Presently, the Minister MENCT has not accepted this decision and the LAP is currently being reviewed, thus delaying concession operations even further

The addition of new logging concessions

In May 2002, a Ministerial Arrêté established a Moratorium on the awarding of new forest concessions. After the Moratorium was issued, the MENCT sorted through the previous forestry contracts that had been approved prior to May of 2002, and organized them into different categories: contracts that remained valid, abrogated contacts, and contested contracts. Information on the review was disclosed by the MENCT at all stages of the process. As part of a significant drive towards improved transparency in the forest sector, at the end of both the review and appeal stages, the Minister provided detailed explanations on the process followed and the criteria used for examining and determining the legality of the forest titles. As a result, out 156 requests, only 65 were found eligible for conversion. Provided that all companies will be able to successfully negotiate social and environmental responsibility agreements with local and indigenous populations, the area to be converted to long term forest management concessions in

DRC would be 9.7 million hectares, a decrease from the 43.5 million hectares prior to the 2002 forest reform and the 22.4 million hectares prior to the Review. However, the Service Permanent d'Inventaire Forestier (SPIAF), using GIS technology has determined that the real area under forest concessions is about 12 million hectares. This difference highlights the difficulties of control of the administration, who determined the areas based on partially obsolete maps.

More importantly, however, the Minister MENCT has come under pressure to add additional concessions due to the current economic situation, and the need to generate local employment and incomes. To this end, the Inter-ministerial Commission charged with title reviews has recommended that an additional 16 concessions be included in the eligible for conversion category. Of these 16, eleven will probably be selected for an additional 2.7 million hectares. The issue here is that these companies do not have the capital or other resources required to manage a concession according to the Forest Code, and most of them have links to and support illegal artisanal logging.

Sole sourcing

Sole sourcing of logging concessions can be authorized by the Minister, but the Code does not indicate under which criteria sole-source can be authorized. This may leave considerable room for discretionary decision-making.

Artisanal logging

Article 112 of the Forest Code specifies that local communities have the right to exploit their forest. This operation can be made either by themselves or through the intermediary of artisanal, private operators under a written agreement. Artisanal private operators can operate in local communities through an approval issued by the Provincial Governor on a proposal from the local forest administration. Although the text on artisanal operations is being developed, there is concern that the text will not address the issue of the linkages between illegal artisanal operators and the addition of new logging concessions noted above.

Community forests

Article 22 of the Forest Code specifies that a local community may obtain as a forestry concession part or all of a forest owned by the community owned by virtue of custom. The procedures for the award of concessions to local communities are determined by a decree of the President of the Republic. There are two texts currently being drafted for this Article. The first is a decree laying down the procedures for the award of concessions to local communities; the second is a decree laying down the modalities for the management and exploitation of local community forests. However, there have been significant delays in approving these texts as there have been problems in reconciling the two drafts (projet textes)—the first developed by FORCOM (le Projet de la Foresterie Communautaire en RDC) and the second, developed under Forest Monitor's "Modes de gestion des forêts des communautés locales en contribution à la lutte contre la pauvreté" program. Text approval is not expected until June 2010, which may jeopardize implementation of community initiatives currently being developed.

The Mining Code

No provision for biodiversity offsets

A major problem with the mining code is its focus on site rehabilitation. All mineral resource extraction will have direct adverse impacts to the surrounding environment, including its biodiversity. In almost all cases, the impacts can only be mitigated and never eliminated, and in the case of open pit mining, forest destruction will be locally extensive and permanent and no amount of money will be able to bring these sites back to some semblance of their original status. Thus, rather than focus on site rehabilitation for certain sites, Ministry of Mines should explore the use of biodiversity offsets.

Biodiversity offsets—conservation activities that intend to compensate for the residual and unavoidable harm to biodiversity caused by economic development activities such as mining—are widely seen as a useful tool for managing the adverse impacts of such activities. The potential benefits of biodiversity offsets include:

- Undertaking projects that might not otherwise be possible;
- Promoting better relationships with local communities, government regulators, environmental groups and other important stakeholders;
- Providing a practical tool for managing social and environmental risks and liabilities;
- Creating an opportunity to influence emerging environmental regulation and policy;
- Reducing the costs of compliance with environmental regulations; and
- Providing a mechanism to encourage companies to make increased contributions to biodiversity conservation, without necessarily requiring elaborate new rules.

10.7 INTERNATIONAL TREATIES AND CONVENTIONS

DRC's constitution stipulates that all properly concluded treaties and international agreements take precedence over national laws (on condition that the parties to the treaties or convention apply them). It also allows the government to discuss and to conclude international agreements, which are not subjected to ratification, but requires that “peace treaties, treaties on commerce, treaties on international organizations and those related to international conflicts, those that imply public financial support, those that modify national legislation, those that are related to the human well being, and those that may imply a change in national territory, be ratified by passing a law in parliament implementing such treaties.” Table 20 provides a summary of treaties and conventions related to the environment and biological resources that have been signed by the GDRC to date.

In order to conserve and manage its biological resources more effectively, the GDRC should - keeping in mind its limited institutional capacity to enforce compliance - also consider becoming signatory to the following:

- **World Trade Organization Agreement of Trade-Related Aspects of Intellectual Property Rights (TRIPS)**. The TRIPS Agreement is designed to “promote effective and adequate protection of intellectual property rights” and to “reduce distortions and impediments to international trade” resulting from the enforcement of Intellectual Property Rights (IPR). According to its objectives, included in Article 7, it seeks to promote

technological innovation and transfer, in a manner “conducive to social and economic welfare, and to a balance of rights and obligations.” The TRIPS Agreement includes a number of forms of IPR with implications for biodiversity conservation including patents, and “sui generis systems” for plant variety protection. Patents and sui generis systems are relevant to the implementation of the Convention on Biodiversity as they play a key role in defining who gains access to information about genetic resources, how the benefits are shared (including with traditional communities), and what technologies are developed and transferred with implications for conservation and sustainable use of biological diversity;

- **The International Treaty on Plant Genetic Resources for Food and Agriculture**, popularly known as the International Seed Treaty, is a comprehensive international agreement in harmony with Convention on Biological Diversity²⁸, which aims at guaranteeing food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture, as well as the fair and equitable benefit sharing arising from its use. It also recognizes farmers' rights to: freely access genetic resources, unrestricted by intellectual property rights; be involved in relevant policy discussions and decision making; and use, save, sell and exchange seeds, subject to national laws. At the heart of the Treaty is a Multilateral System (MLS) that seeks to facilitate access to a negotiated list of plant genetic resources, as well as the fair and equitable sharing of benefits arising from their use. Genetic resources listed on the MLS are to be circulated “freely.” Developing countries are encouraged to place germplasm in the MLS in exchange for benefit sharing in areas of information exchange, technology transfer, and capacity building; and
- **The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)**. The AEWA covers 255 species of birds ecologically dependent on wetlands for at least part of their annual cycle, including many species of divers, grebes, pelicans, cormorants, herons, storks, rails, ibises, spoonbills, flamingos, ducks, swans, geese, cranes, waders, gulls, terns, tropic birds, auks, frigate birds, and the South African penguin. The agreement covers 118 countries and the European Community from Europe, parts of Asia and Canada, the Middle East and Africa. The geographical area covered by the AEWA stretches from the northern reaches of Canada and the Russian Federation to the southernmost tip of Africa. The Agreement provides for coordinated and concerted action to be taken by the Range States throughout the migration system of waterbirds to which it applies. Parties to the Agreement are called upon to engage in a wide range of conservation actions which are described in a comprehensive Action Plan. This detailed plan addresses such key issues as: species and habitat conservation, management of human activities, research and monitoring, education and information, and implementation.

²⁸ This Treaty arose in part due to difficulties in transferring the bilateral bargaining model of access to genetic resources promoted by the Convention on Biological Diversity to plant genetic resources for food and agriculture.

TABLE 20: DRC'S PARTICIPATION IN INTERNATIONAL TREATIES AND CONVENTIONS

Convention/ Treaty	Adoption Date	Ratification/ in force Date	Objectives	Projects and Programs
Convention on Biological Diversity (CBD)	11 June 1992	3 Dec 1994	Promote conservation of biological diversity sustainable use of its components fair and equitable sharing arising out of the utilization of genetic resources	National Biodiversity Strategies, Action Plan, and Country Report funded by UNDP in 1996
The Cartagena Protocol on Biosafety to the Convention on Biological Diversity		23 Mar 2005	To contribute to ensuring an adequate protection in the field of living modified organisms resulting from modern biotechnology	
United Nations Convention to Combat Desertification	14 Oct 1994	12 Sep 1997	To combat desertification and mitigate the effect of drought in countries experiencing serious droughts and/or desertification	
The United Nations Framework Convention on Climate Change	11 June 1992	09 Jan 1995	To achieve stabilization of green house gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic system	In 1997, UNDP/GEF provided technical assistance and support development of in-country capacity to enable Congo DR to prepare, formulate and submit its first national communication to the UNFCCC. The project directly assisted in the development of a national inventory of anthropogenic emissions by sources.
Kyoto Protocol		23 Mar 2005	To strengthen the commitment of developed country parties with a view to reduce their overall emissions	UNDP and UNEP assisting with development of Reducing Emissions from Deforestation and forest Degradation (REDD) strategy. UN-REDD is providing funding to jumpstart projects in the DRC after strategy development
Ramsar Convention on Wetlands		18 May 1996	To manage wetland systems so that the human uses of these areas are undertaken in such a way as to retain their natural capital for future generations. to encourage and support countries to develop and implement national policy and legislative frameworks, education and awareness raising programs, as well as inventory, research and	The Democratic Republic of Congo has designated, effective 24 July 2008, the rainforest wetland called "Ngiri-Tumba-Maindombe" (6,569,624 hectares, 01°30'S 017°30'E), a vast area of rainforest, rivers, and lakes on the eastern side of the Congo River, adjacent to the nearly equally

Convention/ Treaty	Adoption Date	Ratification/ in force Date	Objectives	Projects and Programs
			training projects	enormous "Grands affluents" Ramsar site (5,908,074 hectares) across the Congo River in the state of Congo.
The Convention on Illegal Trade of Endangered Species of Flora and Fauna (CITES)	20 July 1976	18 Oct 1976	To ensure that international trade in specimens of wild animals and plants does not threaten their survival	
The Convention on the Protection of Migratory Species		1 Sept 1990	To promote, cooperate in or support research relating to migratory species; to provide immediate protection for migratory species; to conclude agreements covering the conservation and management of migratory species	
The World Natural and Cultural Heritage Convention		23 Sept 1974	To link together in a single document the concepts of nature conservation and the preservation of cultural properties	<i>Properties inscribed on the World Heritage List</i> Garamba National Park (1980) Kahuzi-Biega National Park (1980) Okapi Wildlife Reserve (1996) Salonga National Park (1984) Virunga National Park (1979) <i>Properties submitted on the Tentative List</i> Grottes de Dimba et Ngovo (1997) Grottes de Matupi (1997) Dépression de l'Upemba (1997)
The African Convention for Nature Conservation		13 Nov 1976	Contracting States shall undertake to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people	
The Lagos Action Plan for African Economic Development: 1980—2000;			Cooperation in the field of natural resource control, exploration, extraction and use for the development of economies for the benefit of people and to set up the appropriate institutions to achieve these purposes	
The International Agreement on Tropical Timber		20 Nov 1990	To promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests	

Convention/ Treaty	Adoption Date	Ratification/ in force Date	Objectives	Projects and Programs
The Vienna Convention on the Protection of the Ozone Layer	22 Mar 1985	22 Sept 1988	To take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer	
The UN Convention on Law of Seas	22 Aug 1983	17 Feb 1989	Protects the economic, environmental, and national security concerns of coastal states; establishes international cooperative mechanisms for resolving disputes; safeguards imperiled marine species	
The London Convention on the Conservation of Wild Species of Fauna and Flora			First multilateral convention on conservation (1900); Designed to “prevent uncontrolled massacre and conservation of various species of wild animals in Africa	
The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction		16 Sept 1975	Never develop, produce, stockpile or otherwise acquire or retain microbial or other biological agents, or that have no justification for prophylactic, protective or other peaceful purpose	
The London Convention of Ocean Water Pollution			Covers the deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms, and other man-made structures at sea.	
The Basel Convention the Transport and Treatment Toxic Wastes		06 Oct 1994	Regulates the transboundary movements of hazardous and other wastes; obliges parties to ensure that hazardous and other wastes are managed and disposed of in an environmentally sound manner	

Convention/ Treaty	Adoption Date	Ratification/ in force Date	Objectives	Projects and Programs
The Convention the African Timber Organization (OAB), as revised in Kinshasa, 2002;			African Timber Organization (ATO) set of principles, criteria, and indicators to promote the sustainable management of African forests.	
The Declaration of Yaoundé creating the conference of ministers responsible for the forests of Central African (COMIFAC)		May 2002	Harmonization of forest policy and taxation, inventory of flora and fauna, ecosystem management, conservation of biodiversity, sustainable use of natural resources, capacity building and community participation, research, and innovative financing mechanisms	President Kabila's announcement of his intention to increase the protected areas network to 15% of the country's area
The Declaration of Kinshasa, creating the Conference on the Dense Humid Forests of Central Africa (CEFDHAC).			To encourage the sustainable use and conservation of the Central African forest belt; to contribute to the design of policies, strategies, national and regional plans for the conservation and the sustainable use of Central African dense rainforest ecosystems; to ensure the participation of all stakeholders and to build up local and regional capacities	

11. COMMERCIAL AND PRIVATE SECTOR CONSERVATION ACTIVITIES

11.1 THE CONGO BASIN FOREST PARTNERSHIP

The Congo Basin Forest Partnership (CBFP) was launched at the 2002 World Summit on Sustainable Development in Johannesburg as a non-binding partnership registered with the United Nations Commission on Sustainable Development. As a "Type II" partnership, it represents a voluntary multi-stakeholder initiative contributing to the implementation of an intergovernmental commitment, i.e. the Yaoundé Declaration, and brings together the 10 member states of the COMIFAC, donor agencies, international organizations, NGOs, scientific institutions and representatives from the private sector.

CBFP works in close relationship with the Central African Forests Commission (COMIFAC), the regional body in charge of forests and environmental policy, coordination and harmonization, with the objective of promoting the conservation and sustainable management of the Congo Basin's forest ecosystems. Private sector partners include: the American Forest and Paper Association, the Inter-African Association of Forest Industries (IFIA), the Association Technique Internationale des Bois Tropicaux (ATIBT), Precious Woods, and the Society of American Foresters.

11.2 PRIVATE GAME RANCHES AND ZOOS

ICCN's regional office in Katanga reports that there are around 80 private game ranches and zoos in Katanga Province. Most of these are owned by DRC's wealthy, political elite or by expatriate business people. According to ICCN, all of these establishments are legal in that ICCN approval has been given for ranch/zoo establishment and animal collection. However, there are reports that in some of these establishments, animals are not properly cared for. As private game ranches pose both an opportunity and a threat to biodiversity conservation in the DRC, ICCN needs to conduct an inventory of these facilities, assess the status of animals, cancel permits of poorly managed facilities if necessary, and work to develop partnerships with those operations that are performing according to international norms and standards for such facilities.

11.3 LOGGING CONCESSIONS

The Fédération des Industries du Bois (FIB) reports that the majority of its 16 members has established or plans to establish conservation zones within their logging concessions. Indeed, many CARPE implementing partners are assisting concessions with this effort. FIB also reports that the majority of its members are interested in pursuing Forest Stewardship Council (FSC) certification. According to FIB, however, the major impediment to pursuing and developing these initiatives in a more concrete fashion is resources; once formal and informal taxes and fees are paid (and profits taken), there is not much left for conservation.

11.4 TENKE FUNGURUME MINING

Tenke Fungurume Mining (TFM) focuses on minimizing environmental impacts, impact mitigation and environmental performance monitoring. TFM works with local communities as well as world experts to understand local flora and fauna and to enhance efforts to preserve biodiversity. Company-implemented issues and data driven risk management strategies are in conformance with international best practice. TFM reports environmental and biodiversity performance against Global Reporting Initiative indicators. Implementation of TFM environmental program is through an environmental and social management plan, which includes a “greenstake” program for managing site-specific impacts and mitigation.

The copper-cobalt habitat types of DRC have high flora species diversity, high species endemism (often with a very narrow distribution range), and a number of unique plant communities. Certain of these communities have been classified as potentially ‘critical’ under IUCN guidelines.

TFM has developed and is currently implementing a Biodiversity Action Plan which uses a number of tools to address flora conservation issues. These include:

- Conservation zones—areas within the concession that are set aside for biodiversity conservation purposes;
- Nurseries—with both indigenous and exotics species for site rehabilitation;
- Seeds banks, located in the DRC and internationally, where seeds from many endemic species are stored;
- Artificial or engineered habitats for endemic floral species that have been salvaged from the wild and transplanted.

TFM’s Biodiversity Action Plan is being implemented with scientists from Gembloux University in Belgium and the University of Lubumbashi.

Other TFM Environment and Social Management elements include public health and safety; air quality and noise; storm water control; surface and ground water quality; soil conservation and erosion control; and waste management.

FIGURE 26: *FAROA MALAISSEI*— KNOWN ONLY TO OCCUR ON COPPER/COBALT OUTCROPPINGS AT TWO LOCALITIES – LUITA AND FUNGURUME MINES



Photo: Thomas Weiskopf

FIGURE 27: ARTIFICIAL HABITAT ESTABLISHED AT FUNGURUME



Photo: DAI

12. ASSESSMENT OF USAID/DRC'S BILATERAL AND REGIONAL PROGRAMS AND STRATEGY

The following provides a review of USAID priority goals in view of threats to biodiversity and tropical forests under the new 2009-2013 Foreign Assistance Strategic Plan.

12.1 STRATEGIC APPROACH AND PRIORITIES

The overarching U.S. Foreign Policy goal in the DRC is the emergence of a stable democratic Congo that is at peace with its neighbors and provides for the basic needs of its citizens. The five-year strategic vision for U.S. Foreign Assistance to the DRC is to support the security conditions and governance structures necessary for improvement of Congolese social and economic sectors and to permit extension of state authority across the country. The U.S. Mission will advance this vision by working with the Congolese government and local actors to transition from conflict and humanitarian relief programming to development assistance, and specifically working to fight poverty, consolidate democratic reform, and provide for the basic human needs of a Congolese population ravaged by more than ten years of war.

The United States Government (USG) will pursue five mutually reinforcing priority goals for the agencies and departments administering foreign assistance in the DRC:

12.1.1 GOAL 1: PEACE AND SECURITY—INCREASE STABILITY IN THE DRC

Supporting processes and mechanisms to end conflict in the DRC is the United States' highest foreign assistance priority. This is not only because of the direct consequences of insecurity on the Congolese population and the instability it creates in the region, but also because conflict diverts resources and attention from the process of reconstruction and retards progress toward the transformational diplomacy goal in DRC. The ability of the DRC to provide an army and police force that can respond to the basic security needs of the population, respecting human rights and providing protection, is *an urgent prerequisite to all other aspects of development*. Communities that have the means to address sources of renewed and latent conflict and tension are in a position to mitigate the likelihood of ongoing violent conflict and to support development activities. Preventing conflict and improving security conditions are therefore fundamental to the success of overall U.S. Mission poverty reduction, social and economic development efforts in the DRC.

Geographic focus—Eastern DRC—Katanga (Tanganyika District), Province Orientale (Ituri and Tshopo Districts), North Kivu, South Kivu and Maniema.

Threats and Opportunities

The Eastern regions mineral wealth, and to a certain extent its timber resources have been and continue to be implicated as complicit in the violence in the area. Indeed, conflict in the area is in part a consequence of various actors trying to accumulate wealth, often through the exploitation of natural resources and control over informal trading activities. Some observers have suggested that it is economic interests, which have primarily motivated the proliferation of combatant groups and protracted the conflict, and that natural resources have shaped the power strategies of elites, and warring parties have increasingly operated based on the territorialisation of sovereignty around valuable resource areas and trading networks. Although restoring peace to the region will undoubtedly have an impact on the over exploitation of natural resources, war economies have the potential to persist in post-conflict contexts and in some cases are hardly affected by peace processes; mechanisms of exploitation that have been instituted during wartime can largely survive in peacetime conditions²⁹. With this in mind, USAID/DRC could consider expanding its Peace and Security Program to work directly with ‘illegal’ or ‘illicit’ traders in the natural resource shadow economy by incentivizing them through a process of engagement.

12.1.2 GOAL 2: GOVERNING JUSTLY AND DEMOCRATICALLY—STRENGTHEN CORE GOVERNANCE CAPACITY

Democratic institutions can become the means through which the DRC overcomes political divisions created through years of conflict and builds a government that is responsive to citizens’ needs. As such, strengthening governance in the Congo is a crosscutting priority goal that directly affects social and economic development and reinforces the Mission’s overarching peace and security goal. Transparency and accountability for the management of public resources is critical to the DRC’s ability to improve performance and service delivery across political, social and economic arenas and thereby strengthen long-term stability. Governing Justly and Democratically foreign assistance programs will focus on the ability of GDRC institutions to function in citizens’ interest. Goal 2 will focus on:

- Rule of Law and Human Rights programs will provide technical assistance, training and material support to implement the GDRC’s Action Plan for Justice Reform and to promote advocacy for stronger human rights protection;
- Good Governance programs will provide technical assistance, training and material support to put into practice decentralization reforms and boost legislatures’ capacity to produce quality legislation and provide oversight of the executive branch;
- Support for Political Competition and Consensus-Building will address the need for support for national and local elections.

Geographic focus—Kinshasa, Bandundu, Katanga and the eastern provinces of North and South Kivu and Maniema

Threats and Opportunities

Good governance, the rule of law, and the ability to participate in the selection of individuals called upon to make policy and decisions that both affect the quality of daily life and set the course for the future are extremely important for environmental management. However, as noted above, the desire to have access

²⁹ See Garrett, N, and Mitchel, H. (2009).

to natural resources is widely acknowledged to have been an important factor in recent military conflicts. These conflicts mostly involved minerals, although access to land and timber was also involved. In the DRC, which has one of the lowest per-capita income but is one of the richest countries in terms of natural resources, allocating access to those resources and to the benefits they generate could be the centerpiece of any governance program. Although Goal 2 does not explicitly deal with natural resources, it does state that policy reform and implementation efforts will work at the national level, as well as target provincial level economic management in tandem with the decentralization process.

Working through CARPE and other partners, USAID/DRC has the opportunity to help establish the necessary infrastructure for decentralizing natural resource powers, and improving natural resource decentralization in general. At the national level, USAID/DRC could work with decentralization actors to:

- Ensure sufficient, meaningful and appropriate discretionary powers are transferred to local authorities, and that these powers are transferred as secure rights;
- Develop environmental subsidiarity principles³⁰ to guide the transfer of appropriate and sufficient powers to local authorities. Such principles include: transferring discretionary powers to local authorities to give them some independence; devolving powers such as control over land and forest access, or other powers that are meaningful to local people and, as a result, they reinforce the authority of those who hold them; transferring lucrative opportunities; and transferring funds and fund-raising powers including the power to collect revenue, borrow, tax and charge fees.

At the Provincial and lower levels, USAID/DRC and partners could design and implement activities based on the five key governance indicators of successful natural resource decentralization programs: local community decision-making potential, primacy of law and sanctions, the fight against corruption and embezzlement of funds, downward accountability, and positive socioeconomic effects.

12.1.3 GOAL 3: ECONOMIC GROWTH—PROMOTE ECONOMIC GROWTH WITH EMPHASIS ON POVERTY REDUCTION AND ENVIRONMENTAL SUSTAINABILITY

Economic growth provides the foundation for long-term stability and improving living standards in the DRC. Increased agricultural productivity and marketing, along with development of economic opportunities building on investments in extractive industries, are two fundamental areas of investment that will support this economic growth. At the same time, increased macroeconomic stability and improved governance through a focus on the enabling environment contributes to job creation and rising incomes. Sound management of the critical biodiversity reserves in the DRC, addressed through regional and bilateral programs, recognizes the critical role of natural resources and ecosystem/environment services to the economy. Moreover, the illegal exploitation of natural resources has played a major role in the continuing conflict, particularly in the East, and thus enhancing the GDRC's ability to oversee these resources not only improves economic standards but also undercuts one of the fueling factors of conflict. Specific areas of intervention on Goal 3 include:

- Improving agricultural productivity and marketing opportunities to improve incomes and food security, especially among the poor; support for farmers to link with domestic markets in large urban centers, particularly Kinshasa and Lubumbashi;

³⁰ WRI's publication "Waiting for Democracy: The politics of choice in natural resource decentralization" provides a more complete list of subsidiarity principles as well as a framework to improved decentralized natural resource management.

- Technical assistance, training and increased access to business services and credit;
- Public-private partnerships will coordinate and leverage USG assistance with investment by multinational corporations in the extractive industries and agricultural production sectors;
- Economic growth investments will promote sound natural resource management practices and biodiversity protection, recognizing the crucial environmental services provided by a well-functioning ecosystem. Both regional and bilateral investment in protection of biodiversity and other natural resources will provide for economic growth that does not compromise these services;
- The Central Africa Regional Program for the Environment (CARPE) will provide leadership in natural resources management and biodiversity protection in priority landscapes, in recognition of the value of the natural environment to the DRC's economic potential. Bilateral resources will seek to complement and build upon CARPE's expertise by promoting sound policies and incorporating improved natural resource management and environmental sustainability into economic growth activities;
- Macroeconomic stability;
- Support for improved infrastructure and management capacity for regional energy supply, trade, and distribution management will play a critical role in as the DRC increases its energy supply through rehabilitation of power generation capacity supported by major investments from multilateral institutions and the private sector; and
- Strengthened micro enterprise productivity.

Geographic focus—the major urban centers of Kinshasa and Lubumbashi provide market opportunities for the development of production and marketing channels in the agriculture sector in Katanga, Bas-Congo, Equateur and Bandundu.

Threats and Opportunities

Work in the agriculture sector is critically important to improving the well being and economic status of those who need it the most. However, as Gambino (2008) points out, “the Congolese government and donors, including the World Bank and (until recently) USAID), have largely neglected this sector. Agriculture is barely mentioned in the Congolese government's strategy to alleviate poverty and promote growth despite the fact that approximately 70 percent of Congolese live in rural areas and agriculture accounts for more than half of GDP. The agricultural sector employs over 75 percent of the labor force, according to the most recent report by The Economist's Economic Intelligence Unit. Most of these farmers are extremely poor women.”

USAID's agricultural program has the opportunity to enhance the long term protection of biodiversity and tropical forests by promoting sustainable use and by providing a much needed source of alternative (to the bushmeat trade and illegal logging) income. Activities can also help orient people away from critical protected areas as well as other areas highlighted as important for conservation. And if fuelwood is considered as an agricultural commodity, reforestation and agroforestry programs can help address the severe environmental degradation occurring around DRC's major urban centers. At the same time, agriculture projects that do not plan for possible negative environmental consequences run the risk of contributing to the degradation and/or loss of forest cover and biodiversity.

Unfortunately, the geographic focus of USAID’s economic growth activities precludes the program from working in the areas that need alternative income programs the most—the CARPE landscapes. Indeed, CARPE implementing partners have long struggled with the development of income generating activities to go hand in hand with conservation actions. Expanding the geographic focus of the Economic Growth program, or at a minimum, requesting contractors, grantees and other implementing partners under the program to assist CARPE partners with agriculture-based income generating activities, would go a long way in helping reduce a major threat to DRC’s forests and biodiversity.

Finally, improvements in transportation infrastructure and support for improved infrastructure and management capacity for regional energy supply, although essential to improving the economic status and well being of isolated rural populations, such activities could have a negative effect on the environment, facilitating the overexploitation of natural resources by bringing down transportation costs for bush meat as well as facilitating human immigration into remote regions. To the extent that facilitating human movement between commercial centers and remote areas is a component of this or any Economic Growth activity working in or adjacent to areas of high biodiversity importance, measures should be taken to mitigate such potential problems. It is critical that the ICCN and the MENCT be contacted and brought into the planning process when such activities are to be undertaken. This will not only help avoid unintended consequences but could play a positive role by acknowledging the importance of protected areas. It is also imperative that vehicles and boats managed by USAID funded projects not transport bushmeat.

12.1.4 GOAL 4: HEALTH—IMPROVE THE BASIC HEALTH CONDITIONS OF THE CONGOLESE PEOPLE

Access to basic health services—including prevention and treatment of infectious diseases, reproductive health care—and strengthened public health management systems, are the top social services priorities for communities in the DRC in order to reduce the numbers of people dying from preventable causes. Support for the prevention, care, and treatment of HIV/AIDS will form an important part of USG efforts in the health sector. USG support for improved GDRC capacity and service delivery in the health sector will leverage crosscutting democracy sector support and reinforce the overall enabling environment for Congolese peace and security conditions to hold.

Geographic focus- Bas-Congo, Katanga, Kasai Occidental and Kasai Orientale, Kinshasa, and South Kivu.

Threats and Opportunities

With the exception of HIV/AIDS activities, the direct link between Goal 4 and threats and opportunities with respect to biodiversity and tropical forests are relatively minor. Health activities would be expected to take appropriate precautions when disposing of hospital and other waste. While incinerators are likely not available in most health zones, burning combustible waste at a site sufficiently removed from people would be appropriate. Burying of glass, needles and other noncombustible waste must be done in deep pits far removed from human habitations, areas important for biodiversity conservation, and slopes prone to erosion. One would also expect sufficient care would be taken to avoid inadvertent negative environmental impacts when rehabilitating health infrastructure. Similarly, one would expect that any new potable water supplies developed under the program would conform to Regulation 216 requirements in terms of water testing.

HIV/AIDS, on the other hand, can have a direct impact on the environment due to:

- Loss of human capacity to AIDS: this is seriously affecting conservation and community-based natural resource management. Conservation organizations are particularly at risk as staff are posted far away from their families in national parks and protected areas where they are more likely to engage in risky behaviors;
- Increased use of natural resources: as AIDS-affected rural households lose salary earners and agricultural labor, many are turning to natural resources as the ultimate safety net. Activities such as hunting, fishing and charcoal making are increasing as families seek alternative livelihood means. Medicinal plant harvesting has increased to treat side effects of AIDS, and timber logging has accelerated in many areas to supply to growing coffin industry. These widely reported increases in resource use are often not sustainable and pose a long-term threat to community and ecological wellbeing;
- Changes in land use: when traditional knowledge of natural resource management and local farming systems are lost, and when households are forced to change land use practices (e.g. growing less labor-intensive crops), land and resources are often used in less appropriate ways. Problems with land tenure and land grabbing often occur when the male head of a household dies; in some societies, widows and orphans cannot inherit land (either legally or customarily). Land-grabbing results in loss of livelihood base for the immediate surviving family members;

Under Goal 4, USAID has the opportunity to address HIV/AIDS and other health-related environmental issues and strengthen the linkages between health and environment issues by:

- Developing institutional HIV/AIDS policies and strategies to help both employers and employees in MENCT, ICCN and national parks;
- Adapting conservation training programs to include the development of special HIV/AIDS modules;
- Working with local communities to develop natural resource-based micro-enterprises, e.g. promoting sound harvesting of medicinal plants for treating HIV/AIDS symptoms and more efficient extraction of active ingredients, and encouraging cultivation of species that can be grown domestically;
- Promoting HIV prevention and awareness with local NGOs, particularly the various networks operating under CRON; and
- Developing linkages with RESPOND, USAID's Avian and Pandemic Influenza and Zoonotic Disease Program. The goal of the RESPOND program is to improve the capacity of countries in high risk areas to respond to outbreaks of emergent zoonotic diseases that pose a serious threat to human health. The intent of the project is to respond to outbreaks while they are still within the animal community, however, there may be occasions where a response is needed within the human population.

12.1.5 GOAL 5: EDUCATION—IMPROVE ACCESS TO QUALITY EDUCATION AT ALL LEVELS OF SCHOOLING

Improving access to and quality of education at all levels of schooling sets the stage for communities to escape poverty, while helping to mitigate potential drivers of conflict. Where security conditions permit, programs will build upon existing structures and work to improve access to basic and higher education. Education programs will also reach disadvantaged, vulnerable and returning populations, focusing on

women and girls. With a Congolese population projected to triple (to 180 million) by 2050, US Mission education sector support will play a key role in mitigating the vulnerability of rising numbers of disadvantaged youth to violence and exploitation and thereby further compliment over-arching efforts to ensure that peace and security conditions hold in the DRC.

Geographic focus—Bandundu, Bas-Congo, Equateur, Kasai Occidental, Kasai Orientale, Kinshasa, northern Katanga and Maniema. Programming will also focus in the conflict or hot spot areas identified by the Interagency Conflict Assessment Framework (ICAF) assessment, in the Eastern the provinces of North Kivu, South Kivu and Province Orientale (Ituri District).

Threats and Opportunities

There are few if any negative impacts that can be envisioned by Goal 4 with respect to the environment in general and biodiversity and tropical forests in particular. In contrast, improving the education level of the Congolese people in general and disadvantaged, vulnerable and returning populations in particular, is critical to improving their economic status as well as understanding their relationship to the global economy. This should have positive impacts on the environment.

Having said that, there is considerable potential for programs under this Goal to have a significant positive impact in tropical forests and biodiversity. For example, the program’s objective of updating obsolete education curricula to include key messages on civic participation, health, and conflict mitigation could be expanded to include messages on environmental issues. Links to the CARPE program could be strengthened by working with CARPE partners to develop Interactive Radio Instruction (IRI) programs on the protection of biodiversity and tropical forest conservation. The use of radio as an environmental extension tool has had positive impacts in DRC in the past (e.g., Ituri Forest, N. Kivu) and IRI has been an effective conservation tool in several countries, notably Costa Rica, Malawi and India.

12.2 USAID/DRC’S COMPARATIVE ADVANTAGE

The USG and USAID, through CARPE and the Congo Basin Forest Partnership, play a major role in biodiversity conservation and the protection and management of tropical forests in DRC. One major success of the CBFP has been to stimulate donor participation in forestry and conservation policies. COMIFAC provides a vehicle for encouraging the countries of the region to come together on policy issues. At the national level (and sometimes at the Basin level), several major policy issues have been identified and most are being addressed by donors. CARPE partners appear to be influencing national policies by taking the lead in establishing community management reserves and concession agreements.

The Mission and USG are capable of facilitating the involvement of large, international NGOs with an interest in biodiversity and tropical forest conservation, and support to these organizations has had an impact on conservation in DRC. Based on its experience in forming, leading, and participation in multi-partner collaborations, USAID is positioned to effectively collaborate with and support the work of more economic development-oriented organizations whose efforts would complement those of the conservation NGOs and provide the synergy required to strengthen critical conservation and development links.

USAID and the USG also have a distinct comparative advantage in terms of alternate conservation financing mechanisms. Through the Tropical Forest Conservation Act (TFCA), USAID has extensive experience in developing and supporting conservation trust funds. USAID’s monetized PL 480 initiatives to support conservation and other environment and natural resources activities have provided the sort of

long-term, flexible funding that is absolutely critical to innovation--and results. USAID/DRC and the USG can also use their positions in DRC to help the GDRC forge conservation partnerships with corporations such as Tenke Fungurume Mining Company and other mining concessions, and possibly with ZTE Agribusiness Company Ltd, a Chinese firm that will establish a one million hectare oil palm plantation in the DRC. Such partnerships could provide much needed alternative conservation financing through biodiversity offsets, collaborative conservation and community based natural resource management programs and other mechanisms.

USAID and the USG have built up a strong comparative advantage in its health programs, which over the last decade have improved the health of the poorest Congolese, particularly in rural areas. USAID has led in successful programs to nearly eradicate polio in the Congo, distribute bed nets to fight malaria throughout the country, dramatically increase immunization coverage for children under five, and make other substantial improvements to the health of Congolese. Many other donors, including the World Bank, have used USAID's health program as a model for their own activities. With its increased focus on HIV/AIDS, the Mission has the opportunity to address HIV/AIDS-related environmental issues such as loss of human capacity, increased use of natural resources and changes in land use patterns.

Through its Governing Justly and Democratically program, USAID has the opportunity to encourage more accountability for conservation activities. With the active support and encouragement of a stronger and broader array of civil society organizations and local NGOs, the USG in concert with other development assistance and international organizations could provide a voice for development activities that consider the conservation and equitable distribution of DRC's natural resources.

Finally, USAID and the USG have provided both long and short-term training opportunities to hundreds of thousands of individuals in developing and transition countries each year. The Mission's "Investing in People: Education" program has been at the forefront in providing accelerated learning opportunities to disadvantaged, vulnerable and returning populations using a number of innovative technologies and a community-centered approach. These technologies and approaches could easily be applied to the transmission of conservation and other environmental messages. USAID's flexible approach to education and training would enable it to respond to the variety of learning challenges that are being faced by DRC's environment and natural resource management institutions.

12.3 RECOMMENDATIONS

The assessment team has formulated a set of recommendations for program actions that USAID may wish to consider for improving its contribution to natural resources management and biodiversity conservation in DRC. Although the recommendations do not address all the actions needed to protect tropical forests and conserve biological diversity, the assessment team believes that these recommendations would lay the foundation for a more comprehensive and cohesive approach to natural resource management in the DRC and future longer-term investments.

The short-term recommendations are targeted as specific actions based on existing USAID programs. These are incremental additions to or changes in USAID's current and projected program areas, which seems to be the most practical approach to addressing biodiversity conservation given possible current and future funding constraints and opportunities. The mid- to long-term recommendations focus on the future of CARPE, community land and resource tenure and climate change adaptation, with the latter two more broadly based and relevant for consideration by other donors.

12.3.1 PRIORITIES IN THE SHORT TERM

New Agriculture Development Project

USAID/DRC has issued a pre solicitation notice for a new agriculture development project within the Economic Growth priority goal. The project is intended to achieve the over arching result: “increased agricultural productivity (for primary agriculture commodities) and marketing to improve incomes and food security, especially among the poor.” The project is expected to operate in the Provinces of Bandundu, Bas Congo, Kinshasa, and Katanga.

The assessment team believes that fuelwood should be considered as one of the commodities and that this should be specified in the Request for Proposals (RFP). Wood accounts for 85% of domestic energy in the DRC, and deforestation around urban areas for firewood and charcoal exert a heavy toll on natural forests and woodlands. In Kinshasa, for instance, charcoal is reportedly coming from 300 to 400 km away, while in Lubumbashi, fuelwood comes from 40 km away as the miombo ecosystem around the city has been degraded to the extent that it can no longer produce sufficient quantities of wood to satisfy demand. Clearly, the fuelwood resource needs to be managed better and USAID could make a substantial contribution to this effort by analyzing fuelwood (charcoal, firewood) value chains, and developing fast growing plantations and agroforestry systems with local communities and entrepreneurs to meet growing demand. Plantations (woodlots) and agroforestry systems have the added advantage in that carbon credits for such efforts can be sold under both the Clean Development Mechanism (CDM) and voluntary markets, and producers can get paid for both sequestration, and after a period of time, harvesting and sale of product.

Additionally, one assumes that the successful offeror for this project will field a team with considerable experience in value chain analysis, agriculture production and economic development in general. Such in-country expertise would greatly benefit CARPE implementing partners, and the assessment team recommends that USAID develop mechanisms whereby CARPE partners could draw on this expertise. Alternatively, the RFP could be amended to include 1-2 project staff who would be solely dedicated to working with CARPE partners on alternative livelihoods development.

Encouraging Global Anticorruption and Good Governance Efforts (ENGAGE)

This is a new procurement under the “Encouraging Global Anticorruption and Good Governance Efforts (ENGAGE)” Indefinite Quantity Contract (IQC) managed by USAID’s Bureau for Democracy and Governance. The purpose of the program is to improve management capacity and accountability of select legislatures and local governments. The three Intermediate Results are:

- Citizens demand accountability;
- Selected parliaments are more democratic and effective; and
- Laws, policies and procedures for decentralization established and implemented

The program will focus on three categories of partners: (1) parliamentary institutions at the central and provincial level; (2) public institutions having a stake and role in decentralization; and (3) civil society and community-based organizations.

Under this proposed activity, USAID/DRC has the opportunity to help establish the necessary infrastructure for decentralizing natural resource powers, and improving natural resource decentralization

in general. At the national level, the project could work on developing and testing guidelines for transferring discretionary powers to local authorities and the development of subsidiarity principles to guide the transfer. At the local level, the project could work with and help strengthen the capacity of the various NGO natural resource networks and their local partners to deliver training programs to their constituents on local community decision-making potential, corruption, accountability, etc.

Should the Mission be interested pursuing this recommendation, the assessment team would strongly suggest that the Mission develop a scope of work and issue a Request for Applications (RFA) for a program to assist ENGAGE to develop a natural resource decentralization component.

Tenke Fungurume Mining (Freeport-McMoran Copper and Gold)

The assessment team understands that USAID/DRC has signed or will soon be signing a Global Development Authority (GDA) Agreement with TFM. We also understand that specific areas of focus under the agreement have not yet been determined. The assessment team would strongly suggest any eventual detailed agreement place strong emphasis on forest management and biodiversity conservation. Assessment team discussions with TFM indicate they would be interested in a number of collaborative activities from improved miombo management by communities and woodlot establishment to support for the protection and development of Upemba National Park. Such collaboration has the added advantage in that it would satisfy biodiversity earmark requirements.

Ensure that new Initiatives under Goal 4 Are Linked to USAID's RESPOND Program

Wildlife is increasingly a source of new zoonotic infections comes from the consumption of “bush meat.” In the Congo Basin, this trend has fueled an increase in outbreaks of zoonotic diseases such as Ebola Hemorrhagic Fever. Ebola, like the HIV virus that causes AIDS, passes into the human population through contact with blood from infected primates, such as gorillas and chimpanzees, as well as other primates like monkeys, which regularly form part of the bush-meat trade. In this context, the goal of USAID's RESPOND project is to improve the capacity of countries in high-risk areas to respond to outbreaks of emergent zoonotic diseases that pose a serious threat to human health. The intent of the project is to respond to outbreaks while they are still within the animal community, however, there may be occasions where a response is needed within the human population. The geographic scope of the project is directed to those zoonotic “hotspots” of wildlife and domestic animal origins, including the Congo Basin/DRC. By encouraging linkages between RESPOND and any new initiatives under its Goal 4, “Improving the Basic Health Conditions of the Congolese People,” USAID/DRC has the opportunity to address both human health issues and help alleviate a threat to DRC's primates.

Strengthen Linkages between CARPE Implementing Partners and GDRG Institutions

As discussed above, CARPE/DRC needs to develop a better mechanism for bringing together GDRG partners for both strategic planning and progress review purposes. One simple mechanism, developed by AWF, appears to hold considerable promise for strengthening linkages between CARPE implementing partners and GDRG institutions, while fostering improved dialogue on DRC's biodiversity and tropical forests. AWF has done what most USAID-supported programs are supposed to do—i.e., have a steering committee to guide implementation. AWF's steering committee is composed of key partners (ICCN national and park staff, and provincial and local government authorities) who meet on a quarterly basis to develop workplans, review implementation progress, and identify and resolve any implementation bottlenecks. AWF staff report that this simple approach to coordination not only helps build local

capacity, but also helps immensely with buy-in from partner organizations. Such a system could be replicated by other CARPE implementing partners. The assessment team would also suggest at least once a year, all CARPE implementing partners and their respective steering committees meet to review progress against objectives. Such a meeting could be sponsored by implementing partners on a rotational basis.

Provide Support to the Development of a Bushmeat Policy and Legislation

The DRC has no specific legal framework governing the bushmeat trade. The new framework law on nature conservation does not address the issue while the hunting law (law No. 082-002 of 28 May 1982) only deals in a general way with bushmeat, through the control of hunting. Given the threat of the bushmeat trade to biodiversity, there is an urgent need to develop a framework for dealing with bushmeat, including the control of the bushmeat trade in both protected and non-protected areas. In developing this framework, there are many questions to be asked. How effectively can communities control bush meat harvesting and protect rare species within their hunting areas? What role will logging and mining companies play in the protection of wildlife within concessions? Policy and legislation on wildlife protection and community forestry needs to provide a broad outline, while allowing the development of adaptive management in wildlife protection and the bush meat trade. Hoyt (2008) has developed the following wildlife policy recommendations:

- Manage wildlife as a national resource, use a pragmatic approach;
- Manage vulnerable species and locales, limiting interventions to those with a high probability of success;
- Control transport and markets, generating revenue stream to support management;
- Focus enforcement on commercial hunters rather than farmer/hunters; and
- Recognize community use rights (example: timber concessions do not include rights to wildlife).

In this context, the assessment team suggests that USAID/DRC consider bringing in the U.S. Fish and Wildlife Service (USFWS) under the Great Apes Survival Project to assist the GDRC in developing a policy framework and eventual legislation to better control the bushmeat trade. The USFWS's international programs play a key role in developing multifaceted approaches to curbing illegal bushmeat trade and consumption. Through its network of key organizations and individuals, the Service supports a wide array of projects that combine appropriate law enforcement, prosecution, public awareness, and community development projects. As the U.S. agency responsible for implementation of the Convention on International Trade in Endangered Species (CITES), the Service plays a key role in shaping international efforts, training, and enforcing U.S. obligations. The Service maintains a strong network of individuals, organizations, and in-house expertise to address all aspects of the illegal bushmeat trade. Through this network, the Service could provide assistance to MENCT and ICCN in developing appropriate legislation and policy aimed at reducing the impact of bushmeat hunting on DRC's wildlife populations.

Should the Mission decide to pursue this option, the Service's work should be done in close collaboration with TRAFFIC's Central Africa program, which operates a bushmeat program that endeavors to monitor trade in the region. In September 2009, TRAFFIC helped convene a workshop in the DRC where government agencies and others drew up a National Action Plan to address the unsustainable bushmeat

trade. Workshop participants identified the three main areas on which to construct the future strategy and action plan on bushmeat in the DRC, namely: (i) improvement of the efficiency of legal and institutional frameworks, (ii) the initiation and the promotion of alternative activities to bushmeat consumption and trade and (iii) promoting awareness of the bushmeat problem by all stakeholders.

Expand the USDA Forest Service's Role in DRC's National Land Use Planning Process

The USDA Forest Service currently supports the Forest Inventory and Management Department, of MENCT, and the inter-ministerial and multi-stakeholder National Forestry Zoning Steering Committee, as they outline a national land use planning policy and process. This work has taken many forms, from providing training to government of DRC employees on land use planning concepts, to consultations with various interested parties, to support on the technical, administrative, and political processes, products, and systems needed, and assisting with the details of drafting guidance on the creation of land use plans.

This technical cooperation is built on certain shared context and requirements for land management between the US and DRC. Both countries contain vast forests that generally are governed (or expected to be) by multi-use management regimes. In a piece meal fashion the U.S. has zoned hundreds of millions of acres into macro zones of protected areas, national forests and other categories during the past 100 years. Moreover, those macro-zoned areas have been micro-zoned into various multiple land uses. No country possessing large expanses of forest have achieved such levels of zoning. Much of what the Forest Service has learned over many years in the US is very relevant when adapted to the realities and constraints of DRC.

However, the assessment team understands that as of January 1, 2009, the Forest Service will only be providing intermittent support to MENCT and the Steering Committee. As DRC is moving forward in its ambitions to carry out zoning and management of 143 million hectares of forest into protected areas, permanent production forests, and other uses, the assessment team believes USAID should consider expanding the Forest Service's role through the provision of a full-time Forest Service land use planning advisor to be embedded in MENCT. This advisor would:

- Provide support to the National Steering Committee and its procedures and decision making methods;
- Assist MENCT in the establishment of provincial level Steering Committees to support zoning implementation;
- Assist in the establishment of a planning team that would guide DRC through the zoning process from macro to micro; and
- Work with the Steering Committee and MENCT on zoning concepts and implementation focusing on national forests, the establishment of protected areas, the designation of production areas and zoning and establishment of ranger district management approaches.

Provide Support for University Training

Other donors—particularly CIDA—are providing much needed investments in universities and forestry schools in the DRC; nevertheless these institutions are generally very weak. Even limited USAID/DRC support for university level training can have long-term impacts in terms of human resource development. Additionally, linkages between CARPE partners and universities and forestry schools to increase the skills of faculty and students by involving them in research, policy analysis, field level surveys and other activities, could also be expanded.

12.3.2 RECOMMENDED MEDIUM-TERM AND LONGER-TERM INTERVENTIONS

Assessment of Climate Change Adaptation

Climate change constitutes an additional burden that constrains national development in the DRC. DRC is particularly vulnerable to the impacts of climate change due to close economic and social dependence on natural resources. Although not fully understood as yet, some the risks include: increased incidence of floods, drought, severe storms/flooding, reduced agricultural yields and direct threats to land-based and coastal communities, biodiversity, and ecosystems. Other indirect risks include: increased health-related risks due to an expanded range of diseases, reduced food security, loss of local livelihoods, increased migration, and increased land and resource conflict. The impact of climate change on food security in the DRC is particularly important as it will undoubtedly have a negative effect on the livelihoods of the poor majority (especially women) who are highly dependent on climate-sensitive sectors like agriculture, fisheries, pastoral practices, and forests for household energy, food, water supply, herbs, and tree barks as first line of health care products.

In this context, the Mission may want to consider supporting an objective, up-to-date, and comprehensive analysis of climate change adaptation in the DRC. Such an analysis would complement the Congo Basin Forests and Climate Change Adaptation³¹ (CoFCCA) Project's objective of "contributing to national processes of adaptation to climate change through the development of policy-oriented adaptation strategies that also ensure sustainable use of forest resources in the Congo Basin Forests." The results of the assessment would also help strengthen the Mission's food security program, which the assessment team understands will be designed in FY 2010.

Develop a Community Land Rights Program

Sound and equitable governance of land and forest resources is a necessity for rural Congolese to move out of poverty. When combined with other objectives such as better access to markets and diversification of incomes it can be transformative. A legal and institutional framework that allows rural Congolese to make productive investments in their lands and forests is a cornerstone of rural development. Careful stewardship of forests and other natural resources will follow from more secure rights if accompanied by clear delineation of responsibilities, capacity building for community enforcement and sustainable economic growth opportunities.

While the DRC needs functioning institutions to manage natural resources as soon as possible, these institutions have to be built from a solid understanding of existing natural resource and land management systems, the effects of war and migration, and the emergence of democratic decision making. Land, forests and trees are key assets for rural Congolese, representing their wealth and stability. Without clear governance and tenure systems for these assets, it will be difficult for rural Congolese to take advantage of economic development opportunities. Disputes are likely to escalate as development proceeds and unsound natural resource management practices may result from failure to resolve disputes and settle claims transparently and equitably. Deeding lands and forests without transparent and fair processes would be a step backward for the nation as it works to build a reputation for good governance.

³¹ CoFCCA is a three-year effort of the Center for International Forestry Research funded by the International Development Research Center under the Climate Change Adaptation for Africa (CCAA) project.

Community forestry is seen as one bridge to more secure tenure for rural people. Through community forestry, communities with historical relations to particular forest areas will be able to retain these areas for livelihood purposes as well as some forms of commercial use. The creation of a just and workable community forestry tenure instrument – which would include within it dispute resolution mechanisms at different levels and build expertise for dispute resolution based on both customary and statutory law— will be an important advance for the DRC.

USAID/DRC, by developing workable models in targeted areas of opportunity (notably in the CARPE landscapes), could assist the GDRC to craft new policies and institutions as well as build capacity at national and local levels to implement new governance systems for transparent and equitable management of land and forest resources. Specifically, USAID/DRC could provide technical support to the GDRC institutions in the areas of land tenure and property rights. Such a program could provide technical assistance to GDRC institutions in the form of support to national-level land and property rights discussions, applied research on existing tenure arrangements, analyses of current land tenure and property rights laws, provision of specific policy recommendations to the government on possible approaches to improve land and property rights systems and training for local authorities on how to implement land tenure policy reform, support legal rights and increase incentives for local investment.

Use Mission bilateral funds to supplement/complement CARPE activities and help CARPE achieve its Phase III goal of transferring activities to GDRC institutions

Begun in 1995 and with Phase II scheduled to end in September 2011, CARPE is USAID's major conservation program in Central Africa and is one of USAID's largest field-based conservation programs. In the DRC, CARPE has seen many major accomplishments not the least of which is providing support to the only organizations with the capacity to protect biodiversity and tropical forest resources – namely international conservation NGOs. CARPE's implementing partners have been willing to work collaboratively in some of the most challenging and remote regions of the world. Their contributions to biological and socio-economic surveys, zoning, gazetted community reserves, spatial planning and policy reform have significantly increased the conservation status of biodiversity and tropical forests in the DRC.

Although the purpose of this assessment was not to evaluate CARPE, there are, in the assessment team's opinion, several issues that may undermine CARPE's ability to achieve the Phase III goal of facilitating the final transfer of CARPE activities to the Central African institutions with which it works. These include:

- ***Weak linkages between landscapes and DRC's local administrative areas.*** The landscape approach has been very successful in identifying high priority conservation targets and supporting adequate habitat conservation needs. Indeed, the approach has been ratified by COMIFAC member countries and endorsed by the Congo Basin Forest Partnership (CBFP) as a long term vision/strategy for sustainable forest management in Central Africa. Moreover, in the DRC, landscapes are beginning to achieve some legal recognition. The GDRC has issued a decree establishing the Maringa-Lopori-Wamba landscape as a pioneering site for zoning in the country and three of the "macrozones" comprising the landscape have a legal framework - logging concessions, the Lomako-Yokokala Faunal Reserve, and three related community reserves. However, the linkages between the landscapes and DRC's local administrative structures are generally weak, which limits local buy-in for critical conservation-development initiatives such as alternative livelihood and strengthening local environmental governance programs.

- **Limited focus on alternative livelihoods.** CARPE implementing partners have found it difficult to develop alternative income opportunities, and as noted in Section 9.1. In general, there has been little donor support accorded to alternative livelihood activities (See Annex D) - yet, viable alternative income opportunities for DRC's rural populations represent one of the best options to reduce threats from illegal activities such as the bushmeat trade as well as illegal logging and mining.
- **Limited engagement of national and local staff in strategic planning.** As noted in Section 9.5.3, the efforts of CARPE partners to engage national and local staff in the strategic planning of activities have also been modest as have capacity building efforts. Informal coordination often takes place among the key implementing NGOs, other donors and USAID, but these *ad hoc* processes often sideline the agencies of the GDRC that are responsible for implementing conservation efforts.
- **Limited direct technical support to GDRC biodiversity and forestry institutions.** CARPE's legislative mandate precludes it from having direct formal bilateral relationships with Central African governments, thus CARPE cannot provide "direct" assistance to the GDRC. Instead CARPE relies on international NGO partners who execute direct bilateral agreements with those governments. In spite of this constraint, CARPE and the USG have been able to provide some indirect assistance through the USDA Forest Service (notably for land-use planning and zoning) and the USFWS (whose efforts under the Great Apes Conservation Fund are closely coordinated with CARPE partners). Although such support is appreciated by the GDRC, many GDRC personnel still contrast this assistance unfavorably with donor programs managed by the World Bank as well as GTZ, CIDA, DfID, and other bilateral donors that are managed in direct cooperation with the GDRC. This situation has apparently not changed since it was flagged as a shortcoming in CARPE's 2006 midterm assessment – it still represents a serious hindrance to GDRC buy-in to CARPE objectives.

The assessment team understands that USAID/DRC will be receiving additional biodiversity, climate change and food security funds in FY 2010. By using these and future bilateral resources plus existing CARPE resources to implement the short and medium term recommendations noted above, the Mission is in the position to help CARPE address the aforementioned issues and thereby contribute to the achievement of CARPE's Phase III goals and objectives. An increased emphasis on alternative livelihood activities along with new bushmeat and community rights/tenure legislation, increased support to the decentralization of natural resource management—including directly engaging 'illegal' or 'illicit' traders in the natural resource shadow economy, expanded support to MENCT's national land use planning initiative, and a better understanding of climate change adaptation issues would all combine to make a thoroughly integrated USG conservation and development program, one that is responsive to GDRC needs and concerns, and one that contributes substantially to reducing threats to biodiversity and tropical forests. Finally, an integrated USAID/DRC and CARPE program would also contribute to the achievement of the USG's CBFP goal, i.e., to "promote economic development, alleviate poverty, combat illegal logging, enhance anti-poaching laws, improve local governance, and conserve natural resources...through support for a network of national parks and protected areas, well-managed forestry concessions, and creation of economic opportunities for communities that depend upon the forest and wildlife resources of the Congo Basin."

ANNEX A: SCOPE OF WORK

Scope of Work (SOW) Democratic Republic of Congo Biodiversity and Tropical Forestry Assessment (118/119)

I. OBJECTIVE

To conduct an updated country-wide assessment of biodiversity and tropical forestry conservation needs and related issues for the purposes of complying with section 117, 118, and 119 of the Foreign Assistance Act of 1961, as amended, and Agency guidance on country strategy development, under ADS 20 1.3.4.1 1 and ADS 204.5. Based on this needs assessment, provide analysis of proposed actions under USAID’s strategy to identify how they contribute to the conservation needs identified.

II. BACKGROUND

A. OVERVIEW

The DRC is a “rebuilding country” that has made progress in addressing pressing political, economic and social challenges in recent years since the end of the civil war. There is increasing international attention in the DRC as demonstrated by multiple new donor initiatives largely due to its significant forest cover, biodiversity, and related interest in the post-Kyoto Protocol climate change mitigation regime. Likewise, DRC is experiencing growth in private investment for extractive resources as well as infrastructure. The legislative framework for forests and the environment has been further developed. A recent review of existing forest titles for conversion into forest concessions by the DRC government yielded the cancelling of over two thirds of the previously allocated forest titles (surface area). Nevertheless, pressures on DRC’s forests, biodiversity, natural resources and ecosystems are increasing. At the same time, there are growing opportunities for USAID to collaborate with other donors, non-governmental organizations (NGOs), government agencies that are acquiring new mandates and competencies and the private sector. The previous analysis’ period of validity has expired, which has led the Mission to decide that an updated Biodiversity and Tropical Forestry Assessment are warranted.

In 2003, the first countrywide environmental threats and opportunities analysis (ETOA), Democratic Republic of Congo Environmental Analysis” was completed. The current assignment will build on this work and include a comprehensive analysis of the sector noting significant changes and updates over the past five years. This will be gathered from a review of relevant reports as well as interviews and field work conducted in the Democratic Republic of Congo (DRC).

B. POLICIES GOVERNING ENVIRONMENTAL PROCEDURES

USAID environmental compliance is directed by U.S. policy and law. The Foreign Assistance Act (FAA) of 1961, Section 117, requires that the President take fully into account the impact of foreign assistance programs and projects on environment and natural resources (Sec 117 (c)(1)).

Section 118 states that each country development strategy statement or other country plan prepared by the U.S. Agency for International Development shall include an analysis of (1) the actions necessary in that country to achieve conservation and sustainable management of tropical forests, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

Section 119 of the FAA relates to Endangered Species. It states that “the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems and through the protection of wildlife habits should be an important objective of the United States development assistance” (FAA, Sec. 119 (a)). Furthermore it states, “Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of (1) the actions necessary in that country to conserve biological diversity and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified” (FAA, Sec. 119(d)).

C. USAID’S PROGRAM IN DRC

The overarching strategic vision for U.S. Foreign Assistance in the next five years (2009-2013) is to support the security conditions and governance structures that will allow for improvements in social and economic sectors and the extension of state authority across the DRC’s territory to take hold. The priority goals as described in the Country Assistance Strategy (CAS) are:

- Peace and Security: Increase Stability in the DRC
- Governing Justly and Democratically: Strengthening Core Governance Capacity
- Economic Growth: Promote Economic Growth with Emphasis on Poverty Reduction and Environmental Sustainability
- Health: Improve the Basic Health Conditions of the Congolese People
- Education: Improve Access to Quality Education at all Levels of Schooling

The Strategic Objective of The Central Africa Regional Program for the Environment (CARPE) is to reduce the rate of forest degradation and loss of biodiversity through increased local, national, and regional natural resource management capacity in nine central African countries: the Central African Republic, Equatorial Guinea, Gabon, Republic of Congo, Burundi, Cameroon, Rwanda, Sao Tome & Principe, and the DRC. This is to be done through three intermediate results focusing on (i) improving the sustainability of natural resources management (NRM), (ii) strengthening the governance framework for NRM (policies, institutions, laws), and (iii) institutionalizing monitoring of natural resources within the Congo Basin region.

III. STATEMENT OF WORK

The Contractor shall perform the following activities:

A) Pre-travel informational meetings and information gathering. Prior to traveling to the field, the contractor is expected to:

- Hold meetings with the Bureau Environmental Officer (BEG) in USAID/Washington and with Biodiversity experts in the USAID Africa Bureau and the USAID Bureau for Economic Growth,

Agriculture, and Trade (EGAT) to ensure full understanding of USAID environmental procedures, the role of the regional bureau in environmental compliance, and purpose of this assignment. This would include policy decisions and approaches that the Bureau Environmental Officer (BEO) and agency environmental advisor are taking as per their authority under Reg. 216.

- Gather and review existing background information on DRC, such as the country's natural resources, geographical, ecological and biological specificities, current status of environment and biodiversity, institutional organization on entity and state level, key stakeholders and donors in environment and biodiversity, legislation related to the environment and biodiversity, and other relevant information required for the country assessment.
- Meet or speak with key stakeholders or managers at the World Bank, USDA Forest Service, and U.S.-based NGOs including World Wildlife Fund, World Resources Institute, and Wildlife Conservation Society, or other organizations involved in biodiversity conservation in DRC or relevant regional efforts.

B) Field a team to conduct an overview and general analysis of the country's biodiversity and its current status. Upon arriving in DRC the team will:

- Meet with USAID/DRC and USAID/CARPE to get a solid understanding of Mission program goals and objectives under its proposed updated strategy; perspectives of this assignment and specific interests for the team, including advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (i.e., the potential for raising expectations, and the need to be clear about the purpose of the assessment) and respect Mission guidance. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required. USAID/DRC will facilitate meetings with other USAID Strategic Objective teams.
- Hold meetings with donor organizations, NGOs, relevant government agencies, and other organizations that are knowledgeable about biodiversity and tropical forestry conservation or are implementing noteworthy projects and gather information locally.
- Conduct no more than two priority site visits as required by the mission (DRC and CARPE activities in DRC), which would supplement understanding of USAID's program, or of biodiversity issues that arise in interviews and literature or would confirm information in previous assessments.

C) Assess and summarize the needs for biodiversity and tropical forestry conservation in DRC based on key threats and analysis of country, and donor and NGO responses to meet these needs.

Prepare a report on the status of biodiversity, tropical forestry and conservation efforts in DRC and potential implications for USAID or other donor programming and environmental monitoring which shall define the actions necessary for conservation. The report shall include:

- The current status of biodiversity, tropical forests, river basins, and key watersheds in DRC based on current and available information.
- Major ecosystem types, highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.

- Descriptions of natural areas of critical importance to biodiversity conservation, such as forests, wetlands, coastal and fresh water areas critical for species reproduction, feeding or migration, if relevant. Particular attention should be given to critical environmental services and noncommercial services they provide (watershed protection, erosion control, soil, fuel wood, water conservation and amenity and recreation). It will also summarize how current land tenure arrangements affect conservation in DRC.
- An overview table and map of the status and management of protected area system in DRC including: an inventory of all declared and proposed areas (national parks, wildlife reserves and refuges, forest reserves, wetland ecosystems, sanctuaries, hunting preserves and other protected areas). The inventory will identify the institution responsible for the protection and management of each decreed area, its date of establishment, area, and the protection status of each (i.e., staff in place, management plan published, etc.). In addition to this summary of the current protection and management status of protected areas, an overview of the major threats and challenges facing protected areas in DRC, including vulnerability of areas to predicted changes in climate, and a brief summary of any recognized economic potential of these areas (including productive assets, environmental services and recreation and tourism opportunities) should be provided.
- The report should present the plant and animal species that are endangered or threatened with extinction. Discussion should focus on actual and potential threats to these species should be provided. In particular, endangered species of particular social, economic or environmental importance (and hence, potentially more directly threatened) should be highlighted and described, as should their habitats. Technical information resources such as the IUCN red list and their websites should be referenced for future Mission access as required. This section should not emphasize species counts, but look at the relation of endangered species and important habitat conservation areas and issues, and evaluate the pressures on those areas, including vulnerability to predicted changes in climate, and current efforts to mitigate pressures, including the participation and compliance with CITES and other international efforts.
- Recent, current, and potential primary threats to biodiversity should be discussed — both direct threats related to human use (i.e., bush meat, industrial and small-scale mining, charcoal production, agriculture (particularly slash and burn), contamination from legal and illegal mining, fire or pests) or institutional (i.e., failed or inadequate legislation, policies, regulations) or trans-boundary issues, as appropriate. These should emerge from a general assessment of national policies and strategies and their effectiveness, issues related to institutional capacity, trade, private sector growth, participation in international treaties, and the role of civil society. The role of illegal trade in natural resources should be considered as a driver of environmental degradation in the DRC.
- Conservation efforts, their scope and effectiveness. This section also should include recent, current, and planned activities by donor organizations that support biodiversity and tropical forestry conservation, identification of multilateral organizations, NGOs, universities, and other local organizations involved in conservation, and a general description of responsible government agencies. A general assessment of the effectiveness of these policies, institutions, and activities to achieve biodiversity conservation should be included. Priority conservation needs that lack donor or local support should be highlighted.
- Analysis of the current legislation related to the environment and biodiversity. This section should include identification of laws related to protection and management of biological resources and endangered species. It should also point out any differences in laws that require further harmonization.

This section should also review international treaties signed and ratified, as well as those that DRC needs to sign in order to conserve and manage its biological resources more effectively.

- An overview of the major biodiversity and tropical forest conservation activities of the commercial private sector to identify ways to better foster private sector alliances. Of interest are the norms and standards followed by those commercial entities most engaged in management and use of DRC's tropical forests and tracts near protected areas, including extractive industries. Consideration of policies promoted by the Ministry of the Environment Conservation of Nature Forestry & Tourism and other key relevant governmental ministries should also be included.
- An assessment of how USAID's bilateral and regional programs efforts in DRC and the proposed country strategy could best meet the needs for biodiversity and tropical forestry conservation. The assessment should look beyond biodiversity and forestry funding and review all Mission strategic objectives to identify areas where USAID could contribute to biodiversity and tropical forestry conservation, consistent with Mission program goals and objectives, through strategic objectives other than environment. The assessment shall include recommendations on where U.S. comparative advantages and capabilities are likely to have the greatest impact. These issues and recommendations should be prioritized to identify those requiring the most immediate attention. If any perceived areas of concern related to USAID's program and its contribution or impact arise during this assessment, the contractor shall provide views and suggestions directly to the Mission Program Officer directly in the report and in a separate briefing.

IV. TIMING

The Biodiversity and Tropical Forest Background Assessment Study will be carried out to inform the DRC Country Assistance Strategy. The expected completion date will be determined in discussion with the USAID/DRC mission CTO or designated point of contact.

VII. DELIVERABLES

There shall be four deliverables under this contract:

Preliminary Work Plan and Schedule: The Contractor shall provide USAID with a work plan and schedule within 7 days of contract inception. The work plan and schedule shall also contain a list of those individuals and agencies that are to be interviewed, and a list of reports, evaluations, etc., to be reviewed. This first deliverable should be completed before the contractor team departs Washington DC (see III.A above) for the field and after the first series of contacts in the USAID, State Department and Partner offices in Washington DC.

Draft Report: The Contractor shall submit a draft report to the mission COTR or point of contact no later than four working days before the exit briefing (point 4 below). The draft report shall follow the generic outline provided in the attachment to this SOW, as refined during the course of the contract in consultation with USAID. The report shall include a five page executive summary, a more detailed main body, and appropriate annexes and pertinent figures (maps, institutional charts, tables) and references. Among the expected appendices is a briefly annotated bibliography of the most important current reference materials related to the topic and a contact list for each of the organizations discussed in the report.

Final Report: The final report is due no later than two weeks after receiving USAID/DRC's written comments on the draft report.

In-Country Mission Exit Briefings: The team shall meet with USAID/DRC to provide them with a brief of the report findings. The exit brief shall be accompanied by a two-page written summary of key findings and recommendations. The Contractor will furnish both electronic file versions of all submissions (first draft and final report) and five copies in English, including one photocopy ready version of the final report.

ANNEX B: PERSONS CONTACTED

NAME	POSITION	ORGANIZATION
Bashige, Mme. El Ali		REFADD
Batey, Stanley T.	Senior Advisor, Social and Community Development	Freeport-McMoran Copper and Gold
Beck, Jim	Central Africa Program Specialist	USDA Forest Service
Bobiya, Joseph	Director	RRN
Botamba Esombo, Flory	Deputy Director, Congo Heartland	AWF
Botamba Esombo, Flory	Deputy Director, Congo Heartland	AWF CARPE
Boyzibu Ekhasa, Pierre	Directeur Charge des Parcs Nationaux	ICCN
Brown, Keith	Executive Vice President, Africa Program	JGI
Byler, Dirck	Program Officer, Division of International Conservation	USFWS
Carroll, Richard	Managing Director, Congo Basin	WWF
de Wasseige, Carlos	Coordinateur Régional, Projet FORAF	OFAC/FORAF
Demarquez Ouar, Sadia	Program Coordinator	IUCN
Dibolbol Kitmut, Patrice	Director, Cellule de Coordination PNFoCo	MENCT
Djengo Bosulu, Frédéric	Directeur, Direction de la Gestion Forestière	MENCT
Djengo Bosulu, Frédéric	Directeur, Gestion Forestier	MENCT
Dupain, Jef	Landscape Director	AWF CARPE
Flynn, John B.	Director	CARPE, USAID/Central Africa
Fofolo Mafolo, Gabriel	Conservateur, Parc National de Kundelungu, Station de Katwe	ICCN
Gayo, Francis	Directeur, Direction des Pêches	Ministry of Agriculture
Habari, Jean-Pierre	Curator, National Herbarium	University of Kinshasa
Haykin, Stephen M.	Director	USAID/DRC
Ilunga Ndaie Makela Kayenge, Vincent de Paul	Chef de Division Normes Environnementales	MENCT
Ipantua Iba-Yung, Gérard	Directeur Charge du Tourisme et de la CITES	ICCN
Javelle, Anne-Gaëlle	Associate, Institutions and Governance Program	WRI
Kakese, Gilbert	Chef de Division Instruction et Evaluation, Direction de Protection de l'Environnement	Ministry of Mines, Kinshasa
Kalala Bilonda	Control Forestier	MENCT
Kalambayi wa Kabongo,	Secrétaire General à l'Environnement	MENCT

NAME	POSITION	ORGANIZATION
Abel Leon	et Conservation de la Nature	
Kampangula, Justin Marie	Control Forestier	MENCT
Kanyeba, Carine	Program Assistant, CARPE	IUCN
Kanyeba, Carine	Program Assistant, CARPE/USAID	IUCN
Kasonga Mbiye, Jean André	Ingénieur Civil de Métallurgie, Direction de Protection de l'Environnement	Ministry of Mines, Kinshasa
Khasa, Damase	Professor of Agroforestry and International Forestry	University of Laval
Kimona Maswmba, René	Chef de Division Financière, Fonds de Restitution du Capital Forestier	MENCT
Kishiko Hamba, Dieudonné	Ingénieur Civil des Mines, Direction de Protection de l'Environnement	Ministry of Mines, Kinshasa
Kisuki Mathe, Benoit	Administrateur Directeur Technique	ICCN
Kiyulu, Joël	Coordinator National Projet "Renforcement de Voix des Choix Meilleurs"	IUCN
Kuketuka Mabaka, Damien	Control Forestier	MENCT
Landu, Nina	Director	ICCN
Macharia, Alice	Program Manager, East Africa	JGI
Mafuka, Paul	Professor, Department of Natural Resource Management and Director of INERA	University of Kinshasa
Malele-Mbala, Sébastien	Directeur, DIAF	MENCT
Matanga, Jean-Pierre	Coordinator of ACODES, a local NGO at Mwanda working with WWF on the protection of marine turtles and on ecotourism in the Mangroves National Park	ACODES
Matete Amani, Polydor	Direction de Protection de l'Environnement	Ministry of Mines, Kinshasa
Mbamdu, Joachim	Farmer at Luki working with WWF rice and fish farming	
Mbayo Lukiso Wa Kabulo, Félix	Directeur Province de Katanga	ICCN
Mehlman, Patrick	Director	CI CARPE
Meta Mobula, Victor	Agriculture Economist, Office of Economic Growth	USAID/DRC
Méthot, Pierre	Senior Fellow	WRI
Mola Motya, Gabriel	President	Fédération des Industries du Bois
Mpoyi Mbunga, Augustin	Executive Director	CODELT
Musibono, Dieudonné	Professor, Ecotoxicology, EIA and NRM, Faculty of Sciences	University of Kinshasa
Mwanambuyu, Kabala	Directeur, Etablissements Humains et Protection de l'Environnement	MENCT
Ndungu, Jean-Baptiste	Chief of the Research Station	INERA-Luki
Ngoma, Michel	Expert Forestier, Cellule de	MENCT

NAME	POSITION	ORGANIZATION
	Coordination PNFoCo	
Ngomba, Marcelline	GIS/RS Trainer - Lab Manager, Observatoire Satellital des Forets d'Afrique Central	University of Kinshasa
Ngongolo Katolo, Marcell	Chef de Division Suivi et Coopération	MENCT
Ngoy Isikimo, Bienvenu	National Coordinator	Groupe de Travail Forets
Nsenga, Laurent	Coordinator of WWF project at Luki Biosphere Reserve	WWF - RDC Luke
Ntedika Di-Muela, Grille- Rolière	Control Forestier	MENCT
Omari Ilambu, Omer	Conseiller Technique Principal	WWF CARPE
Perodeau, Bruno	Conseiller Technique Principal	WWF
Perodeau, Bruno	Conseiller Technique Principal	WWF CARPE
Ruggiero, Richard	Chief, Near East, So. Asia and Africa Branch, Division of International Conservation	USFWS
Schoorl, Jaap	Coordinator Biodiversity and Forest Program	GTZ
Sefu, Alfred	Président du Conseil de Gérance	Le Nouveau Millenium, Lubumbashi
Sikunu-Diambania, Daniel	Environmental Specialist, Direction de Protection de l'Environnement	Ministry of Mines, Kinshasa
Sowers, Fred	Consultant, Mid-term evaluation	Great Apes Survival Program
Sullivan, Catherine	Consultant, Mission International de l'Environnement	UNEP, Geneva
Tambwe Mutindi Moyo, Richard	Directeur, Service National de Reboisement	MENCT
Thlibi, Jamel	Expert Environnementaliste, Program de Lutte Contre la Pauvreté	UNDP
Vaughn, Toby	Chief of Party	Building Recovery and Reform through Democratic Governance in the DRC (DAI/BRDG)
Veit, Peter	Regional Director for Africa	WRI
Vunda, Albert	Director of the Mangroves National Park	ICCN
Weiskopf, Thomas	Environmental Manager	Tenke Fungurume Mining
Wilson, Edward B.,	Consultant, Mission International de l'Environnement	UNEP, Geneva
Zamena Nsita, Jonas	Chef d'Antenne INERA (Herbarium)	University of Kinshasa

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ANNEX D: PAST AND CURRENT DONOR SUPPORT

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
African Development Bank (ADB)	\$80 million	<p>Preservation of Congo Basin Ecosystems Program (2009–2015)</p> <ul style="list-style-type: none"> • Equateur and Eastern Provinces and four forest landscapes: Maringa-Lopori-Wamba, Maiko-Tayna-Kahuzi-Biega, Lac TCIC-Lac Tumba and Virunga • Institutional Support: targeting COMIFAC and its partners • Rural Community Development 	On going
Belgian Development Cooperation (BTC)	€4.65 million	<p>Sustainable Forest Management in DR Congo Belgian Development Cooperation finances or co-finances several actions regarding the protection and sustainable management of the DR Congo's forests. The main aim here is to improve forest management there via the following projects:</p> <ul style="list-style-type: none"> • Support WWF's work on forestry legislation and modeling forestry concession plans (€1.75 million); • Support FAO in the modeling of community forestry (€1.2 million); • Support UNESCO in the monitoring of the management of protected areas (€2 million) and the training of top forestry officials at the Regional School of Forestry (ERAIFT) (€900,000). 	On going
	€1.5 million	<p>Joint Multi-Donor Forestry Governance Fund In 2006, Belgium actively supported the establishment of the <i>Fonds Commun Multi-bailleurs Gouvernance Forestière</i> (Joint Multi-Donor Forestry Governance Fund) managed by the World Bank, a joint initiative aimed at promoting good governance and sustainable forest management. The fund sets out to promote the application of the Forest Code and of the main agenda of Congolese reforms, and it is regarded as the first step towards a sectoral program. Belgium's contribution totals €1.5 million.</p>	On going
		<p>The International Conference on Sustainable Forest Management in the Democratic Republic of Congo On 26 and 27 February 2007 Belgian Development Cooperation organized an International Conference on Sustainable Forest Management in the Democratic Republic of Congo. The conclusions of that conference were set out in the Brussels Declaration. The event was backed by the government of DR Congo and by the international community (the European Commission, World Bank and British and French authorities responsible for development cooperation). Following the</p>	Completed

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>conference, on 14 April 2007 a round table entitled <i>Towards a New Vision for the Forests of the Congo</i> was held in Washington on the sidelines of the spring meeting of the International Monetary Fund (IMF) and World Bank. That round table was organized at the invitation of the governments of DR Congo and Belgium and of the President of the World Bank. The dossier was also discussed by European development ministers at their meeting in May 2007 and featured on the agenda of the G8 summit in June 2007.</p>	
		<p>Agriculture, Rural Development, and Forests (2008–2011) As included in the Declaration of Brussels (February 2007), the development and the application of adequate legislation as well as the reinforcement of the forest administration and its partners constitute priority axes for the years to come. Taking account of the other sources of financings and programs in progress or foreseeable, the program of co-operation will concentrate its attention during three years to come on: - reinforcement of the administration in the sector of agriculture and the rural development, in particular by supporting the reorganization of the corresponding ministries; opening-up of the zones of agricultural production, and improvement of the management framework of the forest and environmental protection sectors.</p>	On going
	\$2.55 million	<p>FAO GCP/DRC/O33/BEL Project to Develop and Implement Community Forestry in DRC (2009–2012)</p> <ul style="list-style-type: none"> • National level and in pilot sites: Lubumbashi, Lissala - Bumba, et Luki Institutional Reform: Support to the creation of a division of community • Participatory management of Forest Resources: Management of pilot forestry, definition of national approach to community forestry community forests 	On going
	\$0.15 million	<p>Support to ERAIFT via UNESCO: 2009 Regional - Ecole Régionale d'Aménagement et de Gestion Intégrée des Forêts Tropicales (ERAIFT) Institutional Support : Technical training and education, plus scholarships</p>	On going
	\$0.066 million	<p>Direct Support to ERAIFT—Scholarships (2009–2010)</p> <ul style="list-style-type: none"> • Regional—Ecole Régionale d'Aménagement et de Gestion Intégrée des • Forêts Tropicales (ERAIFT) • Institutional Support : Scholarships 	On going
	\$1.125 million	<p>Practical Model of Sustainable Natural Resource Management via WWF (2009–2012)</p> <ul style="list-style-type: none"> • Regional—Biosphere Reserves: Luki and Yangami Reserves (DRC), • Dimonika Reserve (ROC) • Management of Forest Resources: Develop a model of sustainable development to serve as an operational guide for different sites 	On going

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
	\$.45 million	Support for Sustainable Development (2009–2010) <ul style="list-style-type: none"> • Muanda and Thsela (Bas-Congo) • Capacity Building: Improve organizational planning, develop ecotourism skills, community reforestation, improved agricultural techniques 	On going
	\$.375 million	FLEGT Initiative (2009–2010) National level Capacity Building: Technical assistance to study the implementation of a forest information system, promotion of good governance and fighting corruption, defining a log-tracking system	On going
Belgium, the European Union, France, Germany, Luxembourg and the Netherlands	Approx €130 million.	Fonds Commun Multi-bailleurs Gouvernance Forestière (Joint Multi-Donor Forestry Governance Fund) Created in 2006, the objective of the fund is to test and put in place strategies and instruments to improve forest governance, increase benefits for the local populations and the country, and to protect the environment. The program is expected to have four key results: <ul style="list-style-type: none"> • Result 1: Essential forest management tools and control of illegal logging are in place. These tools include: independent observation in support of forest control, improved procedures and capacity for verifying management plans, improved procedures for recovering taxes and fees, and development of a log traceability/tracking system; • Result 2: Simple systems of benefit sharing, community management and accompanying micro-enterprises are tested and consensus reached by all parties on these systems. These systems are: local consultations in the context of zoning, revenue flows to local communities, the schedules of conditions (cahier des charges), and community forestry including the informal sector and micro-enterprises; • Result 3: innovative processes are in place for implementing the forest code with processes agreed on by all stakeholders. These processes are: local consultations within the framework of participative zoning; the popularization of the forest code and preparation of the texts of application; and the valorization of environmental services. • Result 4: Institutional capacities are restored to ensure delivery of essential functions. These essential functions are: administrative and financial management, programming and follow-up-evaluation; forest control and tax recovery, verification of management plans and follow-up of socio-environmental impacts. 	Since its creation, the fund has not supported any activities. The major problem is that the fund is under WB management and procurement regulations which have proven to be too cumbersome for effective implementation. Some donors are considering withdrawing support
Canadian International Development Agency (CIDA)	\$ 4,800,000 (regional) with 70% of the funds going to the DRC	Support to Natural Resource Management Training Project (2008–2013) Implemented by the University of Laval, this project aims at strengthening institutional and technical capacities of training institutions (universities and colleges) in three Central Africa countries so they can become centers of excellence for the whole region in sustainable management of natural resources. Natural resources	On going

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>constitute an important source of revenues for most states of Central Africa and are critical for local populations depending on them for their livelihood. To ensure sustainable management of natural resources, public administrations, private sector companies, and NGOs need to have specific competencies which are currently very weak, especially in the Democratic Republic of Congo. This project aims to help fill that gap through activities such as program reviews, training the trainer programs and regional consultations, and by putting emphasis on South-South cooperation.</p>	
<p>Department for International Development (DfID), United Kingdom</p>	<p>\$17.5 million for Africa Region</p>	<p>Forest Governance and Trade Program (2006–2011) DfID's Forest Governance and Trade Program is a five-year, \$35 million program that aims to tackle the problems of illegal logging in developing countries and the associated international trade in illegally logged timber. Its main area of activity is supporting reforms in countries that enter voluntary partnership agreements (VPAs) with the European Union under the Forest Law Enforcement, Governance and Trade (EU FLEGT) Action Plan. These agreements will establish a licensing system to ensure timber exported from signatory countries to the EU has been legally produced.</p> <p>This work is complemented by co-operation with the private sector to promote trade in forest products from legal and well-managed sources and collaboration with other major timber importing countries to influence the demand for products from responsibly managed forests.</p> <p>Implementation of the program involves a series of grants to non-governmental organizations and consulting contracts to undertake work that supports the program's aims. Activities in support of VPAs focus on Africa and Asia with regional budgets of \$17.52 million) and \$10.22 million respectively. The remaining \$7.3 million is earmarked for support to research, communications, and advocacy work related to tackling illegal logging and forest governance issues.</p>	<p>On going</p>
		<p>Africa Regional Program Congo Basin Parliamentarians' conference. Funding was provided for Parliamentarians from the Congo Basin to attend a conference on illegal logging.</p> <p>FLEGT Multi-stakeholder Consultation (Jan 2007–Dec 2009). Grant to IUCN to support multi-stakeholder engagement in the development of FLEGT Partnership Agreements in Africa. Work focused on Ghana and Liberia in West Africa; Cameroon, DRC, Congo-Brazzaville and Gabon in Central Africa; and the trade linkages between these countries and China. The program aims to foster, catalyze and reinforce informed</p>	<p>FLEGT activities on going.</p>

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		multi-stakeholder negotiation and implementation of nationally defined priority actions that support VPAs.	
European Commission (EC)	\$2 million	Support to Development of Community Forests (2009–2015) Bateke Plateau Carbon Services Project: Agroforestry plantations. Not a grant or loan, WB acts as financial intermediary	On going
	\$2.7 million	Fuelwood Project (2009–2015) Goma Carbon Project : Fuelwood Plantations	On going
	\$7.7 million	Ecosystems Forestier d’Afrique Centrale (ECOFAC) Regional level (Central Africa) and Salonga National Park Protected Area Rehabilitation and Management : Infrastructure (buildings, roads), personnel, equipment, training, institutional reform, preparation of management plan, socioeconomic development for populations surrounding Park	On going
	\$6 million	Support to Reform ICCN (2009–2015) Support to ICCN central and field functions	On going
	\$0.9 million	Support to ERAIFT (2009–2012) Ecole Régionale d’Aménagement et de Gestion Intégrée des Forêts Tropicales (ERAIFT)—Building rehabilitation and technical training	On going
	\$7.5 million	Support to Management of Garamba Park (2007–2010) Garamba Park Protected Area Management: Partnership between ICCN and nongovernmental organizations (NGO), infrastructure, surveys and scientific research, guard training, anti-poaching	On going
	\$1.8 million	Support to Management of Virunga and Salonga Parks (2005–2008) Protected Area Management: infrastructure (buildings), guard training, antipoaching, revenue generating activities	Completed
	\$20 million	Great Virunga Project (2009–2014) <ul style="list-style-type: none"> • Cross-border Collaboration: Support to trinational collaboration with Rwanda and Uganda • Protected Area Management: Follow up on rehabilitation activities initiated by the first project, apply and implement institutional reforms, recruitment and training of personnel, tourism development 	On going
	\$3.5 million	Support to Development of Small and Medium-Sized Enterprises(via FAO) (2007–2009) Regional (Central Africa) and National levels Capacity building of small and medium sized enterprises associated with Non-Timber Forest Products (NTFP) Information collection, identification of NTFP and targeted groups, technical and business management training, market information	On going
\$.8 million	Support to Monitoring of the Illegal Killing of Elephants (MIKE) (2006–2009 – Phase II)	On going	

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
France	\$.02 million	Development of A Training Program in Environment and Forestry (2008–2009) Regional (Central Africa - RIFFEAC - Réseaux des Institutions de Formation Forestière et Environnemental d'Afrique Central and National levels: Technical assistance in the definition and implementation of a national forest and environment training and education strategy, workshops, training of forest personnel	On going
	\$1.5 million	MENCT Capacity Building:2008-2011 Technical assistance and counsel to the Minister	On going
GTZ, Germany	approximately \$US 1.1m /year	Programme de Maintien de la Biodiversité des Forêts This program is a continuation of Germany's support to ICCN since the mid 80's. The objective of the current program is to support the national institutions responsible for forest management and nature conservation. The three components of the program are: <ul style="list-style-type: none"> • Adaptation of sector policies and regional integration: elaboration of a policy, strategic and institutional framework which is fully coherent with respect to regional initiatives such as COMIFAC and FLEGT; • Support for the organizational development of ICCN: implementation of the upcoming institutional review recommendations; reinforcement of ICCN's role as a service provider and coordinator (through CoCoCongo and CoCoSi) for decentralized national park management structures; elaboration and adoption of a concept through which the private sector is implicated in the management and use of buffer zones. This component is fully complementary with components 1 and 2 of the GEF project, particularly with respect to CoCoCongo (comp 1) and private sector involvement in national parks (comp 2: APF in Garamba, tourism activities in PNV). • Support to Kahuzi-Biega NP: strengthen management capacities of this park in collaboration with local populations and other conservation partners (local and international). • A Technical Advisor, based ICCN Kinshasa, works directly with the ADG of ICCN. 	On going
International Development Research Center (IDRC), Canada	C\$ 1,699,900 (regional)	Altering the Climate of Poverty under Climate Change: The Forests of Congo Basin (Sub-Saharan Africa) The forests of the Congo basin provide ecosystem services to over 80% of the population living in or near them. Climate change is challenging the past and future development efforts of those who depend on the forests for their survival and livelihoods. Yet forestry has received very little attention in national dialogues on climate change. This project aims to underscore the importance of the Congo basin forests in climate change adaptation efforts in Cameroon, Central African Republic and the Democratic Republic of Congo. Researchers will map adaptation priorities and policies in the countries under study. They will engage with stakeholders to ensure that local perspectives are brought to bear on	On going

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>forest management strategies (stakeholders will participate in the design and testing of such strategies). And, they will monitor policy processes and outcomes through field visits, networking, policy engagement analysis and a series of outreach and communication strategies. The overall goal is to ensure the sustainable use of forest resources in the Congo basin.</p>	
KfW Bankenruppe, Germany	Approx €11 million	<p>Sustainable Management of Natural Resources (2007–2011)</p> <p>The overall objective of the project is to make a contribution to the protection of the tropical forest and the biodiversity and to poverty alleviation. The project objective is to build up and strengthen the sustainable management of priority conservation areas and the certification of forest concessions. The project is implemented in cooperation with the World Bank, the European Commission and the GTZ as well as international and national non-governmental organizations already active in the region and comprises three components:</p> <ul style="list-style-type: none"> • The financing of investments and operating costs for the reconstruction and management of conservation areas (Kahuzi-Biega national park and Okapi fauna reserve), including measures to support the sustainable use of resources and to improve incomes in the project areas; • The financing of investments in infrastructure, logistics and human capital in the context of the institutional strengthening of the nature protection agency ICCN. This is done in close cooperation with and complementary to Technical Cooperation (TC) measures implemented in this area; • The financing of studies, planning work and implementation measures in selected forest concessions, which—on the basis of concrete forest management plans of the concessions – pursue the objective of obtaining international certification (e.g. FSC) The program will be developed around two components: support for sustainable forest management (working with selected logging companies), and support to protected areas (mainly infrastructure development). 	On going
Swedish International Development Agency (SIDA)	SEK 1,512,000	Land use planning activities in the Virunga landscape 2006-2010 implemented by WWF	On going
United Nations Development Program/Global Environment Facility (UNDP/GEF)	\$395,000	<p>Enabling Congo DR to Fulfill its Commitments to the UNFCCC (1997)</p> <p>This project provided technical assistance and support development of in-country capacity to enable Congo DR to prepare, formulate and submit its first national communication to the United Nations Framework Convention on Climate Change (UNFCCC) in accordance with Article 12.1 of the Convention. The</p>	Completed

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>project directly assisted in the development of a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. The project used this inventory to estimate future sectoral emissions and to formulate a national greenhouse gas mitigation strategy. The project also assisted in organizing a national workshop on climate change strategies and in the preparation of the first national communications.</p>	
<p>United Nations Development Program/Global Environment Facility (UNDP/GEF)</p>	<p>\$250,000</p>	<p>National Capacity Needs Self-Assessment for Global Environmental Management in DR Congo (2005–2006)</p> <p>The main objective of this project was to assess national capacities for global environment management in the DRC. This national self-assessment determined the gaps, constraints and priorities for the creation, development and reinforcement of individual, institutional and systemic capacities required to better manage environmental resources to ensure that they are used sustainably to support national efforts in the areas of development and the fight against poverty. The project also enabled the country to formulate a strategy and action plan to strengthen capacities for enhanced management of environmental resources, consult on and submit this action plan to partners and donors and carry out preliminary monitoring and evaluation.</p>	<p>Completed</p>
<p>United Nations Development Program/Global Environment Facility (UNDP/GEF)</p>	<p>\$7 million</p>	<p>Support to the Congolese Institute for Nature Conservation (ICCN)'s Program for the Rehabilitation of the DRC's National Parks Network (1006–2010)</p> <p>The global objective of the project is to support the biodiversity sub-program of the PNFC with an aim to raise the political profile of biodiversity conservation in DRC and enhance its linkage to the economic recovery agenda. It aims to rehabilitate long-term institutional capacity to manage and monitor DRC's national network of protected areas. Together with other donors the project will support the implementation of an institutional capacity building program at the national level; provide direct assistance to three high priority protected areas at the site-level; and lay the foundation for creation of new protected areas covering up to 15% of the national territory. The proposed alternative, the Protected Areas Management and Nature Conservation program, is one prong of DRC's sector-wide multi-donors Forest and Biodiversity Program. Together with other operations simultaneously under preparation by major donors (UNDP, EU, CARPE, Germany) it constitutes the first phase of the national program. Given the post-conflict situation and the pressing need to save existing assets in the field, this first phase focuses on rehabilitation. It encompasses a limited number of priority actions which need to be conducted urgently to restore minimum management capacity; which are achievable in a short</p>	<p>Extended – on going</p>

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>time period; and which are complementary to those already envisioned by other internationally funded operations. The project provides support to the entire network of protected areas managed by ICCN, with a special emphasis on Upemba NP and Kundelungu NP in the Katanga province. It also helps build ICCN financial capacities, and develops studies and assessments to identify new protected areas.</p>	
<p>United Nations Education, Scientific and Cultural Organization/United Nations Foundation (UNESCO/UNF)</p>	<p>\$600,000 (UNF – second phase)</p>	<p>UNESCO-UNF Support to DRC's World Heritage Sites in Danger</p> <p>In an effort to safeguard the outstanding universal value and integrity of the DRC's 5 World Heritage Sites which were seriously threatened by the civil war, the UNESCO World Heritage Centre together with ICCN, and a number of international conservation NGOs (WCS, WWF, FFI, AWF) and with the financial support of the Government of Belgium and the United Nations Foundation, in 2000 launched a 4 year program to try innovative ways of conserving the 5 sites in the context of armed conflict. This first phase focused on maintaining conservation efforts at the site level and on gathering political support for the sites and was able to limit the destruction and safeguard the ecological capital of the sites. As peace and stability returns, the first phase was concluded by an international conference at which the DRC Transition Government expressed its commitment for the rehabilitation and restoration of the sites and the international donor community pledged important financial support.</p> <p>The second phase of the project mainly focuses on the implementation of Emergency Action Plans for World Heritage Properties with outstanding universal value in the DRC as well as on the setting up of an information management system for the benefit of protected areas. This particular component of the program is financed through a UNF grant (600,000 \$US). The partnership for conservation in the DRC between UNESCO, ICCN and partners NGO foreseen in the project has now become a reality. Other UN agencies or program (i.e. UNDP, UNEP) as well as the United Nations Mission to DRC (MONUC) are now closely collaborating with the World Heritage Centre to address issues relating to the safeguarding of World Heritage properties in the DRC.</p>	<p>On going</p>
<p>United Nations Education, Scientific and Cultural Organization/United Nations Fund (UNESCO/UNF)</p>	<p>\$0.45 million</p>	<p>Virunga National Park (2006–2009) <i>Protected Area Management</i>: Paid primes in Virunga Park (2006), relocation and boundary marking, protection of mountain gorillas, control of illegal logging</p>	<p>On going</p>

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
United Nations Environmental Program (UNEP)		GRASP—Great Apes Survival Project Partnership This regional initiative, initiated by the UNEP in partnership with a number of international NGOs, covers the range states of the three great apes in Africa (gorillas, chimpanzees and bonobos) of which only the DRC has all three species. The objective is to mobilize funding and initiate field activities that will contribute to preserving these highly endangered species.	Completed
	\$4 million	Ibi Bateke Carbon Sink Plantation: Part I implemented (2007–2012) <ul style="list-style-type: none"> Carbon Sink: Sequester CO₂ through fast growing forest plantations on grass savannahs covering 7,500 ha over five years Technical assistance 	On going
		The Mayombe Forest Transboundary Initiative Creation of a transboundary protected area in the Mayombe Mountains Region (R Congo, DR Congo and Angola)	On going
		Capacity Building and Technical Assistance in Garamba and Kahuzi-Biega National Parks Provide support to ICCN in park management, development of a conflict resolution strategy, training and increased capacity in law enforcement/surveillance and monitoring	On going
		Post Conflict Environmental Assessment and National Action Planning for DR Congo <ul style="list-style-type: none"> National scale, broad spectrum assessment of post conflict environmental issues in the DRC Provides a baseline for longer-term planning 	On going
UNEP – UNDP and FAO	\$0.2 million	REDD readiness for DR Congo (2008–2009) Institutional Capacity Building: Preparation of an R-Plan	On going
	\$3.4 million in negotiation start after REDD preparation phase	REDD implementation <ul style="list-style-type: none"> National and Site level Carbon Sink: Implementation of activities specified in R-Plan 	On going
United States Agency for International Development (USAID)	\$60 million	Central African Regional Program on the Environment (2006–2011) <ul style="list-style-type: none"> Five forest landscapes: Maringa-Lopori-Wamba; Lac Tumba; Salonga- Lukenie-Sankuru; Ituri-Epulu, Aru; Maiko-Tayna- Kahuzi-Biega Participatory Management of Forest Resources: Macro zoning of forest landscapes, community development, protection, conservation of natural resources and biodiversity 	On going
World Bank (WB)	\$70 million (\$64 million as IDA grant plus \$6 million from WB Global Environmental Facility)	Forest and Nature Conservation Project (2009–2015) The objective of the Forest and Nature Conservation Project for Democratic Republic of Congo (DRC) is to increase the capacity of the Ministry of Environment, Nature Conservation and Tourism (MENCT) and the Congolese Nature Conservation Institute (ICCN), and increase collaboration among government institutions,	Accord signed in May 2009 and \$2 million in Project Preparation Funds (PPF) released in

DONOR	FUNDING	PROGRAM/PROJECT	STATUS
		<p>civil society, and other stakeholders in order to manage forests sustainably and equitably for multiple uses in pilot provinces. There are three components to the project. The first component of the project is institutional strengthening of MENCT. This component will: (a) improve the institutional capacity of MENCT's and Provincial Ministries; (b) strengthen MENCT's forest management technical capacity; (c) carry out an institutional reform within MENCT; and (d) support project implementation. The second component of the project is community participation in forest management. This component will: (a) increase local community and civil society participation in forest management; (b) support increased use of environmental services; and (c) assist with implementation of the project's environmental and social documents (ESD) and safeguard plans. The third component of the project is management of protected areas and support to ICCN. This component will: (a) provide Institutional Strengthening for ICCN; and (b) help rehabilitate the Maiko National Park.</p>	June 2009
World Bank (WB)	\$6 million (WB/GEF)	<p>National Parks Network Rehabilitation Project (2009–2015)</p> <p>The project will help the Government of the Democratic Republic of Congo to enhance the administrative, financial management and advocacy capacity of the public institution in charge of managing protected areas (Institut Congolais pour la Conservation de la Nature). It will also help strengthen the capacity of this institution to evaluate and expand the national protected areas system, through the participation of local communities, indigenous groups and civil society organizations, as well as technical studies and consultations at the national level, and will help rehabilitate two priority national parks and their buffer zones.</p>	Under procurement

Source: Adapted from World Bank (2009) with additional material

ANNEX E: STAFFING PATTERN FOR ALL PROTECTED AREAS BY LABOR CATEGORY

No		DIRECTEUR			SOU/DIR			CD			CB			ATB1					ATB 2		AGB1	AGB2		AA1		AA2				HUIS		TOTAL/CADRES				TOTAL
		ADM	TECH	SCIEN	SD	CC	MR	CSP	CP	CR	CS	C	ATR	CSA	CA	ASR	CB	OPG	CBA	OG	AP	SOG	AAD	BC	RAUX	B	TQ	GP	TO	G1e	HUIS	G2e	ADM	TECH	SCIEN	ENERA
1	DIRECTION GENERAL	5	4	4	2	1	7	1	16	2	1	8	1	7	6	4	8	1	1	1	1	4	2	2	1	1							64	7	7	78
2	BOMBO-LUMEME						2	1					1				3	1	1	1	1	4	2	2		2	2		5	2	3	19	1	23		
3	PARC DE LA N'SELE						1	1	3	1	1		1	4	4	2	3	5	4	9	1	12	4	3	5	9	7				48	31	2	81		
4	PNU/NORD LUSINGA						1					1				1							8	3	5	7	3	14	15	6	56	0	62			
5	PNU/SUD KAYO										1					2	1	1		1			8	2	6		10		16	3	3	46	0	49		
6	PNK/KATWE										1					1	1			1			6	2			5	7	5	9	6	32	0	38		
7	B.L.LUMBUBASHI					1					1								1							1					2	3	0	5		
8	D.C. LWAMA/KATANGA												1										1								0	2	0	2		
9	D.C. KANIAMA																						2								0	2	0	2		
10	PNS/NORD-MONKOTO				2		1															1		4	1	1	2	32	1	4	43	0	47			
11	PNS/NORD-WATSIKENGU				1						1								1				1		1	3	32	1	2	39	0	41				
12	PNS/NORD-MUNDJOKO						1				2											2				1	1	23	1	29	0	30				
13	PNS/NORD-YOKEKELU						1									2											2	26	1	2	30	0	32			
14	LOMAKO						1						1	1	2								52	1			7			1	53	1	55			
15	PNS/SUD-ANGA				1								1	1					1				3	5	7	5		22	1	7	9	45	1	55		
16	PNS/SUD-MUNDJA				1										2	1												8	11	0	22	2	24			
17	D.C. BUSHIMAIE									1		1	1			1						5	14		8	2	2			1	34	0	35			
18	D.C. SWA KIBULA									1									2	2						4			2	17	0	28	0	28		
19	D.C. MANGAI									1			1						3	1	6				4	1	2	2	1	20	0	21				
20	P.M. MUANDA	1								1			1	1	1		1		2				2		3	1	7	4		7	16	1	24			
21	LAC TUMBA				1		1	1	1	1	1		1	1	2	1	2	1	4	5	2	5		5		4			12	39	3	54				
22	BUR. DE LIAISON-GOMA	4						1	1	1					4	2	1	1	1			1	2							9	8	1	18			
23	PNV/CENTRE - RWINDI						1					1		1	5	1						8	5	17	1	20	4	22	2	1	11	76	0	87		
24	PNV/NORD - MUTSORA							2				1		1	2	1	3		1				7		7	19	54	7	9	98		107				
25	PNV/SUD - RUMANGABO	1												4	5		2	1	3	4	15		18	3	22	23	27	2	34	96	0	130				
26	PN VIRUNGA - LULIMBI						1	1					2	1	1	1			1			7	9	8	11		42		10	68	1	79				
27	PN VIRUNGA - KABARAZA										1					1							8	2		3		18		0	34	0	34			
28	D.C. RUTSHURU				1								1		1	1							2	1		2		12		1	20	0	21			
29	BUR. DE LIAISON-BUKAVU						1	1								1						3								5	2	0	7			
30	PNKB/TSHIVANGA						1	1	1	2	1	3	2	5	6	2	3	3	1	3	12			31		34		24		15	116	4	135			
31	D.C. LWAMA/KIVU				1																					2	12			2	15	0	17			
32	ITOMBWE				1								1	1																1	2	0	3			
33	PNG NAGERO&GANGALA				2		1						2		1	2	1	7	3	1		9	3	6	8	102	3	21	24	19	180	0	199			
34	PNM AIKO/NORD - LOYA														2	1									1		7		9	2	19	0	21			
35	PNM AIKO/NORD - ETAITO					1		3				1	1	1	2	2			1	1		3	4		7		2		3	24	2	29				
36	PNM AIKO/SUD - LUBUTU														1			4				3		8	6		3		2	6	24	0	30			
37	D.C. BILU- UERE DIGBA										1					1			1	1			5	2	2	17	36	1	17	1	21	64	0	85		
38	D.C. MAIKA-PENGE												1		1			1	3		1	1	1		1	1	9	2	24		6	41	0	47		
39	D.C. RUBI-TELE				1											1													4		1	5	0	6		
40	R.F. OKAPI/EPOLU					1								2	4	1	4	3	1	1	5	1	12	3	8	2	24		21	5	11	84	4	99		
	TOTAL	5	10	4	3	14	0	11	18	3	24	30	4	14	24	18	41	50	28	38	28	44	35	197	34	166	59	369	50	502	8	109	338	1572	30	1940

ANNEX F: PUBLISHED FOREST CODE IMPLEMENTING DECREES

CHAPITRE I : CODE FORESTIER

1. Loi n°011/2002 du 29 août 2002 portant code forestier

CHAPITRE II : TEXTES TRANSITOIRES ORGANISANT LA CONVERSION DES ANCIENS TITRES FORESTIERS (LI ET GA) EN CONTRAT DE CONCESSION FORESTIERE

1. Décret n°08/02 du 21 Janvier 2008 modifiant le Décret n°05/116 du 24 octobre 2005 fixant les modalités de conversion des anciens titres forestiers et portant extension du moratoire en matière d'octroi des titres d'exploitation forestière.
2. Décret Présidentiel n° 06/141 du 10/11/06, portant nomination des membres de la Commission Interministérielle de conversion des titres forestiers ;
3. Décret n° 05/116 du 24 octobre 2005 fixant les modalités de conversion des anciens titres forestiers en contrats de concession forestière et portant extension du moratoire en matière d'octroi des titres d'exploitation forestière ;
4. Arrêté ministériel n°090 CAB/MIN/ECN- T /15/JEB/2009 du 23 janvier 2009 portant mesures de mise en œuvre des décisions de rejet des requêtes de conversion et de résiliation des anciens titres forestiers
5. Arrêté ministériel n° 035 /CAB/MIN/ECN-EF/2005 du 26 mai 2005 rapportant l'arrêté ministériel n° 071/CAB/MIN/ECN-EF/2004 du 22 novembre 2004 portant modification de l'arrêté ministériel n° 050/CAB/MIN/ECN-EF/2004 du 02 juillet 2004 fixant les modalités de conversion des conventions portant octroi des garanties d'approvisionnement en matière ligneuse et lettres d'intention en contrats de concession forestière ;
6. Arrêté n° CAB/MIN/AF.F.-E.T/194/MAS/02 du 14 mai 2002 portant suspension de l'octroi des allocations forestières ;
7. Message Radiophonie N°001/CAB/MIN/ECN-T/15/JEB/2009

CHAPITRE II : TEXTES AYANT TRAIT A L'ADMINISTRATION DU DOMAINE FORESTIER ET L'ATTRIBUTION DES TITRES FORESTIERS

8. Décret n°08/09 du 08 avril 2008 fixant la procédure d'attribution des concessions forestières ;
9. Décret n°08/08 du 08 avril 2008 fixant la procédure de classement et de déclassement des forêts ;
10. Arrêté ministériel n°024/CAB/MIN/ECN-T/15/JEB/08 du 07 août 2008 fixant la procédure d'enquête publique préalable à l'octroi des concessions forestières ;
11. Arrêté ministériel n°028/CAB/MIN/ECN-T/15/JEB/08 du 07 août 2008 fixant les modèles de contrat de concession d'exploitation des produits forestiers et de cahier des charges y afférent

12. Arrêté ministériel n°022/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 fixant la procédure d'autorisation de cession, de location, échange ou donation d'une concession forestière ;
13. Arrêté ministériel n°035/CAB/MIN/ECNT/15/JEB/08 du 22 août 2008 portant mesures relatives à l'estimation des prix des forêts à concéder;
14. Arrêté ministériel n°037/CAB/MIN/ECN-T/15/JEB/2008 du 18 septembre 2008 fixant les critères de sélection des soumissionnaires des concessions forestières;
15. Arrêté ministériel n°035/CAB/MIN/ECN-EF/2006 du 05 octobre 2006 relatif à l'exploitation forestière ;
16. Arrêté ministériel n°CAB/MIN/AF.F-E.T/276/2002 du 05 novembre 2002 déterminant les essences forestières protégées ;

CHAPITRE III : TEXTES RELATIFS AUX INVENTAIRES ET A L'AMENAGEMENT FORESTIERS

17. Arrêté ministériel 020/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 fixant les mesures relatives aux autorisations de reconnaissance et d'inventaire forestiers d'allocation ;
18. Arrêté ministériel n°021/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 portant normes relatives aux installations à implanter dans les concessions forestières ;
19. Arrêté ministériel n°025/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 portant réglementation du permis de déboisement ;
20. Arrêté ministériel n°034/CAB/MIN/ECN-T/15/JEB/08 du 22 août 2008 portant réglementation de la récolte de certains produits forestiers ;
21. Arrêté n°038/CAB/MIN/ECN-T/15/JEB/2008 du 23 septembre 2008 fixant les modalités d'élaboration et de mise en œuvre du plan d'aménagement d'une forêt classée ;
22. Arrêté ministériel n°036/CAB/MIN/ECN-EF/2006 du 05 octobre 2006 fixant les procédures d'élaboration, d'approbation et de mise en œuvre des plans d'aménagement des concessions forestières de production des bois d'œuvre ;
23. Arrêté ministériel n° 0011/CAB/MIN/ECN-EF/2007 portant réglementation de l'autorisation de coupe industrielle de bois d'œuvre et des autorisations d'achat, vente et exportation de bois d'œuvre;

CHAPITRE IV : TEXTES SUR L'EXPORTATION DES PRODUITS FORESTIERS

24. Arrêté interdépartemental n°BCE/CE/ECNT/007/85 portant réglementation de l'exportation de grumes ;

CHAPITRE V : TEXTES RELATIVES A LA FISCALITE FORESTIERE

25. Arrêté interministériel n° 006/CAB/MIN/ECN-EF/2007 et n°004/CAB/MIN/FINANCES/2007 du 8 mai 2007 portant fixation des taux des droits, taxes et redevances à percevoir en matière forestière sur l'initiative du ministère de l'Environnement, Conservation de la Nature, Eaux et Forêts ;
26. Arrêté interministériel n° 006/CAB/MIN/ENV/2005 et n°108/CAB/MIN/FINANCES/2005 du 25 juillet 2005 portant fixation des taux des droits et taxes sur les établissements classés dangereux, insalubres ou incommodes à percevoir à l'initiative du Ministère de l'Environnement, Conservation de la Nature, Eaux et Forêts ;

CHAPITRE VI : TEXTES SUR LA POLICE ET LA SURVEILLANCE DES FORETS

27. Arrêté ministériel n°026/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 portant dispositions relatives à la supervision, au suivi et à l'évaluation des opérations de reconstitution du capital forestier ;
28. Arrêté ministériel 027/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 relatif au marteau forestier de l'administration et à son utilisation ;
29. Arrêté ministériel n°CAB/MIN/AF.F.ET/260/2002 du 03 octobre 2002 fixant la procédure des transactions en matière forestière ;
30. Arrêté ministériel n° CAB/MIN.AF.F-E.T/277/2002 du 5 novembre 2002 portant réglementation de l'uniforme et des insignes distinctifs des grades des inspecteurs, fonctionnaires et agents forestiers assermentés ;
31. Ordonnance n°52/175 du 23 mai 1953 sur l'interdiction de l'incendie des herbes et des végétaux sur pieds;
32. Arrête ministériel 0001/71 du 15 février 1971 portant interdiction absolue des déboisements ou débroussailllements, comme des feux de brousse, de taillis ou de bois dans la concession ou dans tous les terrains formant le domaine dénommé « site d'Inga » ;

CHAPITRE VIII : TEXTES ORGANIQUES RELATIFS AU SECTEUR FORESTIER

33. Décret n° 029/24 du 21 mai 2009 portant création, organisation et fonctionnement du Fonds Forestier National, en abrégé F.F.N.
34. Décret n°08/03 du 26 janvier 2008 portant composition, organisation et fonctionnement du Conseil Consultatif National des forêts ;
35. Arrêté ministériel n° 107/CAB/MIN/ECN6T/15JEB/09 du 20 août 2009 portant création, composition, organisation et fonctionnement du Comité national de pilotage du zonage forestier
36. Arrêté ministériel n° 0100 CAB/MIN/ECN-T/27/JEB/09 du 01 juin 2009 portant affectation des Directeurs Chefs des services du Secrétariat Général à l'Environnement et Conservation de la Nature
37. Arrêté ministériel n° 0101 CAB/MIN/ECN- T /127 /JEB/09 du 05 juin 2009 portant affectation des Directeurs-Chefs des services du Secrétariat Général à l'Environnement et Conservation de la Nature
38. Arrêté ministériel n°023/CAB/MIN/ECN-T/15/JEB/2008 du 07 août 2008 portant création et organisation du Comité de Pilotage du projet de foresterie communautaire en République Démocratique du Congo ;
39. Arrêté ministériel n°004/CAB/MIN/ECN-EF/2007 du 25 janvier 2007 portant création, composition, organisation et fonctionnement du Comité de Coordination des travaux des contrôles forestiers ;
40. Arrêté ministériel n°033 du 02 octobre 2006 portant organisation et fonctionnement du Cadastre forestier ;
41. Arrêté ministériel n°034/CAB/MIN/ECN-EF/2006 du 05 octobre 2006 portant composition, organisation et fonctionnement des Conseils consultatifs provinciaux des forêts;
42. Arrête ministériel N° CAB / MIN / AF.F-E.T/039/2001 du 07 novembre 2001 portant création et organisation d'un service public dénommé «Centre de Promotion du Bois», en abrégé «C.P.B.» ;
43. Arrête 012/DECNT/CCE/81 du 18 février 1981 portant création et organisation du Service National de Reboisement.