

CONTRIBUTORS

PRODUCTION TEAM

Assitou Ndinga, IUCN Regional
Office for Central Africa Yaounde,
Cameroon

Timothée Fomété, University of
Dschang
Cameroon

Elie Hakizumwami, Consultant,
Yaounde, Cameroon

Ada Ndeso-Atanga, Consultant,
Yaounde, Cameroon

INTERNATIONAL CONSULTANT

Isabelle Porteous, Project
Coordinator

NATIONAL CONSULTANTS

BURUNDI

Bigawa Samuel

CAMEROON

Mandjek Olivier

Mr Talatala Blondeau
Mbog Dieudonne Marius

CONGO BRAZZAVILLE

Kombo Germain
Nkeoua, Grégoire

GABON

Bile Allogho Joachim
Makaya Jean-Francois
Mebiame Jean Baptiste

EQUATORIAL GUINEA

Micha Ondo Vincente
Nze Angono Nicanor

CENTRAL AFRICAN REPUBLIC

Damio Thomas
Philémon SELEBANGUE

CONGO KINSHASA

Ipalaka Yobwa Joseph
Kapa Batunyi Francois

RWANDA

Habiyambere Thaddée

CENTRAL AFRICA

Elie Hakizumwami

REVIEW COMMITTEE

Jeffrey Mc Neely, World
Conservation Union
Gland, Switzerland

Jeffrey Sayer, CIFOR
Bogor, Indonesia

Jacques Prescott, Direction du
Patrimoine Ecologique et du
Développement Durable
Ministere de l'Environnement de
Quebec

Conrad Aveling
ECOFAC, Libreville Gabon

Trinto Mugangu, Regional
Representative GEF-UNDP,
B.P4846 Kinshasa-Gombe
Democratic of Congo

Jean Boniface Memvie, Ministere
des Eaux et Forets, de la Peches,
Charge de l'Env et de la Protection
de la Nature, Libreville, Gabon

Robert Winterbottom, Consultant
Washington, U S A

Mankoto Ma Mbaelele,
Departement des Sciences
Ecologique, UNESCO, Paris
France

Charles Doumenge, CIRAD,
Montpellier
France

Wale Adeleke
WWF International Yaounde

Steve Gartlan
WWF-Cameroon, Yaounde

Robert Nasi, CIFOR,
Bogor, Indonesia

Amy Vedder, WCS
New York, U S

EDITORIAL TEAM

Daniel Ngantou
IUCN Regional Office for Central
Africa, Yaounde, Cameroon
Jean Claude Nguingiri

Angèle Luh M'Bazoa

IUCN Regional Office for Central
Africa, Yaounde, Cameroon

Bihini Won Wa Musiti
IUCN Regional Office for Central
Africa, Yaounde, Cameroon

IUCN Regional Office for Central
Africa, Yaounde, Cameroon

Souane Thirakul, IUCN Regional
Office for Central Africa,
Yaounde, Cameroon

ABBREVIATIONS

| | |
|----------|---|
| APFT: | AVENIR DES PEUPLES DES FORETS TROPICALES |
| APPEC: | Initiative d'Auto-Promotion des Populations de l'Est Cameroun |
| ATIBT: | Association Technique Internationale des Bois Tropicaux |
| ATO : | African Timber Organisation |
| BMZ: | German Ministry for Co-operation and Development |
| BSP: | Biodiversity Support Programme |
| CAJAD: | Centre d'Animation de la Jeunesse pour le Développement (Cameroun) |
| CAR : | Central African Republic |
| CARE: | Cooperative for American Relief Everywhere |
| CARPE: | Central African Regional Programme for Environment |
| CEMAC: | Central African economic and Monetary Community |
| CBD : | Convention on Biological Diversity |
| EEC: | European Economic Community |
| CEEAC: | Commission Economique des Etats d'Afrique Centrale |
| CEFDHAC: | Conférence sur les Ecosystèmes de Forêts Denses Humides d'Afrique Centrale |
| CFAF : | CFA Franc (1 French Francs is equivalent to 100 CFAF) |
| CIAD: | Centre International d'Appui au Développement Durable, Dja-Lomié, Cameroon (Local NGO) |
| CIDA : | Canadian International Development Agency |
| CIFOR : | Center for International Forestry Research |
| CIRAD : | Centre International de Recherche Agronomique pour le Développement |
| CITES : | Convention on International Trade in Endangered Species of Wild fauna and flora |
| CNUED: | Conférence des Nations Unies pour l'Environnement et le Développement |
| COMESA : | Conference on Common Market for Eastern and Southern Africa |
| COP | Conference of the Parties |

| | |
|-------------|---|
| CORAF: | Conférence des Responsables de Recherche Agronomique Africaine |
| COREP: | Comité de pêche dans le Golfe de Guinée |
| CPGL: | Communauté des Pays des Grands Lacs |
| DFC: | Direction de la Faune et de la Chasse, Gabon |
| DFID: | Department for International Development (UK) |
| DGRF: | Direction Générale des Ressources Forestières, Gabon |
| DRC : | Democratic Republic of Congo |
| D.Ü: | Dienste in übersee |
| ECOFAC: | Programme de Conservation des Ecosystèmes Forestiers d'Afrique Centrale |
| ERAIFT: | Ecole Régionale Post-Universitaire d'Aménagement Intégré des Forêts Tropicales |
| EU: | European Union |
| FAO: | Food and Agricultural Organisation |
| FF: | French Francs |
| FORAFRI: | Forêts d'Afrique (Projet Régional de Capitalisation et Transfert des expériences) |
| GDP (GNP) : | Gross Domestic Product (Gross National Product) |
| GEF/FEM: | Global Environmental Facility/Fonds pour l'Environnement Mondial |
| GTZ: | Deutsche Gessellschaft für Technische Zusammenarbeit (German Technical Co-operation Office) |
| HCR : | High Commission for Refugees |
| IFIA: | Inter-African Forest Industries Association |
| IIED: | International Institute for Environment and Development |
| INECN: | Institut National pour l'Environnement et la Conservation de la Nature |
| ICCN: | Institut Congolais de Conservation de la Nature |
| IPHAMETRA: | Institut de la Pharmacopée et de la Médecine Traditionnelle |
| IRAF: | Institut de Recherche Agronomique et Forestière |
| IRD: | Institut de Recherche pour le Développement(ex. ORSTOM) |
| IRET: | Institut de Recherche en Ecologie Tropicale |
| MINEF: | Ministry of Environment and Forestry (Cameroon) |
| MIRF: | Ministère des Ressources Forestières (Gabon) |
| NEAP : | National Environmental Action Plan |
| NEMP : | National Environmental Management Plan |
| NFAP : | National Forestry Action Plan |

| | |
|-----------|---|
| NTFP : | Non-timber Forest Products |
| OAU : | Organisation for African Unity |
| OECD : | Organisation for Economic Co-operation and Development |
| OCFSA: | Organisation pour la Conservation de la Faune Sauvage d'Afrique |
| ODI: | Overseas Development Institute |
| OIBT: | Organisation Internationale des Bois Tropicaux |
| ORTPN: | Office Rwandais du Tourisme et des Parcs Nationaux |
| ORSTOM: | Office de la Recherche Scientifique et Technique d'Outre-Mer |
| PAs: | Protected areas (s) |
| PERAD: | Protection de l'Environnement, la Recherche et l'Appui au Développement, Durable (Local NGO). Lomié, Cameroun |
| PROGECAP: | Projet de Gestion et de Conservation des Aires Protégées, Congo-Brazzaville |
| ROCA : | Regional Office for Central Africa (IUCN) |
| PRGIE: | Programme Régional de Gestion de l'Information Environnementale |
| PROFOR: | Programme sur les Forêts |
| PROTOMAC: | Programme de Protection des Tortues Marines d'Afrique centrale |
| SBSTTA: | Subsidiary Body for Scientific, Technical & Technological Advice |
| SDDL: | Soutien pour le Développement Durable de Lomié |
| SNB: | Société Nationale des Bois |
| SNV: | Service Néerlandais des Volontaires |
| TRAFFIC : | Trade Records Analysis of Flora and Fauna in Commerce |
| TREES: | Tropical Ecosystem Environment observations by Satellites |
| UK: | United Kingdom |
| ULB : | Université Libre de Bruxelles |
| UNDP : | United Nations Development Programme |
| UNEP: | United Nations Environmental Programme |
| UNESCO: | United Nations Educational, Scientific and Cultural Organisation |
| US\$: | United States Dollar |
| WCMC: | World Conservation Monitoring Centre |
| WCPA: | World Commission for Protected areas |
| WCS: | World Conservation Society |
| WFP: | World Food Programme |

WRI: World Resources Institute
WWF: World Wide Fund for Nature

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FOREWORD (3RD VERSION)

The regional Strategic Action Plan (SAP) for the environmental and biological diversity resources of the Congo Basin ecosystems is a referential framework of analysis and of priority actions areas of biodiversity in the Congo Basin. Drawn up on a consultative and participatory basis, the SAP is a contribution to the implementation of the Convention on Biological Diversity.

Funded by GEF-UNDP, with technical assistance from the IUCN, the SAP was approved during the 3rd Session of the Conference on Central African Moist Forest Ecosystems (CEFDHAC) organised in Bujumbura from 05 to 07 June 2000 by the States and other stakeholders of the CEFDHAC. It later received support from Forestry Experts meeting in Yaounde from 25 to 26 September 2000, within the purview of the follow-up of resolutions and recommendations, at the Central African Heads of State Summit on tropical forest ecosystems.

The SAP, from its holistic vision of the issues affecting biodiversity in the Congo Basin, and its proposals on various avenues for strategic actions, provides a privileged framework of actions, which if implemented, will lead to concrete activities likely to support the convergence follow-up plan of the Yaounde Declaration of 17 March 1999.

The elaboration of the Strategic Plan may as well guide the Brazzaville Process towards common actions approved by all stakeholders.

The SAP belongs to countries of the sub-region. It remains open to all current and future potential actors interested in the conservation and sustainable management of Central African forest ecosystems.

The only appeal is for the various actors in the sector of conservation and sustainable use of biodiversity and the international community, including donors, to support the implementation of the SAP.

Daniel NGANTOU
Regional Director
IUCN Regional Office
for Central Africa

Patricia de NOBRAY
Resident Representative
UNDP - CAMEROON

PREFACE

Immediately after the first Conference on Central African Moist Forest Ecosystems (CEFDHAC: Brazzaville 31 May 1996), the parties to this Process began developing a sub-regional Strategic Action Plan (SAP) for the conservation and sustainable use of biodiversity in countries of the Congo Basin.

Why?

A structure composed of stakeholders with diverse cultures, such as the Brazzaville Process, representing various interest groups, can undertake several activities. This is the case at present with more than ten regional and sub-regional initiatives (CEFDHAC, Follow-up of the Summit of Central African Heads of State, Tests of criteria and indicators for the sustainable management of forests, ECOFAC, CARPE, PRGIE, PROFOR, APFT, ECOREGIONS, etc.). Therefore, the success and impact of such a Process will depend more on its ability to target efficiently a series of selected priority objectives, which makes it a unique structure, than the number of activities it can undertake. This is so because the combined impact of all the initiatives mentioned above is limited for several reasons, amongst which are:

- the non existence of adequate mechanisms for integrated development and the participation of all interested stakeholders at national and sub-regional levels, that will make it possible to identify and solve priority management problems of common,

- shared and transboundary biodiversity resources, especially forests, within a complex and unstable socio-political and economic central Africa;
- the lack of collaboration in transboundary issues, particularly those requiring the mobilisation of experts of neighbouring countries; and
 - the insufficient understanding of ecological and socio-economic systems of Central Africa, especially the fact that the fundamental causes of conservation and sustainable use of biological resources problems are not addressed by initiatives that cut across national borders.

Against this background, the elaboration of a Strategic Action Plan (SAP) may guide the Brazzaville Process towards common objectives approved by all parties involved. The present plan is aimed at enhancing the management of common, shared and transboundary biodiversity resources.

The harmonisation of various proposals made during the elaboration of the preliminary draft of SAP has enabled the selection of priority action areas for the entire sub-region. These are activities that correspond to priority 1 (one), which constitute the substance of the SAP. Some activities are extracted from on-going sub-regional initiatives, programmes or projects. It is envisaged that the SAP covers a ten-year period (2000-2009), at the end of which it will be reviewed and updated. Other activities considered as priorities would be progressively included

in the SAP. Project concepts developed would be fine-tuned after the approval of the present strategic framework.

ABSTRACT.

The Strategic Action Plan (SAP) for the conservation and sustainable use of biological diversity in countries of the Congo Basin is the outcome of a consultation process with countries, institutions and resource persons since June 1999. The SAP Project, the basis of the strategic plan, is financed by GEF-UNDP. It targets the formulation of an operational and applicable strategic framework for the Congo Basin for all priority actions aimed at the effective implementation of the Convention on Biodiversity in eight countries that have ratified the Rio Convention (Burundi, Cameroon, Congo, Gabon, Equatorial Guinea, CAR, DRC and Rwanda).

This final version of the SAP is a revision and update of the draft proposal that was approved by the Third CEFDHAC. It takes into consideration all remarks and suggestions that were raised by the Conference and the review committee.

Because the Strategic Action Plan is suppose to benefit from the support of all intended target groups, the planning matrix used was enriched by information taken from all categories of stakeholders of forest ecosystems in the Sub-region.

This holistic approach takes into consideration the ecosystems, the means of subsistence of the population and conservation objectives on the one hand, and on the other hand the complementarity and coherence of actions of this strategic plan with those of other Conventions on the environment (CBD, CITES, Ramsar etc.).

The main themes of the SAP were retained on the basis of the following criteria: actions identified by national experts during the Sub-regional workshops, adequacy with the goals of the Convention on biodiversity, adequacy with the objectives of the Brazzaville Process, the urgency of the topic and opportunity, notably the substantial interest or real commitment of partners or donors.

The following themes were retained;

- Protected Areas;
- Fauna and Land resources;
- Marine, coastal and fresh water;
- Timber and non-timber resources;
- Mountain biodiversity;
- Energy resources;
- Communication, training and research;
- Emergencies and environmental evaluation;
- Legal and institutional framework;
- Funding sources for biological diversity;
- Incentive measures.

Sub-regional and international co-operation is important in the protection of certain land faunal and wild floral species against overexploitation because of international trade. Themes on faunal resources and endangered species take into consideration synergies between the Convention on biological diversity and the CITES Convention, notably

in the domain of the ever increasing aesthetic, scientific, cultural, recreational and economic values of fauna and wild flora, and as far as the harmonisation of laws and national strategies are concerned.

Marine, coastal and fresh water biological diversity is developed taking into consideration the link between the Convention on biological diversity and the Ramsar Convention, which touches on very diverse types of habitats: alluvial plain marshes, water, lakes, coastal zones and especially those that figure on the list of Ramsar of international importance and to internal water ecosystems.

Thirteen project concepts were elaborated in working groups during a sub-regional workshop on each theme that were identified. These project concepts which were examined by potential actors in each country (through Contact Groups) served as basis for the elaboration of some Project proposals to be submitted to donors for funding.

RESUME

Le Plan d'Action Stratégique (PAS) pour la conservation et l'utilisation durable de la diversité biologique dans les pays du Bassin du Congo est le résultat d'un processus de consultation des pays, les institutions et des personnes ressources commencé en juin 1999. Le projet PAS qui est à la base de ce plan stratégique a été financé par le GEF-PNUD. Il a visé la formulation d'un cadre stratégique applicable et opérationnel pour le Bassin du Congo, pour les actions prioritaires qui contribuent à la mise en œuvre effective de la Convention sur la Biodiversité dans huit pays ayant ratifié la Convention de Rio (Burundi, Cameroun, Congo, Gabon, Guinée Equatoriale, RCA, RDC et le Rwanda). Sao Tomé qui a ratifié également cette Convention, a rejoint le projet en cours de route.

Cette version finale est une révision et mise à jour de l'avant projet qui a été approuvé par la troisième CEFDHAC tenue à Bujumbura du 5 au 7 juin 2000. Elle prend en compte les remarques et suggestions formulées par la Conférence et le comité de lecture.

Le Plan d'Action Stratégique a bénéficié de l'appui de ceux pour lesquels il a été élaboré, la matrice de planification utilisée a été alimentée par des informations issues des différentes catégories d'intervenants dans les écosystèmes forestiers de la sous-région.

Cette approche holistique prend en compte d'une part les écosystèmes, les moyens d'existence des populations et les objectifs de conservation, et d'autre part, la complémentarité et la cohérence des actions de ce plan

stratégique avec celles des autres Conventions relatives à l'environnement (CBD, CITES, Ramsar etc.).

Les principaux thèmes retenus pour le PAS l'ont été sur la base des critères suivants : les actions identifiées par les experts nationaux lors des ateliers sous-régionaux, l'adéquation avec les buts de la Convention sur la diversité biologique, l'adéquation avec les objectifs du processus de Brazzaville, l'urgence du sujet et l'opportunité, notamment l'intérêt substantiel ou l'engagement réel des partenaires ou des bailleurs de fonds.

Les thèmes ci dessous ont été retenus :

- Aires Protégées
- Ressources fauniques terrestres
- Biodiversité marine, côtière et d'eaux douces
- Ressources ligneuses et non ligneuses
- Espèces menacées
- Biodiversité des montagnes
- Ressources énergétiques
- Communication, formation et recherche
- Urgences et évaluation environnementales
- Cadre juridique et institutionnel
- Sources de financement pour la diversité biologique
- Mesures incitatives.

La coopération sous-régionale et internationale étant essentielle à la protection de certaines espèces de la faune terrestre et de la flore sauvage contre une surexploitation par suite du commerce international, les thèmes Ressources fauniques et Espèces menacées tiennent compte des synergies entre la Convention sur la diversité biologique et la Convention CITES notamment dans le domaine de la valeur toujours croissante, du point de vue esthétique, scientifique, culturel, récréatif et économique de la faune et de la flore sauvage et en ce qui concerne la mise en cohérence des législations et des stratégies nationales.

La diversité biologique marine, côtière et d'eaux douces est développée en considérant la coopération entre la Convention sur la diversité biologique et la Convention Ramsar qui touchent à des types d'habitats très divers : marais, plaines alluviales, rivières, lacs, zones côtières et plus spécialement ceux qui figurent sur la liste Ramsar d'importance internationale et des écosystèmes d'eaux intérieures.

Treize concepts de projets ont été élaborés lors d'un atelier sous-régional à partir des travaux en groupe sur chacun de ces thèmes identifiés. Ces concepts de projets qui ont été examinés par les acteurs potentiels dans chaque pays (à travers les Groupes de contact) ont servi de base à l'élaboration de quelques propositions de projets à soumettre pour financement aux donateurs et aux pays du Bassin du Congo.

1. CENTRAL AFRICA

1.1 SOME GEOGRAPHIC AND ECOLOGICAL DATA.

Central African countries (Burundi, Cameroon, Central African Republic, Equatorial Guinea, Gabon, the Democratic Republic of Congo, the Republic of Congo, and Rwanda) are located on both sides of the Equator, between altitude 14 ° North (Northern Cameroon) and 13° 27 South (Southern Democratic Republic of Congo). The entire sub-region is marked by a monotonous relief formed by vast expanses of quasi lowland. With the exception of Burundi and Rwanda, only Cameroon and the Democratic Republic of Congo (DRC) have, in some places quite uneven montane landscape. The highest summits of the sub-region include the volcanic mountain range in the east of the congolese basin namely: the Kalisimbi(4507 m), Muhabura (4127 m), Sabyinyo (3674 m), Bisoke (3711), Gahinga (3473 m); in the north of Rwanda and Nyamulagira, Mikenko (4 000 m) and Nyiragongo (3470 m) in the eastern part of RDC as well as the Ruwenzori range (5 109 m) on the border between the DRC and Uganda; Mount Cameroon (4070 m) located in the moist dense forest of the southwest province and Pic Basile (3008 m) in Equatorial Guinea.

The sub-region corresponds to a catchment basin of the four main rivers, in order of importance: Congo (Central African Republic, Congo Brazzaville, DRC), Ogoué (Gabon), Sanaga (Cameroon) and Oubangui (CAR, Congo-Brazzaville, RDC), in addition to other rivers (Wouri, Nyong, Sangha, Ntem, Nyanga, Niari, Lefini, Kasai, Lulonga, Lomami, Ulindi, etc.)

In humid forest areas (the focus area), the climate is of the equatorial or transitional tropical type. Despite some local variations, there is a zonal uniformity of high and constant temperatures. The differential climatic element, an indispensable ecological variable, lies more in the pattern of spatial and temporal distribution of rainfall than in an invisible annual range of temperature. (Tchatat, 1999).

Central Africa is home to three of the largest expanses of ombrophilous tropical forests of the world, and its forest ecosystems cover one of the world's major areas of biodiversity. Forest areas and the level of cover vary from one country to another, as shown in table 1.

(see annex 5, fig.1: Central African vegetation cover and hydrographic basin)

Table 1 : Surface areas of central African forests.

| Country | Surface area in million of hectares | | |
|------------------------------|-------------------------------------|-------------------|-------------------------|
| | Dense forest | Fragmented forest | Mosaic forests/savannah |
| Burundi | 0.041 | - | - |
| Equatorial Guinea | 1.678 | 0.588 | - |
| Central African Republic | 4.362 | 0.564 | 12.758 |
| Cameroon | 17.109 | 6.500 | 6.464 |
| Gabon | 21.188 | 1.839 | 0.295 |
| Congo Brazzaville | 23.325 | 1.680 | 0.913 |
| Democratic Republic of Congo | 112.934 | 14.813 | 30.730 |
| Rwanda | 0.155 | - | 0.095 |

Source: Adapted from Mayaux et al.; 1997

The country with the highest forest cover rate is Gabon (about 80 %) and the lowest is Burundi (less than 5 %).

Peoples of Central Africa vary greatly. These are peoples belonging to the Bantu, Nilotic, Peule and Pygmy groups.

The sub-region has more than 60 % of Africa's biodiversity and ranks first in the African region in terms of species wealth, with many taxonomic groups. The number of species found in Central African Countries is given in table 2.

(see annex 5, fig. 2: Central African vegetation cover)

Table 2 Number of species found in each country of the Congo Basin

| Countries | Plant Species | | Mammal Species | | Bird Species | |
|--------------------------|---------------|---------|----------------|---------|--------------|---------|
| | Total | Endemic | Total | Endemic | Total | Endemic |
| Burundi | 2500 | 22 | 107 | 0 | 451 | 0 |
| Congo Brazzaville | 6000 | 1200 | 200 | 2 | 449 | 0 |
| Gabon | 6551 | - | 190 | 3 | 446 | 1 |
| Central African Republic | 3602 | 100 | 209 | 2 | 537 | 1 |
| Cameroon | 8260 | 156 | 409 | 14 | 690 | 8 |
| Equatorial Guinea | 3250 | 66 | 184 | 1 | 273 | 3 |
| Congo Democratic | 11 000 | 3 200 | 450 | 28 | 929 | 24 |
| Rwanda | 2 288 | 26 | 151 | 0 | 513 | 0 |
| Sao Tome | | | | | | |

Source: WCMC in database in global biodiversity 2000, P. 126-128

There is a wide range of ecosystems in Central Africa. These include especially ombrophilous tropical forests (up to 80 % of dense forests still existing in Africa), dry forests, montane forests, inundated forests and

savannah, wooded savannahs, dry woodlands, papyrus reed beds and peat bogs, the Congo river system, lakes and various montane habitats.

There are many centres of endemism, such as the interglacial refuges of the Central Congo Basin, the eastern high mountains, the mountains of Cameroon, the interglacial refuge of Gabon, the mangroves of the Atlantic coast, the ecotones of Congo and Zambezi dry woodlands, freshwater biological systems including lakes and tributaries of the Congo river. The rate of endemism of fresh water species in lakes and rivers in the Congo Basin is estimated at more than 70 %.

Greater details and analysis of the above information are found in sub-regional analytical reports available at the Secretariat of the Brazzaville Process.

Though the conservation and sustainable use of biodiversity of the Congo Basin depend on each country's activities, their ecosystems and the threats they faced, go beyond national borders, which makes national actions interdependent. While it is true that national actions are of great importance, these can be effective only on condition that they are implemented within the framework of a sub-regional co-operation and as a common strategy.

1.2 PROBLEMS AND OPPORTUNITIES

Activities in the ecosystems of Central Africa are mostly linked to slash-and-burn agriculture, exploitation of forest, mineral and petroleum resources. All these activities pose many problems to the sustainable

management of biodiversity. Sub-regional planning workshops for the SAP have identified several problems related to the management of common, shared and transboundary resources. These problems include amongst others, the displacement of populations and economic operators, marketing and distribution of forest products, difficulties in sharing expertise and training in the various countries, biodiversity loss, poaching, movement of populations due to armed conflicts and inadequate knowledge and skills for a better use of natural resources. These problems are presented in greater detail in national and workshop reports on SAP.

However, for the past four years, countries of the sub-region have been expressing clear willingness to assume leadership in initiatives that foster the sustainable management of forests, by meeting regularly to discuss issues related to its management. Also, various sub-regional initiatives explore ways and means of harmonising their interventions. Recently, Central African Heads of State met in Yaounde (March 2000) to reiterate, through the Yaounde Declaration, the need for sub-regional harmony, especially in the management of transboundary resources.

1.3 THE BRAZZAVILLE PROCESS.

Central African countries met in Brazzaville (Congo) from 28 to 30 May 1996. The meeting's main objective was to carry out some reflection with all stakeholders within the forest ecosystems of Central Africa (members of Government, parliamentarians, businessmen, natural resource managers, co-operation agencies, NGOs, etc.) on the problem of conservation and sustainable use of their forest resources. At the end of

the Conference, participants adopted the Brazzaville Declaration, establishing a bi-annual Conference thereby cementing co-operation to seek solutions to common problems in environmental, forestry and biological diversity matters. This Conference, called Conference of Central African Moist Ecosystems (CEFDHAC) is also known as the Brazzaville Process.

The Brazzaville Conference defined some priority co-operation areas which concerned especially policy, planning, management, stakeholders participation (for example, the private sector, local communities and NGOs), the setting up of a network and sharing of information, training, research as well as the use of appropriate technologies. It also entrusted its Secretariat to the Regional Office of IUCN for Central Africa. Each minister in charge of forest ecosystems in Central Africa pledged to appoint a National Focal Point to facilitate co-ordination and implementation of CEFDHAC activities.

In seeking means to concretise the recommendations of the Brazzaville Conference, the first sub-regional workshop for the planning of CEFDHAC activities organised in Kinshasa (Democratic Republic of Congo) in February 1997 identified many activities including :

- the strengthening of operational capacities of the Conference's Secretariat.
- preparing and organising the second CEFDHAC Conference ;
- communicating with all participants in/the Brazzaville Process ;

- drawing up a Strategic Action Plan for the conservation and sustainable use of biodiversity and environmental resources within the Congo basin.

Since 1997, the European Commission, the Netherlands, CARPE and UNDP have been supporting the Brazzaville Process. Because of these comparative advantages, UNDP pledged to assist CEFDHAC in drawing up its Strategic Action Plan and in finding solutions to common, shared, and transboundary priority problems relating to biological diversity and the environment.

All the countries involved in the Brazzaville Process, with the exception of Sao Tome and Principe, have signed the Convention on Biological Diversity. They are therefore committed to draw up and implement a strategic action plan on bio-diversity.

2. METHODOLOGY

The Methodology for drawing up this SAP is largely based on Gauthier's work "*Theoretical Reference Framework for Sustainable Development and Biodiversity in Quebec (Gauthier, 1995 and 1998)*". In the main, a planning matrix was used (see below). This matrix is a simple, but efficient tool for managers, planners, co-ordinators, national focal points as well as experts involved in the implementation of national biodiversity strategies and action plans (Prescott et al, 2000). It served as a basis in the elaboration of a strategy and the drawing up of a multi-sectorial action plan in Quebec, the Democratic Republic of Congo, Niger, Mauritania, Djibouti, and the Oman Sultanate. It was recommended during the 14th World Forum on bio-diversity (Prescott and Gauthier, 1999). Also, this matrix was presented at the 4th Meeting of the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) in Montreal, in June 1999 as a tool for a better integration of biodiversity in the sectorial planning process.

However, a Strategic Action Plan can only be useful if it has the support of all those for whom it was drawn up. The planning matrix used, was enriched by information derived from all categories of actors in the forest ecosystem of the sub-region.

In this holistic approach, that takes into account, on the one hand, ecosystems and its multiple values, the subsistence it provides to people and conservation objectives, on the other hand, it becomes imperative that strategic actions identified in the plan complement and reinforce

those of other Conventions that address the environment (CBD, CITES, Ramsar etc.). This explains why enhancing the value of energy resources, development of protected areas, the integrated management of timber and non-timber resources must take into account other related conventions on biodiversity such as the Framework Convention on Climatic Change.

Sub regional and international co-operations are essential in the protection of a good number of terrestrial wildlife against over harvesting, hence the themes *Fauna resources* and *Threatened species* are mindful of the synergy between the Convention on Biological Diversity and the CITES, especially as concerns enhancing the aesthetics, scientific, cultural, recreational and economic aspects of wildlife management. The harmonisation of national legislation and strategies are also key factors in these efforts.

Freshwater, coastal and marine biodiversity is developed taking into consideration the linkage between the Convention on Biological Diversity and the RAMSAR Convention which have impacts on diverse habitat types, among which are: alluvial plains, rivers, lakes, coastal zones, continental water ecosystems and particularly those habitats that figure on the RAMSAR list as being of international importance and as internal water ecosystems

2.1 PHASES IN DRAWING UP THE SAP

Ten (10) different phases were needed to put in place a SAP (sketch in annex 1). The process is expected to be completed in 13 months (June 1999- June 2000).

Phase One : National consultations

Following the initial consultations (contact missions), some national consultants were selected and recruited to collect, analyse and summarise data on the status of biodiversity in each country involved. This phase also entailed examining each country's commitment and implementation of the Convention on Biological Diversity at national level.

Phase 2: Elaboration of national reports on biological diversity

During the second phase, national consultants (list in annex 2) gathered and summarised data and information on the status of biological diversity in their respective countries with special emphasis on transboundary environmental issues.

Eight national reports are available. These reports that draw from the experience of biodiversity planning or programming activities (NFAP, PNAE, NEMP, NBS) and existing programmes and projects (ECOFAC, CARPE, PRGIE, etc.), were approved by the various countries, through members of the CEFDHAC contact groups (National correspondents, experts, NGOs, etc.).

National reports constituted the starting point of the process of identifying SAP priority elements.

Phase 3: Sub-regional workshop on the identification of common, shared and transboundary priority problems

After the elaboration of national reports and their analysis by the Secretariat of the Brazzaville Process, a consultant was recruited for the first sub-regional workshop on consensual identification of common, shared and transboundary priority problems. This consultant conducted the proceedings of the workshop. Some forty stakeholders of the Congo Basin ecosystems, representing national administrations, co-operation agencies and funding mechanisms, NGOs, sub-regional initiatives and consultants who had earlier carried out specific studies for the SAP took part in the workshop.

The workshop, which report is available, identified the following themes and strategies:

| |
|-----------------------------|
| Themes |
| Forestry |
| Fisheries |
| Wildlife |
| Non-Timber Forest Products |
| Agriculture |
| Protected Areas |
| Strategic directions |
| Legal Framework |
| Sustainable Development |
| Co-ordination |
| Research |

Phase 4: Distribution of the report of the first sub-regional workshop on the identification of common, shared and transboundary priority problems.

After the first sub-regional workshop, the approval of the themes and the strategies was engaged with Central African forest ecosystem stakeholders, through the CEFDHAC national contact groups.

Phase 5: Sub-regional workshop on the elaboration of consensual solutions to identified common, shared and transboundary priority problems

During this workshop, the issue was consolidation of achievements of earlier phases in the elaboration of the SAP (studies carried out by national consultants, analysis of problems, etc.) and to propose a maiden SAP logical framework. This workshop, which was animated by a sub-regional consultant, witnessed the participation of some 30 stakeholders of the Central African forest ecosystems.

Participants at this workshop demonstrated their commitment to work for the preservation of biodiversity through multiple proposals of actions to be undertaken in order to attain SAP objectives. They also formulated guidelines to follow in order to ensure the implementation of this strategic action plan. Proposals on biodiversity in protected areas, forest resources outside of the protected areas, water resources, sustainable use of non-timber forest products, agriculture and wildlife resources were formulated and discussed.

Phase 6: Elaboration of project concepts that will enable the realisation of the SAP

Another workshop bringing together some 20 sub-regional experts was considered necessary to concretise the SAP. The specific objective of the workshop was to formulate project concepts likely to enable the implementation of the SAP.

During this workshop some 10 project concepts were formulated.

The report of the workshop is available.

Phase 7: Formulation of the draft Strategic Action Plan

Based on phases 1 to 6, a team of sub-regional consultants, supported by the Secretariat of the Brazzaville Process, went ahead and formulated a preliminary Draft of the Strategic Action Plan. National and workshop reports, search for coherence between themes proposed by the project document and those retained during the sub-regional workshops as well as contacts with Prescott led the team to the use of the planning matrix assessment (Prescott et al, 2000). The latter presented several benefits:

- it made it possible to take into account all activities that have an impact on the conservation and sustainable use of biodiversity in countries of the Congo Basin (including activities envisaged within the framework of other Conventions related to biodiversity);

- it made it possible to include actions that call on all major actors in the conservation and sustainable use of biodiversity at regional level, in the preliminary draft of SAP, thereby encouraging their adhesion to the SAP.

Phase 8: Broad-based consultation on the draft Strategic Action Plan.

This draft SAP shall be submitted simultaneously for comments, to a Review Committee (proposed members of *Review Committee* is in the list of contributors on page 5), NEAP, NBSAP and NEMP National Coordinators, GEF Focal Points, Directors General of the Environment, donors such as the GEF Secretariat, the private sector, NGOs, regional and sub-regional conservation initiatives undertaken in countries of the Congo Basin, training and research institutions as well as the second preparatory meeting of the third CEFDHAC (11-13 May 2000). Open national or bilateral meetings (Secretariat of the Brazzaville Process as main beneficiaries of the SAP) are also envisaged within the framework of the finalisation of the SAP.

Phase 9: Submission of the preliminary draft of the SAP to the CEFDHAC Conference

The amended draft of the SAP was presented for discussions at the third CEFDHAC (Bujumbura, Burundi, 5-7 June 2000) which saw the participation of stakeholders of the Brazzaville Process.

Phase 10: Finalisation of the SAP

After the third CEFDHAC Conference, the proposed SAP draft project proposal was corrected. Amendments proposed by the Conference have been integrated in the proposal.

2.2 USE OF THE PLANNING MATRIX

The horizontal direction of the planning matrix (see table 3) describes the decision-making process leading to the implementation of a strategy and an action plan. While the vertical direction, is based on fifteen themes that integrate all current and potential subjects envisaged by the Conference of Parties.

Table 3. Planning Matrix (Prescott, 2000)

| Decisional process Themes | Basis for action | | | | Objectives or orientations | Actions | | | | Implementation aspects | | | | |
|-----------------------------------|--|--------------------------------------|-----------------------|-------------------------------|----------------------------|----------------------|----------------------------|----------------------|--------------------------------|--------------------------------------|------------------------------|----------------------------|--------------------------------|------------|
| | International National Provincial Preoccupations | Data (environment, society, economy) | Pressures and impacts | Dispute (unresolved problems) | General And Particular | Data and information | Development and management | Linked to management | Co-operation and Co-ordination | Scientific and technological demands | Human resources (employment) | \$ 1 year 5 years 10 years | Foreseen benefits 1-5-10 years | Indicators |
| Energy-giving resources | | | | | | | | | | | | | | |
| Conservation of natural resources | | | | | | | | | | | | | | |
| 3. Valorising faunal resources | | | | | | | | | | | | | | |
| 4. Valorising forest resources | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 5. Valorising agricultural resources | | | | | | | | | | | | | | |
| 6. Valorising mineral resources | | | | | | | | | | | | | | |
| 7. Valorising industrial technologies and services | | | | | | | | | | | | | | |
| 8. Valorising urban milieu | | | | | | | | | | | | | | |
| 9. Oceanic basin and atmospheric basin | | | | | | | | | | | | | | |
| 10. Territories under particular juridical regimes | | | | | | | | | | | | | | |
| 11. Environmental emergencies | | | | | | | | | | | | | | |
| 12. Ecocivic | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|-----------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 13. Societal values | | | | | | | | | | | | | | |
| 14. Quality of life | | | | | | | | | | | | | | |
| 15. Spiritual values | | | | | | | | | | | | | | |

The preparation of the SAP project proposal has required that the matrix be completed with appropriate information, drawn from national reports and sub-regional workshops as well as contacts with resource persons such as Jacques Prescott. Thus it involved

- 1 integrating themes retained by the Convention on Biological Diversity and by the Conference (see annex 3), those proposed by the project document, sub-regional workshop and sectorial activities likely to be linked to each of the themes;
- 2 relevant themes associated to them, taking into account the sub-regional context;
- 3 For each of the selected themes, the implementation of the decision-making process by identifying:
 - bases for action (concerns, data, pressures and impacts, litigation, etc.);
 - objectives or orientations
 - actions (related to data and information, management or co-operation and co-ordination);
 - implementation aspects (scientific and technological requirements, responsibilities and human resources, financial resources, foreseeable gains and measuring indicators).

The following criteria were used to retain themes for the preliminary draft of the SAP:

- ◆ actions identified by national experts and during sub-regional workshops;
- ◆ the geographical level and effects of the action (actions at sub-regional level had priority over national actions);
- ◆ appropriateness to the objectives of the Convention on Biological Diversity (actions considered to have just an indirect link to biological diversity were considered less relevant);
- ◆ appropriateness to the guidelines and objectives of the Brazzaville Process;
- ◆ the urgency of the subject;
- ◆ the chronology of actions (some measures, relating for example to acquiring knowledge should be carried out before starting other actions);
- ◆ possibilities (substantial interest or true commitment of partners or funding bodies).

Thus, the use of the planning matrix has enabled the following thirteen themes to be retained for the SAP of countries of the Congo Basin:

| | |
|----|---|
| 1 | Protected Areas |
| 2 | Terrestrial wildlife resources |
| 3 | Marine, coastal and freshwater biological diversity |
| 4 | Timber and non-timber Resources |
| 5 | Threatened species |
| 6 | Montane biodiversity |
| 7 | Energy-giving resources |
| 8 | Communication, training and research |
| 9 | Environmental Emergencies and Evaluation |
| 10 | Legal and institutional frameworks |
| 11 | Funding sources for biological diversity |
| 12 | Incentive measures |

2.3. COMPARISON OF THEMES RETAINED FOR THE SAP WITH THOSE RETAINED BY THE CONVENTION ON BIOLOGICAL DIVERSITY, THE PROJECT DOCUMENT AND THE SAP WORKSHOPS (TABLE 4)

| Themes retained by COP to the CBD | Themes proposed by the Project Document | Themes retained during SAP Workshops | Themes proposed for the SAP |
|--|--|---|--|
| Access and benefit sharing | | | |
| Protected Areas | Protected Areas | Protected Areas | Protected Areas |
| Biosafety | | | |
| Criteria and indicators | | | |
| Agricultural biological Diversity | | Agriculture | |
| Forest biological diversity | Wild flora products and Non-Timber Forest Products | Forestry Wildlife | Timber and non-timber forest resources Terrestrial Faunal resources |
| Montane biological diversity | | Wildlife | Montane biological diversity Terrestrial faunal |

| | | | |
|---|---|-----------------------|---|
| | | | resources |
| Marine and coastal biological diversity | | Fisheries Wildlife | Marine, coastal and fresh water biological diversity |
| Continental water Ecosystems | Diversity of freshwater ecosystems | Fisheries Wildlife | Marine, coastal and freshwater diversity |
| Non-irrigated land Ecosystems | | | |
| Species and taxonomy | | | Threatened species |
| Impact Assessment | Environment and pollution | | Energy resources Environmental emergencies Environmental assessment |
| Incentive measures | | | Incentive measures |
| Legal issues on biodiversity | Policies, institutions and legal frameworks | | |
| Capacity building | | | Communication, training and research |
| Indigenous knowledge | | | |

| | | | |
|---|--|--|--|
| Funding sources for biological diversity | | | Funding sources for biological diversity |
| Synergy with the Rio Conventi and other Conventions on biodiversity | | | |
| Sustainable tourism | | | |
| Sustainable use of Biodiversity | | | |

Contrary to the Project Document, the draft SAP treats only timber and non-timber resources under the theme *Forestry*. The theme *Environment and Pollution* was considered a cross cutting theme; they include *energy resources, Environmental emergencies and Environmental Assessment*. This is apparent in activities carried out in the Sub-region on exploration, drilling, transport and the amassing of fossil fuel, notably in Cameroon, the Republic of Congo, Gabon and Equatorial Guinea as well as in activities of the Organisation for African Unity on the fight against water hyacinth.

The theme on *diversity of freshwater ecosystems* is outlined in the chapter on marine, coastal and freshwater diversity.

Other themes considered very important include: *Biosafety, harmful indigenous or exogenous organisms, threatened species, incentive measures, communications, training and research, mountain biodiversity and funding sources for biodiversity*.

The theme on *Incentive measures* is also a cross-cutting theme. It is important because it favours the sustainability of biological resources. Instead of underlining the need for this in every chapter, it was decided to treat it as a stand-alone topic.

The theme on *Mountain biodiversity and threatened species* were retained mainly to promote the conservation of forest biological diversity in transboundary mountains in Burundi, the Democratic Republic of Congo and Rwanda as well as species contained in Appendix 1 of

CITES, and other species that local populations need for their livelihoods such as Moabi (*Baillonella toxisperma*), even if they are not listed as threatened.

The activities on *Communication, training and research* is a framework to stimulate change in mentality in favour of conservation and sustainable use of biological diversity.

Funding sources for biological diversity in Central Africa is part of the major pre-occupations in the Sub-Region, especially because it limits most initiatives favouring biodiversity conservation.

The theme on *Agriculture* identified during SAP planning workshops was not retained because it does not apply to common, shared and transboundary resources.

However, this theme is treated as a cross-cutting theme within the framework of the SAP.

3. THEMES

3.1 PROTECTED AREAS

3.1.1 State of Biodiversity Resources

Central Africa is home to protected areas that cover a surface area of about 355,364 Km². More than 50% of this area is made of transfrontier protected areas distributed in the various ecological zones as follows:

- Savannah zones: 141,333 Km²
- Forests zones: 39,608 Km²
- Mountain zones : 9,320 Km²
- Coastal zones about 6,561 Km²,

(see Annex 5 ; fig. 3: map of Central African ecosystems and protected areas)

Table 5: Distribution of Central Africa's main protected areas per zone.

| ZONES | COUNTRIES | PROTECTED AREAS |
|---------------------------|-----------|---|
| Savannah 141 333 Km | CAR | Zemongo W.R (10 100 km ²), Tata-Ngaya W.R (4 200 km ²) André Félix N.P. (1700 km ²), Aouk-Ouakale N.P. (3 300 km ²), Avakaga Presidential Park (1 750 km ²), Ouandja-Vakaga W.R. (4 800 km ²), Manovo-Gounda-Saint Floris N.P. (17 400 km ²), Vassako-Bolo (860 km ²), Bamingui-Bangoran (10 700 km ²) N.Ps and Gribingui-Baminguin W.R. (4 500 km ²) |

| | | |
|---|------------------|--|
| | CAMEROON | Bouba Ndjidah N.P. (2 200 km ²), Kalamaloué N.P. (45 Km ²), Faro N.P.(3 300 Km ²), Waza-Logone N.P.linked to Kalamaloué by a corridor as passage for elephants that inhabit the area around the Chad border. |
| | BURUNDI & RWANDA | The Akagera (1 050 km ²) and Ruvubu N.Ps. (508 km ²) respectively in Rwanda and Burundi are along the Tanzanian border. |
| | D.R.C | The Garamba N.P. (4 920 km ²), three hunting areas of Azandes, Mondo Missa, and Gangala na Bodia that cover a surface area of 10 000 Km ² , Bili-Uele hunting area made up of 7 blocks with a surface area of (60 000 km ²) |
| Low Altitude Forests 39608 Km ² | CAMEROON | The Dja (5260 Km ²), Nki (1 950 km ²), Boumba-Bek (2 330 km ²), Lobeké (2 100 km ²) Reserves |
| | GABON | The Minkébé Reserve (6 000 km ²) |
| | CONGO | The Odzala (13 000 km ²) and Nouabalé-Ndoki (3 866 km ²) National Park |
| | CAR | Dzanga-Ndoki N.P. (1 287 Km ²) Dzanga-Sangha W.R. (3 359 Km ²) |
| Montane Forests 9320 Km ² | D.R.C; | Virunga N.P. (7 800 km ²) |
| | RWANDA | The Volcans (150 Km ²), the Nyungwe Forest reserve (970 km ²) |
| | BURUNDI | The Kibira N.P. (400 km ²) |

| | | |
|---------------------------------|----------|--|
| Coastal 6591 Km ² | CAMEROON | Campo Ma'an N.P. (2640 Km ²), Korup N.P. (1259 Km ²) |
| | CONGO | Conkouati Reserve (1442 Km ²) |

.N.P. (National Park), W.R. (Wildlife Reserve),

The distribution of protected areas in various ecological zones constitute a very important tool in maintaining biodiversity wealth. It is worth mentioning that the figures presented for the surface areas are approximative for some protected areas have neither been studied nor mapped out.

3.1.2. Typical Sectorial activities

The frontier or transboundary Border and cross-border protected areas are a form of land use. They have the specific function of ensuring the conservation of biological resources. Researches are carried out there, together with continuous monitoring of biological diversity and the fight against poaching. Also, development-conservation activities are going on in many of these areas (Odzala National Park, Nouabalé-Ndoko, Dzanga Sangha, etc) with some attracting an influx of tourists (Volcans, Virunga, Korup).

In all of these border and cross-border protected areas, neighbouring populations are extracting resources essential for their livelihood (game, trophies and other forest products). Activities compatible with the existence of protected areas are carried out there, including exploitation

for timber and petrol (Conkouai, Campo Ma'an), ivory hunting and mining of gold (Makébé). Lastly, nomadic populations rear livestock in some cross-border protected areas (Kalamaloué).

(see annex 5, fig. 4)

These ecosystems also serve as basis for rebels or refuge for civilians and army units during armed conflicts (Kibira, Virunga and Volcanoes).

3.1.3. Pressures and impacts

The intention to increase the network of protected areas is evident (Declarations of Lopé, 1988; Brazzaville, 1996; and Yaounde, 1999) but implementation on the field is wanting. With the exception of sites financed by foreign bodies/countries, many protected areas are only on paper because they are often abandoned to themselves. Because of poor demarcation of boundary within/among reserves, and the absence of buffer zones, wanton and uncontrolled exploitation of resources are witnessed right inside reserves. This is mainly the consequence of unadapted land use policies, a factor which is causing numerous resource management conflicts.

The consequences of illegal social and economic activities (poaching, settlement of human populations, etc) in transboundary protected areas are very difficult to estimate because of other contributing factors are many and varied (armed conflicts, difficult access, etc). These factors have caused the scarcity of animal species in some protected areas (Virunga, Volcanoes, Kibira, Camp'o, etc.).

Armed conflicts are increasingly degrading cross-border protected areas and have often led to the loss of species and the suspension of tourism activities as well, which is a loss of important economic/financial resources for countries and populations. This is the case with the disappearance of lions (*Panthera leo*) in the Akagera National Park in Rwanda (Habiyambéré, 1999), and Volcanoes National Park.

3.1.4. Objectives

Faced with the above mentioned problems, the following objectives have been identified;

- To promote the setting up of a network of protected areas for peace.;
- To promote the sustainable management of shared and transboundary protected areas border and cross-border protected areas;
- To promote revenue generating activities

3.1.5. Actions

3.1.5.1. On-going actions

- The Parks for Peace Project (National Parks of Virunga, Volcans and Kibira);
- The Tri-national Park Project (Lobéké (Cameroon), Nouabalé-Ndoki (Congo Brazzaville) and Dzanga-Sangha (RCA));

- The Transboundary biodiversity initiative Project in Gabon-Congo-Cameroon.

3.1.5.2. Proposed Actions

- Set-up a sub-regional network for the exchange of experiences on the management of shared and cross-border protected areas;
- Facilitate the setting-up of an observatory for the ecological follow-up of biodiversity in the Congo Basin;
- Set-up pilot projects for the management of transfrontier protected areas with an outstanding participation of local populations of the area;
- Encourage creation of corridors for biological diversity exchanges and support the creation of new transboundary protected areas;
- Map out cross-border protected areas and potential zones that could be classified as reserves.

3.1.6. Indicators

- A network of protected areas for peace is set-up;
- 10 transboundary protected areas are created and are effectively managed;
- % of protected areas with a management plan;
- Sub-regional observatory for ecological monitoring is functional

3.2. TERRESTRIAL FAUNAL RESOURCES

3.2.1. Status of the resource

Because of the lack of systematic and regular inventories, the potential of faunal resources in Central Africa is little known. However, the presence of forest and savannah landscapes as well as the presence of many rivers have endowed Central Africa with a rich biological diversity. Among the most remarkable species, one can cite the elephant (estimated to be about 400,000 individuals), Okapi, white rhinoceros from the North, black rhinoceros (*Diceros bicornis longipes*), gorillas from the plains and the mountains (estimated at about 486 individuals), chimpanzee, lion, leatherback turtle, sea cow, forest buffaloes, savannah buffalos, leopard, hippopotamus, crocodile of the Nile, Giraffe, etc.

As concerns avian fauna, there are pelicans, herons, stork, olive scarletetc.

Other data are available in the sub-regional summary reports.

3.2.2. Typical Sectorial Activities

Typical sectorial activities are hunting and poaching. Data on regional production of wildlife species are fragmented and dispersed.

Regarding the circulation of wildlife, Kornelia estimates after a ten months studies, that the annual flow of bushmeat into Yaounde (Cameroon) by train is about 816.710 kgs. While Steel (1994) estimated

the annual quantity of games received by the Mont Bouë, Oloumi and Ndembo (Brazzaville) markets to stand at about 500 tonnes. The quantity of meat sold annually in Bukavu (DRC) is estimated at some 400 tonnes (Kofimoya Shada et al, 1998). Between 1990 and 1998, 1700kgs of ivory were seized in the Douala Airport (Bello, 1998), and 31,130 tonnes of some 1568 mammalian and bird species were also seized in Gabon between 1991 and 1993. In 1997, more than 200 Elephants were killed in the Sangha region (Republic of Congo).

The consumption of bush-meat varies enormously from one site to another. Many studies show that consumption varies between 0.08 to 0.16 kg per person and per day in a Forest Management Unit (UFA) of Pokola in the north of Congo-Brazzaville (Auzel, 1997), and from 0.02 to 0.2 kg per person and per day in the South-West of Cameroon (Koppert et al., 1996) and from 0.94 to 0.24 kg per day and per person in the Eboumetoum and Mindourou sites in Cameroon (Bertiaux, 1998). According to Damio and Sélébangué (1999), 79000 households in Central Africa practice hunting and the average annual consumption is about 11 kg/person/year, that is, about 35,000 tonnes per year for the total population.

Taking into consideration the data of Feer (1999) and by separating production by fauna in land (180 kg/year/km²) from production of animal living in marshy areas (13,3 kg/year/km²) as in Dethier (1998), Auzel estimated the annual production of animal biomass in two forest concessions, a total of 1.364,4 km² in Cameroon, to 210,711 kg (Auzel, 1998).

These figures are under-estimated mainly because poaching is often done clandestinely and estimates made by Auzel do not take in to consideration subsistence and commercial hunting as well as pressures from adjacent forest concessions. Nonetheless, these figures give indications of the scale of threats on wildlife in Central Africa.

3.2.3. Pressures and impacts

3.2.3.1 Ecological consequences

By destroying wildlife, poaching also destroys natural equilibrium. It also tends to eliminate young individuals carried by female or by aging male adults, which are indispensable for the survival of animal species. It also disturbs animal propagation of some plant species and the natural regeneration of vegetation. This is the case with mimosa which propagation is compromised by the disappearance of Elephants.

The disappearance of the panther in some regions has given rise to the proliferation of baboons, which is one of its preferred preys, and a species noted for destruction of food crops.

3.2.3.2 Economic consequences

They are two fold :

- a) Direct economic consequences include,

- Tax loss for the State. This is enormous because generally poachers neither pay taxes to carry arms, permits to hunt nor felling taxes;.
- A loss to the State economy : meat and animal related products, (hides, ivory, etc.) are under valued ;
- A loss to tourism earnings. Because of the scarcity of game, tourism based on wildlife has diminished considerably.

b) Indirect consequences are often reflected in the cost to rejuvenate regenerate a healthy environment, the cost of replacing a natural source from animal protein with domestic rearing and the cost of reintroducing extinct species.

3.2.3.3 Social consequences

The consequences of poaching are very difficult to estimate because of the overwhelming number of contributing factors. In some region considered inappropriate for the rearing of livestock, wildlife produce about 75 to 90% of animal proteins for rural population and the destruction of these resources force the population to progressively migrate towards less harsh regions (Sournia, 1998). However, social consequences of poaching can be two fold:

- consequences resulting from this dis-equilibrium of the natural environment ;
- consequences caused by wastage and unwise exploitation of resources in countries of the sub-region.

3.2.4 Objectives

Contribute to the sustainable management of wildlife through the fight against poaching.

3.2.5 Actions

- promote the valorisation of wildlife
- encourage the reduction of poaching and illegal sale of wildlife species ;
- promote sustainable management of wildlife ;
- Reinforce the application of International Convention on wild fauna and flora species threatened with extinction (CITES or the Convention of Washington), the Convention of Biological Diversity and the articles of national laws supporting sustainable use of wildlife species ;
- carry out training on the application of international conventions on the management of wildlife species ;
- strengthen the setting up of control mechanisms and sign posts aimed at reducing poaching linked to logging, drilling of crude oil and road construction;
- promote inventory on fauna ;
- promote co-management of fauna

3.2.6. Indicators

- Index on the abundance of key species are maintained or ameliorated in 5 years following comparative studies ;

- Training on practices of sustainable use of wildlife has been carried out.

3.3. MARINE, COASTAL AND FRESH WATER BIODIVERSITY

With a shared maritime coastal area extending from Cameroon to the Democratic Republic of the Congo (DRC), varying in length: from 70 km in Congo-Brazzaville, to 800 km in Gabon as well as a dense hydrological network, countries in the sub-region harbour important aquatic marine resources as well as shared and common fresh waters. According to studies, these resources are home to more than 300 species of fishes in the Congolese and Gabonese plateaux, 75 species in Equatorial Guinea, and many aquatic and mammalian birds (Makaya, 1999 ; ONDO and Ona Nze, 1999).

Lakes in countries in the eastern Congo basin also harbour diverse fish species; the national fishery resource potential of DRC, evaluated at some 700.000 tonnes 65% of which comes from the eastern Great Lake (Ipalaka and Kapa, 1999). In Rwanda, the indigenous ichthyological fauna that has more than forty species including 3 tilapia and 2 *Clarias* was enriched by the introduction of sardine fish from lake Tanganyika (Habiyamber, 1999). The lake Tanganyika is the biggest lake in the African Rift and contains unique biological resources—1300 vertebrate and invertebrate species with an endemic rate of more than 80% in fishes (Bigawa, 1999).

Mangroves form a belt of vegetation representing a large proportion of coastal ecosystems which, according to Mbog (1999), are dominated by *Rhizophora species* (covering some 90% of the 270 000 ha of the Cameroonian mangroves) and *Avicennia spp.* Mangroves cover about 400.000 ha in Gabon and 270.000 ha in Cameroon. They are also found in the DRC, Congo and Equatorial Guinea. These ecosystems harbour endemic flora and fauna. They constitute excellent refuge for crustaceo, molluscs and birds and at the same time fishes come to lay their eggs in the rich and calm waters of the mangrove ecosystems (Makaya, 1999).

Lake Tanganyika stretches for more than 700 km and is more than 12 million years old. It is shared by Burundi, DRC, Tanzania and Zambia. It has more than 200 species of “Chichlidés” (Stiassny and Meyers, 1999). The shared lakes include Lake Kivu (between Rwanda and the DRC), Lakes Edouard and Albert (between DRC and Uganda) as well as Lake Chad between Cameroon and Chad.

Many rivers in the sub-region are common, shared and transboundary resources. There is the Congo (between the DRC and the Republic of Congo), the Ntem (Cameroon, Gabon, Equatorial Guinea), Ngoko (Cameroon, the Republic of Congo), Sangha (CAR, The Republic of Congo, Cameroon), Oubangui (DRC, RCA) and Tanganyika (Burundi, DRC). Some of these rivers have their sources in a country but flow across many national territories. Human activities in these shared waters (Oubangui, Ngoko, etc) may have repercussions in many countries.

A strip of more than 100 km beach stretching from Mayumba in Gabon to River Noumbi in Congo has been identified as the 2nd site for the nidification of lude turtle in the world (Fretey, 1998). Even if we know the importance of marine, coastal and fresh water biodiversity resources, adequate knowledge on the potential and dynamics of these ecosystems still remains fragmented and incomplete.

3.3.2. Typical sectorial activities

Marine, coastal and fresh water biodiversity is open to the following typical activities : fishery, mangrove and crude oil exploitations.

Fishing is the main activity for the exploitation of marine ecosystems and continental waters. Fish produces 37% of animal protein to local population : Congo, with its about 33 kg/inhabitant, is the first in fish consumption among the riverine countries in the Atlantic, followed by Gabon. In Equatorial Guinea, according to the estimates by CNUED (1999), cited by Ona Nze and Micha Ondo (1999), 30% of local fish production is for subsistence.

The trees in mangroves are exploited to smoke fish and to meet the wood requirements of the fishing villages.

Exploration concessions, drilling and refining of petrol are done in the sea, and along the Atlantic Coast where oil-fields are being exploited as in Gabon, Congo, Equatorial Guinea and Cameroon.

Rivers in Central Africa helped in the construction of hydroelectric and/or irrigation dams (Lagdo, Inga, Ruzizi).

Maritime transport, tourism and particularly nautic skiing constitute other typical sectorial activities.

3.3.3. Pressures and impacts

In marine, coastal and fresh water biodiversity, the sectorial activities mentioned above have impacts on biodiversity. Urban wastes dumped in coastal waters or lagoons reduce phyto-planctonic production through turbidity, and at the same time the benthic environment is altered by the process of residue sedimentation (Mbog, 1999 ; Makaya, 1999). In addition to pollution, coastal erosion and petrol exploitation activities release large quantities of mud during drilling, disturbing waters and some species of fish, with the consequences of reducing faunal aquatic biodiversity (Mbog, 1999).

According to Nkéoua and Kombo (1999), over-exploitation of mangroves for the smoking of fishes results in the destruction of natural aquatic habitats. This contributes to a reduction of fishing space, a high loss of fish as well as scarcity of species.

According to Mebiame et al (1999), the trawling technique encourages the capture of very small fishes or the fishing of unwanted species. These authors affirm that the proportion of legal or commercial size of fish varies from 20 to 60% in Gabon, with a corresponding annual loss

estimated at 1.3 and 1.7 billion Frs CFA (PNAE, 2000). In the Great Lakes Region, a project on the convention on fish financed by GEF/PNUD and FAO is about to be adopted by Burundi, DRC, Zambia and Tanzania.

Also, pollution along the littoral by hydrocarbons has been made known in Limbe and Edea in Cameroon (Mbog, 1999), and in Conkouati in the Congo (Makaya, 1999). This pollution by hydrocarbons (sparsely documented) has been aggravated by frequent agro-industrial industries (phytosanitary) and urban solid wastes disposal.

Maritime, fluvial and lake transports and associated operations are supplementary sources of pollution. The UNEP as quoted by Mbog (1999) estimates that about 1 tonne/year of copper is thrown by large ships through paint on their bodies. Small boats also disseminate biological organisms susceptible to constitute threats to some ecosystems and locale species (Makaya, 1999 ; Mbog, 1999). This is the case with wild water plants (*Eichonia crassipe*) which have now spread in almost all waters in the sub-region. This plant reduces or stops energy production, navigation, fishing and access to water. They accelerate water loss through evapo-transpiration and destroy lake and river biodiversity (Zimmermann 1998).

Human activities at river sources disturb hydrology in shared waters (Ngoko, Oubagui) ; and because of lack of maintenance of these water courses, this causes rivers to reduce their water-level for a long time leading to the loss of bioiversity. Over-exploitation of construction

material (sand) along the coast and in rivers is a supplementary form of pressure on aquatic resources.

3.3.4. Objectives

Faced with these pressures on marine, coastal, and continental water biodiversity, two main objectives have been identified : (1) to preserve the integrity and productivity of aquatic ecosystems and (2) to fight against over-exploitation of water resource potentials.

The following specific objectives are envisaged:

- Ameliorate knowledge of water resources and aquatic ecosystems ;
- Determine the actual or estimated status of each exploited species and establish measures encourage sustainable use.
- Promote methods of aquatic fauna harvesting that will favour their sustainability ;
- Protect the integrity of continental waters, beaches and mangroves to maintain marine productivity, biological diversity as well as touristic potentials ;
- Prevent and fight against pollution of lagoons, lakes, rivers, estuaries, coastal and continental waters.

3.3.5. Actions

In order to attain the above-mentioned objectives, the following actions have been identified :

3.3.5.1. On-going Actions

- Programme for the Protection of marine turtles in Central Africa (PROTOMAC) with ECOFAC;
- Water Hyacinth control project in Africa (OAU).

3.3.5.2. Proposed Actions

- Set up a sub-regional observation network for the coastal area, aimed at preventing and controlling the degradation of resources and the marine environment;
- Strengthen the means of studying and observing the littoral and marine environment in order to improve protection and optimise the use of coastal and sea resources.
- Promote the reduction of waste and degradation of sea, coastal and freshwater ecosystems by using environment-friendly fishing techniques, and also by the industrial processing of products with a low commercial value;
- Promote income-generating activities related to sea, coastal and freshwater ecosystems such as sea-related tourism (sports fishing, sight seeing, etc);
- Safeguard the sea and coastal heritage by reserving zones that represent the diversity of these environments;
- Promote the maintenance of internal rivers and lakes;
- Promote sea research.

3.3.6. Indicators

3.3.7.1. Indicators for Ongoing Actions

- number of marine turtle nesting on beaches increased;
- surface area of streams covered by the water hyacinth reduced;
- number of rehabilitated rivers increased.

3.3.7.2. Indicators for proposed actions

- in 2009, a network for the observation of sea, coastal and freshwater biodiversity set up;
- training offered on waste reduction techniques;
- increased number of sports fishing and sight-seeing tourists;
- the ecosystems of Bioko island classified as a reserve;
- Konkouati and Mayumba ecosystems doted with reserve status;
- increased number of sub-regional initiatives for the concerted management of biodiversity;
- a proportion of critical species reconstituted after a given time;
- increased fish stock in a given number of years.

3.4. TIMBER AND NON-TIMBER RESOURCES

3.4.1. *Timber resources*

3.4.1.1. Status

The forests of the Congo Basin cover close to 204 million hectares (FAO, 1997), amongst which 130 million are covered by production forests and 74 million hectares are inaccessible. The potential for timber resources is relatively important. In Cameroon, for example, 300 species are marketable, but only about sixty of them are regularly exploited and some twenty species are subjected to increased exploitation (Forestry Policy Document, 1995). In the Republic of Congo, the wood production potential is estimated in commercial volume at 25 million m³ for some thirty marketable species (including 5 million m³ of Okoume for the Southern forest massif) and at 150 million m³ for the major marketable species including 40 to 50 million m³ of Sapelli, Sipo, Doussié, Kokrodua for the Northern massif (Ndinga, 1996). For want of statistics, it is possible that the wood resource potential may be higher than the figures presented.

(see annex 5, fig. 5: forest-frontier...)

3.4.1.2. Problems of transboundary management of timber resources

The wood resource potential is not sustainably exploited. Actually, each country concentrates on the exploitation of two or three major species which alone constitute 60 - 80% of the region's annual production. Some of the species are Ayous (*Triplochiton scleroxylon-sterculiacea*), Sapelli

(*Entandrophragma Cylindricum*) and Azobe (*Lophira alata*) in Cameroon; Okoumé (*Aucoumea Klaineana*) and Ozigo (*Dacryodes buettneri*) in Gabon; and Okoumé and Ilomba (*Pycnanthus angolensis*) in Equatorial Guinea (Doumenge, 2000). There is also a form of selective extraction characterised by the felling of two or three trees per hectare.

Besides these practices, there are also problems specific to transboundary zones. Some of the most important are :

- migration and the settlement of human and animal populations crossing the borders;
- movement of forest exploitation companies and timber products from one country to another depending on the nature of tax policy and control systems;
- transportation of flora and wildlife products from one country to another by timber trucks;
- transboundary poaching.

3.4.1.3. Objectives

Against these problems, which in a sense serve as economic strategies for forest concession managers and in another sense are opportunities offered by the infrastructures put in place by logging companies, makes it necessary to ensure the sustainable management of forest ecosystems in transboundary zones.

3.4.1.4. Actions

- facilitate the setting up of an observatory for the sustainable management of forest concessions in transboundary zones;
- support IFIA in the promotion and follow up of the Code of conduct of forestry concession managers;
- support initiatives underway on the sustainable development of forests and certification;
- harmonise forestry taxes;
- promote community forestry;
- promote the participation of people living around the forests in the sustainable management of cross-border forest massifs;
- Monitoring of world forest (Global Forest Watch).

3.4.1.5. Indicators

- regular increase in the quality and quantity of wood potential
- increase in number of forest concessions that are properly managed
- increase in number of hectares of regenerated transboundary forests
- effectiveness of a sustainable forest concession observatory in transboundary zones
- increase in number of logging companies in transboundary areas that subscribe to and respect the professional code of conduct

3.4.2. Non-Timber Forest Products

3.4.2.1. State of the Resource

Non-Timber Forest Products (NTFP) sector is still not well known, data on it is rare, difficult to access and hardly precise. NTFP are many and varied. They include fruits, almonds, honey, mushroom, barks, roots, vegetable leaves, rattan, medicinal plants, resins, etc. The most highly consumed NTFP belong to the following species: *Baillonella toxisperma*; *Gnetum africanum*; *Laccosperma secundiflorum*; *Eremospatha macrocarpa*; *Cola acuminata*; *Cola nitida*; *Irvingia gabonensis*; *Dacryodes edulis*; *Piper guineensis*; *Garcinia lucida*; *Garcinia manii*; *Garcinia kola*; *Marantaceae*; *Ricinodendron heudelottii*; *Prunus africana*; *Pausinystalia johimbe* et *Tabernanthe iboga*.

3.4.2.2. Typical Sector Activities

The major activities of this sub-sector include : the harvest and sale of resins, fruits, leaves, fodder, honey, oils, etc as well as traditional medicine. NTFP are destined for multiple use: protein in-take, medicine, construction of houses and heating. For example, in Burundi, information gathered from 108 healers revealed that 324 species of medicinal plants are used in 975 recipes meant to treat 99 illness (Bigawa, 1999). NTFP constitute a considerable volume of exchange. According to Nkongmeneck (quoted in Ndoye 1998), in 1980, Cameroon exported to

Nigeria and Chad 1 100 tons of Colanuts representing a value of 186,6 million CFA Francs. Cameroon exports about 90 tons of *Gnetum* leaves per week to Nigeria from its single Port at Idenau. *Gnetum* exported to Nigeria and the United States costs 40 FF and 300 FF respectively per kilogram (CAJAD, 2000). CAR also exports small quantities of *Gnetum* leaves to Europe, particularly to France and Belgium where a small packet of 100 grams of *Gnetum* leaves is sold for 12 FF, representing 120 FF per kilo (Tabuna, 1997 quoted in Doumenge 1997).

The prices of NTFP vary in rural and urban areas and also according to season. In the Lomié area in Cameroon for example, in 1997, 261 litres of Moabi oil (*Baillonella toxisperma*) were sold for 261,000 CFAF in the Bapile village, and in the Kassarafam village, about 937 litres were sold for 937,000 CFA F (Twagirashyaka, 1999). At the local market a litre of Moabi oil costs 1000 CFA F whereas in Yaounde, the same quantity sells for 3000 CFA F. At Abang Minko (at the border with Gabon) a litre of Moabi oil cost 5000 CFA F.

3.4.2.3. Pressures and Impacts

The harvest of Yohimbe barks causes the death of about 98% of trees (Sunderland, quoted after Tchatat, 1999). As concerns *Prunus africana*, the death rate for trees without barks stands at 30% (Tchatat, 1999).

Generally, the exploitation of NTFP for international trade put these resources under pressure and some species such as *gnetum africanum*, *Prunus africana* and *Laccosperma secundiflorum* become scarce

especially around urban centres (Batunyi and Ipalaka, 1999; Nkéoua and Kombo, 1999). This situation is even more preoccupying in that access to NTFP in most Central African countries is free, unregulated, and its marketing still done informally.

3.4.2.4. Objectives

Faced with the above-mentioned problems, the main objective identified is to promote the sustainable use of non-timber forest products.

3.4.2.5. Actions

- improve knowledge of NTFP;
- raise awareness of the populations and governments of Central Africa on the techniques of sustainable use of NTFP;
- encourage Central African countries to regulate the harvesting and marketing of NTFP.

3.4.2.7. Indicators

- The number of surveys carried out;
- The populations use NTFP more wisely;
- The harvest and marketing of NTFP is regulated.

3.5. THREATENED SPECIES

3.5.1. Status of Resources

Table 2 gives an idea of Central Africa's species richness. Among the species mentioned, several appear on the IUCN checklist of threatened species (see annex 2). Some of the most common are the forest elephant, the black Rhinoceros, the white Rhinoceros of the North, the mountain Gorilla, the plain Gorilla, the Chimpanzee, the panther, the sea-cow and the Nile Crocodile.

3.5.2. Problems

Threatened species are hunted for meat, trophies, traditional medicine and medico-magical practices. They are also hunted for trade.

3.5.3. Pressures and Impact

See paragraph on terrestrial wildlife

3.5.4. Objective

- Ensure the protection of threatened species in Central Africa.

3.5.5. Actions

- Monitoring illegal killing of Elephants (M.I.K.E project).

- Implementation of the Washington Convention;
- Training in the identification of threatened species.

3.5.6. Indicators

- Decrease in the number of threatened species;
- Number of “think-tank” meetings on the conservation of threatened species;
- Increase in the population of threatened species.

3.6. MOUNTAIN BIODIVERSITY

3.6.1. State of Resource

Mountain forest ecosystems are found in the mountainous regions of Cameroon, Equatorial Guinea, the high plateau’s bordering the Albertin Rift Valley right to the East of the DRC, Burundi, Rwanda and Uganda (see Section 1.1).

The mountain forest ecosystems all have a relatively poor number of taxonomic groups compared to most humid forests of plains with low altitudes (IUCN 1996). However, endemic species abound there (Brenan 1978). Actually, the mountainous regions are considered by Helberg (1951) as dotted with very distinct plants and animals. The mountain forests of Central Africa have very rare African Coniferous species (e.g. the *Podocarpus species*). We could also find afro-alpine vegetation on the highest mountains. Valleys and mountains, swamps,

patches of land and rocks provide the local variations which produce a mosaic vegetation. It is important to note that the hottest spots of biodiversity are often found in the mountainous regions (WWF and IUCN 1994).

3.6.2. Typical Sector Activities

The sustainable management of mountain ecosystems has constituted for more than two decades now, a priority area for environmental organisations. Biodiversity research is undertaken in most mountain areas.

The exploitation of non-timber forest products and fuelwood by people living around the forest constitute an important social and economic activity in itself. For them, these mountains and hills have an essential socio-cultural value.

3.6.3. Pressures and Impact

The mountainous prairies are found in a good number of watersheds of the Central African sub-region. Some of these mountain ranges are active volcanoes (Mount Cameroon, Mount Nyiragongo and Nyamuragira) and therefore constitute a danger for the local population.

Mount Sabyinyo is situated between Rwanda, Uganda and DRC, making the management and use of this resource complex. Considering the fact that it is a fragile ecosystem and at the same time a refuge for

rare and endemic species, management of mountain ecosystems is more urgent and complex than those of lowland ecosystems.

Though it is the ecosystem with the richest endemic species in the sub-region, mountain forests are the most threatened in the Central Africa sub-region. Doumenge (2000) explains that this is due to the relative small area covered by the mountain forest compared to the low land ecosystem (3450 km² for Equatorial Guinea, Gabon and Cameroon, representing 0.7% of the entire national territories). This ecosystem hosts unique species like the *Preuss Cercopithecus*, of very high biological value but threatened with extinction.

3.6.4 Objectives

In the face of these pressures, the following overall objective has been identified:

- promote the conservation and the sustainable use of mountain ecosystems.

3.6.5. Actions

The following actions have been identified to help attain the afore-mentioned objective :

- promote classification and management of transboundary mountain ecosystems as protected areas;

- promote sub-regional/international co-operation in establishing an early warning system of volcanic eruptions in volcanic areas such as Mounts Nyirugongo and Nyamuragira in Rwanda, and Mount Cameroon;
- promote the management of transboundary mountain ranges at the sub-regional levels, for instance, Mount Sabyinyo which stretches across Rwanda, Uganda and DRC;
- design a mechanism for the transboundary management of mountain ecosystems similar to that of protected areas;
- develop emergency measures taking into account the biodiversity of active volcanoes areas such as Mount Cameroon and Mount Nyiragongo;
- set up an integrated development plan for shared and/or transboundary mountain ecosystems.

3.6.6 Indicators

- A number of mountain ecosystems classified as protected areas;
- A number of emergency plans prepared for active volcano areas;
- A number of integrated transboundary mountain ecosystems;
- A number of research initiatives being actively pursued.

3.7. ENERGY RESOURCES

3.7.1. Resources

The energy sources of Central African countries include chiefly firewood, hydro-electricity and petroleum products. However, solar energy, and bio-gas are also used while peat is mostly used in Burundi and Rwanda.

The potential for renewable energy resources is huge in Central Africa but scarcely used. For instance, Gabon which has a hydroelectricity capacity estimated at 40 to 50,000 Gwh/year barely utilises 2 to 3 % (PNAE, 2000).

With the Inga Dam, DRC could supply energy to several countries of the sub-region. There are two dams in Ruzizi (Rwanda and DRC) which are tapped by Burundi, Rwanda and DRC. In addition, there is a project on a dam in the Akagera River that will light Rwanda, Burundi and Tanzania. Methane gas of lake Kivu is shared between Rwanda and DRC

3.7.2. Typical sector Activities

The construction of hydroelectric dams is a solution to the energy needs of densely populated areas with intense economic activities.

The exploration, drilling, transportation and storage of fossil fuels are carried out in several countries of the sub-region, (Equatorial Guinea,

Congo, Cameroon, Gabon and DRC). For instance, the GDP of Equatorial Guinea increased by 15% in 1999 thanks to a daily oil production of 120,000 barrels which experts believe could reach 500,000 barrels per day in 2001 (Le Monde, 2000). Burundi produces 10,000 tons of peat.

According to FAO (1997), more than 50 million m³ of firewood are cut every year to satisfy household energy needs. On the average, fuel from wood (firewood, charcoal) supply more than 80% of the energy needed in cooking, heating and lighting. FAO, quoted by the World Bank (1994), estimates that more than 85% of the wood extracted from forests and savannahs are used as fuel.

3.7.3. Pressures and Impact

The construction of hydroelectric dams on common waters could destroy land and aquatic ecosystems especially downstreams.

The pumping, refining and transportation of oil pollute the environment. The pipeline project to transport oil from Chad to Cameroon, for instance, is a serious threat to the land ecosystems where the pipes pass but also and above all to the coastal biodiversity especially in the Kribi area.

The use of fossil fuels pollutes the atmosphere.

The wanton cutting of firewood causes deforestation especially in thickly populated areas (Rwanda, Burundi and the east of DRC) and in protected areas (Virunga, Volcanoes and Kibura).

Kapa and Ipalaka (1999) claim that the rate of deforestation caused by firewood, as compared to agriculture, town planning etc., is about 50% in DRC.

3.7.4. Objectives

In the light of the preceding facts, the following objectives have been identified :

- promote the use of environment friendly energy resources.
- promote the use of alternative forms of energy sources other than wood, and encourage re-forestation in the east of DRC, Rwanda and Burundi.

3.7.5. Actions

To reach the above objectives, the following actions have been identified:

- reinforce regional capacities in the follow-up of activities, from the exploration to the production, transportation and storage of energy;

- set up a network for the exchange of experiences on the standardisation of studies related to the impact and especially the exploitation of fossil fuels on the environment;
- support re-forestation initiatives in transboundary areas of the countries of the Great Lakes region and the rehabilitation of transboundary ecosystems.

3.7.6. Indicators

- a network for the exchange of experiences is set up by 2009;
- reforestation and the rehabilitation of transboundary ecosystems have increased;
- training in the follow-up of energy survey, production and storage activities is organised.

3.8. COMMUNICATION, TRAINING AND RESEARCH

3.8.1. Communication

3.8.1.1. The issue

Central African countries are committed to halting forest loss and degradation of their transboundary forest ecosystems. In this wise, and in collaboration with their partners, they have identified the general problems involved in the management of these ecosystems, the solutions to these problems and are determined to make them known to all the partners (Ministers, parliamentarians, technicians, co-operation agencies). The success of this objective hinges on the involvement of the

countries concerned and their partners in the initiatives geared towards the conservation and sustainable use of forest ecosystems.

In this connection, communication stands out as a key means to ensure a continuous and reliable contact with the parties involved in the forest ecosystems of Central Africa.

3.8.1.2. Objectives

- Assist stakeholders in the Brazzaville Process in the search for desired changes.

3.8.1.3. Actions

Implement the CEFDHAC communication strategy.

3.8.2.6. Indicators

Policy makers are constantly informed of the stakes involved in the conservation and sustainable use of forest ecosystems in the Central Africa region.

3.8.2. *Training and Research*

3.8.2.1. Situational analysis

The Central Africa region has some twenty training and research institutes and a host of research programmes linked to projects. Some have a long standing experience especially in the area of wildlife (Garoua School) and forestry (Cap Estercas, Mbalmayo, Dschang, Yangambi and Bengamisa). The most recent is the Regional Post graduate School for the Integrated Management of Tropical Forests (ERAIFT, Kinshasa).

These centres provide data and findings of research works which can be used by policy makers. They also contribute in the development of a high level sub-regional expertise. However, there are still gaps and shortcomings in the knowledge on biodiversity and the dynamics of forest ecosystems.

The training programmes are not regularly updated. Thus, methods used in the participatory management of natural resources, the implementation of the Biodiversity Convention as well as the other conventions pertaining to the management of biological diversity are not systematically included in the training programmes of forestry engineers and technicians. The training courses seem therefore not to meet the needed requirements

Although all the planning endeavours in the sub-region have led to analysis of current situation of research in the Sub-region, nothing has been done in most cases. Forestry and environmental research remains under funded and the resources allotted for forestry and wildlife development are systematically not used for this activity. Besides, research is carried out in several institutions known only at the sub-

regional or national level. This is the case in Gabon where research is done by the Institute of Pharmacopoeia and Traditional Medicine (IPHAMETRA) which conducts research works on the medicinal properties of certain plants used in Phytotherapy, the Institute of Agronomic and Forestry Research (IRAF) that specialises in agroforestry and the Institute of Research in Tropical Ecology (IRET) located in the Ipassa Integrated Reserve.

Research institutions in Central Africa suffer a chronic shortage of human and material resources, rendering them dependent on external funding, often in the form of projects viewed as dictated from abroad and which do not allow for genuine long-term programming and internalisation of programmes (Nasi, 1996).

Research activities executed from externally funded projects suffer from the problem of continuity at the end of the funding period. Moreover, their implementation depends on major international NGOs and foreign research bodies and consultancies. National research systems are not really associated in or informed of these research initiatives (Nasi, 1996).

Research findings and resulting patents are scarcely appropriated (intellectual property) to the sub-region.

3.8.2.2. Typical sector activities

Training institutions provide middle manpower and upper level technocrats specialised in forestry, wildlife and the development of protected areas. Almost all graduates are employed by the public service. Emphasis on training had hitherto, for a long time, been laid on controlling the exploitation of forest resources. Research programmes focus on forestry development and natural regeneration. Only recently has research activities been carried out on the social sciences (APFT).

3.8.2.3. Pressures and impacts

The difficulties outlined above lead to the following:

- a low managerial and applied research capacity in the sub-region ;
- a proliferation of conflicts linked to biodiversity resource management.

There is equally a major problem of environmental governance.

3.8.2.4. Objectives

In the face of these problems, the following objectives were identified for training and research :

- to support existing research institutions in order to set up sub-regional “hubs” for environmental research geared towards conservation and sustainable use of biodiversity;
- to build sub-regional capacities in the design and implementation of sustainable biodiversity management methods;
- to enhance sub-regional cooperation on biodiversity training and research.

3.8.2.5. Actions

In order to meet these objectives, the following specific actions were identified :

- update the training programmes of sub-regional training institutions as regards forestry development and inventory, industrialisation and woodwork, forestry ecology, community management, conflict resolution and the formulation of joint management agreements, fruit tree domestication, the analysis of the pharmacological properties of medicinal plants and the development of medicinal preparations;
- Promote the importance of the Post-graduate Regional School for the Integrated Development of Tropical Forests (ERAIFT);
- put in place sub-regional research programmes involving all the research institutes of the sub-region;
- promote sub-regional scientific networks;

- enhance communication through the INTERNET, especially by setting up data bases;
- enhance the training of specialists and trainers;
- promote adequate communication methods adapted to the local communities.

3.8.2.6. Indicators

- Number of updated training programmes;
- Training in new methodologies (good governance, conflict management, joint management, etc.) organised;
- A sub-regional network of researchers on biodiversity set up;
- Number and quality of sub-regional research programmes implemented.

3.9. ENVIRONMENTAL EMERGENCIES AND ASSESSMENT

3.9.1. Status

This theme hinges on activities related to the prevention and management of natural disasters and technological accidents as well as the realisation of such actions as the restoration of sites deteriorated by natural phenomena such as earthquakes, floods, droughts, volcanic eruptions and forest fires.

Technological disasters include the oil spill, discharge of toxic waste on coastal areas, accidents occurring during the conveyance of inflammable or toxic chemicals.

Considering the socio-political crisis in the sub-region and its damaging impact on biodiversity, armed conflicts are regarded as one of the main environmental emergencies in Central Africa.

It is common knowledge that, there are some instruments which regulate polluting industries (impact studies, fines and other penalties) for wanton discharge of toxic or dangerous waste. Unfortunately, these instruments are not always respected.

As regards emergency measures, there is an Emergency Intervention Plan in Congo and in DRC and an agricultural disasters unit in Burundi. Generally, emergency measures are hardly taken into account in the legislation of countries of the region. No regional consultation has been organised on the issue though in the event of an oil spill, the sea currents spread the toxic substances over a wide area, and the resulting pollution covers several countries.

3.9.2. Objective

- To promote “responsible practices” so as to curb the environmental impact of economic activities.

3.9.3. Actions

- Facilitate the setting up of early warning and/or disaster prevention systems;
- Promote the coordination of interventions during disasters;
- Encourage the restoration of sites destroyed by disasters;
- Foster the control of invading species such as the water hyacinth and other harmful organisms.

3.9.4. Indicators

- Number of operational warning systems;
- Number of emergency intervention plans implemented;
- Number of restored sites;
- A network of operational parks for peace.

3.10. LEGAL AND INSTITUTIONAL FRAMEWORK

3.10.1. Prevailing situation

The sub-regional legal framework is characterized by many specific conventions (indicated below) which govern biodiversity resources and which have been ratified by Central African countries. There is no legal framework peculiar to the sub-region for managing common, shared and trans-border biodiversity.

Noteworthy among the instruments governing biodiversity management are :

*** Instruments of a global level :**

- the Convention on the protection of cultural and natural heritage (Paris, 1972);
- the Protocol on the control of chlorofluorocarbons (CFC), (Montreal, 1987);
- the Convention on climate change (Rio de Janeiro, 1992);
- the Convention on biodiversity (Rio de Janeiro, 1992);
- The Bonn Convention;
- The Ramsar Convention.

*** Instruments at continental sphere :**

- the Convention on the conservation of nature and natural resources (Algiers, 1968);
- the Convention on the import of toxic wastes in Africa and the trans-border movement of harmful wastes and on their management;
- The Convention on desertification.

*** Instruments at sub-regional level:**

- the Agreement on the establishment of the Lake Chad Basin Commission;
- the Agreement on the joint settlement on fauna and flora in the lake Chad Basin (Enugu, 1977);
- the Convention on cooperation in the protection and development of the marine area and the coastal regions in West and Central Africa (Abidjan, 1981);
- the Agreement on co-operation and consultation between Central African States regarding wildlife (Libreville, 1983).

* Sub-regional bodies focusing on biodiversity conservation and use

comprise *inter alia* ; CEMAC, CEFDHAC, ATO, OCFSA, CPGL, ECOFAC, RAAF.

3.10.2. Difficulties

The sub-regional bodies(mentioned above) encounter many difficulties. CEMAC comprises only six countries of the sub-region (Cameroon, Republic of Congo, Gabon, Chad, CAR and Equatorial Guinea), whilst ECCAS with a wider jurisdiction is paralysed by shortage of financial resources owing to the non-payment of contributions by member countries.

3.10.3. Objective

In the face of these difficulties, the following objective was identified :

- To promote the putting in place of an adequate legal and institutional framework for the conservation and sustainable use of common, shared and trans-border resources.

3.10.4. Actions

The following actions were retained to meet the above-mentioned objectives:

3.10.4.1. Ongoing actions

Implementation of the conclusions of the study of forestry policies in Central Africa.

3.10.4.2. Proposed actions

- Promote the harmonisation of techniques for managing trans-border protected areas;
- encourage the implementation of biodiversity-related conventions;
- strengthen sub-regional organs for the consultation of stakeholders in Central African forest ecosystems;
- support the harmonisation of donor strategies for the management of common, shared and trans-border resources;

- promote a follow-up system and regular evaluation of legislations.

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3.10.5. Indicators

- the number of sub-regional plans on biodiversity resources management has increased;
- the level of application of the recommendations made during sub-regional consultation meetings is improved.

3.11. SOURCES OF FUNDING OF BIOLOGICAL DIVERSITY

3.11.1. Resource status

The current sources of financing of biological diversity conservation actions in Central Africa are mostly external : European Commission, World Bank, GEF, UNDP, DGIS, CARPE, DFID, BSP, WWF, UICN, WCS, GTZ, French Cooperation, CAID, CITES, CARE-International as well as various foundations including the Mc Arthur and Ford Foundations. The exact amount of money mobilised is not known. However, international assistance is target-specific and generally tied to a short- or medium-term project or programme cycle. Besides, this assistance shrinks in real terms.

Public funds, on their part, are low while private sub-regional capital is wholly absent.

3.11.2. Problems

The assessment of funding needs for biodiversity conservation is a poorly defined area, fraught with conceptual and statistical controversies. However, Wilkie estimated (Wilkie et al 2000) that countries needed to invest 32 million US dollars yearly, an amount countries would have to invest for the sustainability of their biological diversity in protected areas in forested zones. In view of the prevailing situation, however, the countries concerned cannot invest such an amount in biodiversity conservation.

3.11.3. Objective

- Mobilise the necessary financial resources.

3.11.4. Actions

- foster cooperation in sustainable management programmes for common, shared and cross-border resources;
- set up a sustainable financing mechanism for perpetuating actions geared towards the sustainable management of common, shared and cross-border ecosystems.

3.11.5. Indicators

- the amount of available funds allocated to the management of the ecosystems of Central Africa;
- the number of projects/programmes funded.

3.12. INCENTIVES

This relates to mechanisms that would encourage a person to conserve biodiversity and environmental resources while using them in a sustainable manner.

3.12.1. The issue

The link between conservation and development is to be sought in economic incentives embedded in the debate on the equitable distribution of proceeds derived from the conservation of forest ecosystems (Nguinguri, 1997).

These incentives should be used both to secure the participation of the population by pointing out to them the benefits of conservation and to bring the private sector to adhere to “responsible practices”. They are either direct or indirect (OECD, 1999; WWF, 1998). The wages paid to project workers (ECOFAC pays 10 million CFA francs as wages in the Dja area) and the financial benefits derived from tourism activities – sight seeing and hunting – fall under direct incentives. This new source of income can undoubtedly have a positive impact on conservation. In Conkouati, Congo, the recruitment of ecoguards from among the class of

hunters has caused a drastic fall in the volume of game meat shipped to Pointe-Noire (Nguinguiri, 1999).

3.12.2. *Impact*

Owing to the many conflicts which break out at the start of most conservation/development projects, economic incentives play a crucial role in establishing the basis of trust. They thus help to win acceptance for the project. However, as De Wachter (1997 : 8) points out : We should give attention to the “free rider” problem : communities may be provided with public property, yet this will not stop the commercial hunter from continuing to hunt, since there is no link between the behaviour of the hunter and the provision of the public property”. This deviation is frequently reported; unfortunately it is not easy to deal with it.

The fiscal measures taken to encourage the development and industrialisation of the timber sectors of the respective countries have had a negative effect characterised by the “nomadic movements” of logging companies which contribute to the profitability differentials among the various countries. The low level of forestry taxes in the sub-region and the prices of forest products fixed by the administration do not promote biodiversity protection and is at the forefront of the wastage noticed in the exploitation of timber resources (World Bank, 1991).

3.12.3. *Objectives*

To address these problems, the following objective has been identified :

- promote incentive measures which encourage the various stakeholders to adopt sound practices for the conservation and sustainable use of biodiversity.

3.12.3. *Actions*

- promote the formulation and application of an environment tax scheme;
- foster ecodevelopment and ecotourism;
- encourage the preparation at sub-regional level of statutory measures to attract investments;
- encourage certification initiatives.

3.12.4. *Indicators*

- Number of sub-regional incentive reforms (economic and fiscal);
- Number of ecodevelopment projects;
- Earnings from ecotourism have increased;
- Transparency in the grant of forest concessions has improved.

4. VISION

Vision is a state or condition hoped for in the future. To work out a vision for biological diversity in Central Africa consists of imagining a state of the environment anticipated in the next 20 to 25 years' time. As was said in the preface, SAP is expected to cover a ten-year period (2000-2009). The implementation of the SAP, which objectives are short- and medium-term will contribute to the realisation of its long-term objective (Vision).

The various regional workshops organised in the course of preparing the SAP, did not formulate a sub-regional vision on biodiversity conservation. While formulating this vision during the editing of the preliminary draft of SAP, the following factors were taken into account:

- Central African countries are sovereign as far as the conservation and use of the resources of biological diversity are concerned;
- Central African countries insist on the use of biological diversity for purposes of sustainable development;
- Central African countries have committed themselves to the conservation of biological diversity;
- Central African countries are determined to strengthen sub-regional co-operation in the sustainable conservation of biological diversity.

Taking into account the objectives of the Convention on Biological Diversity, problems of sustainable management of common, shared and transboundary resources identified during sub-regional workshops (national reports and regional workshop reports) and the aforementioned concerns, the following prospective vision were retained as regards the state of biodiversity:

"A Central Africa that conserves and uses biodiversity sustainably"

For this vision to become a reality, and taking into consideration the various analysis made during the regional workshops and in national reports, it is necessary that the following main changes be achieved at short and/or medium term:

- That countries approve the SAP;
- That countries commit themselves to seeking solutions to priority common, shared and transboundary environmental and especially biodiversity problems;
- That concerted interest of donors on biodiversity in the Congo Basin be supported and that they generate flow of adequate funds for the sustainable management of common resources;
- That the broadest participatory approach be used.
- That sub-regional capacities in biodiversity management be strengthened;
- That all stakeholders, including donors be involved in the implementation of the SAP;

- That environmental good governance be effective.

To this end, operational objectives were defined for the preliminary draft of the SAP. These objectives are the outcome of thematic analyses identified above. They represent the translation in operational terms of the vision.

OBJECTIVES

| Theme | Objectives |
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| Theme 1: Protected Areas | <ul style="list-style-type: none"> - Promote the setting up of a network of protected areas for peace; - Promote sustainable management of shared and transboundary protected areas. |
| Theme 2: Terrestrial Faunal Resources | Contribute to the sustainable management of wild fauna by fighting poaching. |
| Theme 3: Marine, Coastal and Freshwater Biodiversity | <ul style="list-style-type: none"> - Preserve the integrity and productivity of ecosystems; - Fight against the over-exploitation of water resources potential. |
| Theme 4: Forest and non forest Resources | |
| Sub-theme 1: Forest Resources | - Ensure the sustainable management of forest concessions in transboundary areas. |
| Sub-theme 2: Non-Timber Forest resources | Promote sustainable use of non-timber forest products. |
| Theme 5: Threatened Species | - Ensure the protection of threatened species in Central African. |
| Theme 6 Montane biodiversity | - Promote the conservation and sustainable use of montane ecosystems |
| Theme 7: Energy Resources | <ul style="list-style-type: none"> - Promote the valorisation of environmentally friendly energy resources; - Promote the use of alternative |

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| | sources of energy other than wood and the reforestation of Eastern DRC, Rwanda and Burundi. |
| Theme 8: Communication, Training and Research | <ul style="list-style-type: none"> - Assist stakeholders of the Brazzaville Process in the search for desired research changes; - Support existing research bodies in a bid to create sub-regional reference centre of environmental research focussing on the conservation and sustainable use of biodiversity; - Strengthen sub-regional capacities in the design and implementation of methods of sustainable management of biodiversity; - Strengthen sub-regional co-operation in the area of training and research on biodiversity. |
| Theme 9: Environmental Emergencies and Assessments | - Promote "responsible practices" in order to reduce the impact of economic activities on the environment. |
| Theme 10: Legal and Institutional Framework | Promote the setting up of an adequate legal and institutional framework for the conservation and sustainable exploitation of common, shared and transboundary resources. |
| Theme 11: Funding Sources for Biological Diversity | Mobilise required financial resources. |
| Theme 12 : Incentive Measures | - Promote incentive measures that encourage various actors to adopt practices of conservation and sustainable use of biodiversity. |

5. LOGICAL FRAMEWORK

This chapter presents, according to theme, indicators, verification sources of outputs and suppositions identified during the elaboration of the preliminary draft of the SAP.

| Strategy | Indicators | Sources | Supposition |
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| <u>Vision.:</u> A Central Africa that conserves and sustainably uses its biological diversity | | | |

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| <p>Objectif : Sustainable management of biodiversity in Central Africa</p> | <ul style="list-style-type: none"> • Application of conventions and texts on biological diversity is progressively generalised • Key species representing biological diversity are maintained, restored and/or increased • Co-management of biodiversity is effective everywhere in the Congo Basin • The Sub-region has a common and concerted position on biodiversity conservation during regional/international meetings | <p>Reports</p> <ul style="list-style-type: none"> • Activities • Studies and survey • Monitoring and Evaluation (M and E) | <ul style="list-style-type: none"> • Real political will • Concerted interest of donors on biodiversity in the Congo Basin is sustained • All stakeholders (including donors) are implicated in the execution of the SAP • Fire arms and munitions are controlled • Good governance • The control of firearms and ammunition are intensified |
| <p><u>Expected outputs :</u></p> | <p>Activity</p> | <p>Indicator</p> | <p>Sources</p> |

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| <p>Biodiversity in Protected Areas is conserved</p> | <p>1.1 Establish a sub-regional network to exchange experiences on the management of protected areas;</p> <p>1.2 Facilitate the establishment of an observatory to ecologically monitor biodiversity in the Congo Basin;</p> <p>1.3 Start pilot projects on the management of transboundary Protected Areas with the strong involvement of local populations;</p> <p>1.4 Encourage the implementation of corridors for biological exchanges and support the creation of new transboundary protected areas;</p> <p>1.5 Proceed with the cartography of transboundary protected areas and other potential zones.</p> | <ul style="list-style-type: none"> • The Number of transfrontier Protected Areas having management plans under execution have increased; • Key species maintained have/or are increasing | <ul style="list-style-type: none"> • Management Plan; • Activity Reports , studies, and M and E |
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| <p>2. Faunal resources are sustainably managed</p> | <p>2.1 Promote the valorisation of wild life; 2.2 Encourage the reduction of poaching and illegal sale of wildlife species; 2.3 Promote sustainable management practices of wildlife species; 2.4 Enhance the implementation of International Conventions on endangered fauna and flora species (CITES or the Washington Convention), the Convention on Biodiversity and provisions of national laws on the sustainable use of wildlife 2.5 Training on the implementation of International Conventions on the management of wildlife species; 2.6 Reinforce the establishment of infrastructures to control, signal and reduce poaching linked to forest exploitation, hydrocarbons exploitation and road projects; 2.7 Promote inventories on fauna; 2.8 Promote collaborative management of wildlife</p> | <ul style="list-style-type: none"> • Poaching has reduced; • Number and quality of regional initiatives on concerted management has increased; • Number and quality of alternative initiatives on the over exploitation of wildlife | <ul style="list-style-type: none"> • Management plan • Activity reports, studies, survey and M & E |
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| <p>3. The integrity and productivity of ecosystems are preserved and overexploitation of potential water resources is limited</p> | <p>3.1 Establish a sub-regional observatory network of coastal zones to prevent and fight against the degradation of resources and marine zones;</p> <p>3.2 Enhance studies and the observation of littoral and marine zones to improve the protection and optimise the use of coastal and marine resources;</p> <p>3.3 Promote the reduction of wastes and the degradation of marines, coastal and freshwater ecosystems through the utilisation of environmentally friendly fishing techniques, as well as through the industrial transformation of products with least commercial values;</p> <p>3.4 Promote activities linked to marine, coastal, freshwater ecosystems with commercial value such as sea-related tourism (fishing sports, site seeing, etc);</p> | <ul style="list-style-type: none"> • by 2009 a network for the observation of marine, coastal and freshwater biodiversity is established; • Training on the techniques to reduce wastage are carried out; • The number of sports fishing and tourists has increased; • The ecosystems of the Island of Bioko is reserved; • The ecosystems of Conkouate and Muyumba are reserved; • The number of sub-regional initiatives favouring concerted management of biological diversity has increased; | <ul style="list-style-type: none"> • Management plan • Activity reports, studies, survey and M & E |
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| | <p>3.5 Protect marine and coastal heritage through earmarking of zones representing the biodiversity of such areas;</p> <p>3.6 Promote the maintenance of waterways and inland water basins;</p> <p>3.7. Promote water resources research.</p> | <ul style="list-style-type: none"> • The proportion of critical species is reconstituted • Stock of fish increased | <ul style="list-style-type: none"> • |
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| <p>4. 1 The sustainable management of transborder forest ecosystems is ensured</p> | <p>4.1.1 Facilitate the setting up of an observatory for the sustainable management of forest concessions in transfrontier areas; 4.1.2 Support IFIA in promoting the Code of conduct for the management of forest concession; 4.1.3 Support existing initiatives on the sustainable management of forests and certification; 4.1.4 Harmonise forest taxation; 4.1.5 Promote community forestry; 4.1.6 Promote the participation of riverine population in the sustainable management of border forest stretches; 4.1.7 Monitoring world forests (Global Forest Watch)</p> | <ul style="list-style-type: none"> • Forest potential is consistently increasing in quantity and quality; • The number of well managed forest concessions has increased; • The number of hectares of border forests regenerated has increased; • An observatory for the sustainable management of forest concessions in transboundary zones is functional; • The number of owners of forest concessions in border areas who have adhered to, and respect the code of conduct of forest concessions has increased; | |
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| <p>4.2. The Sustainable use of non-timber forest products is promoted</p> | <p>4.2.1 Ameliorate the knowledge of NTFP; 4.2.2 Sensitise populations and Governments in Central African countries on the techniques of the sustainable use of NTFP; 4.2.3 Encourage countries of Central Africa to regulate the harvesting and sale of NTFP.</p> | <ul style="list-style-type: none"> • The number of studies carried out; • Populations are rationally using NTFP; • The harvesting and sale of NTFP are regulated | |
| <p>5. The protection of endangered species in Central Africa is ensured</p> | <p>5.1 Support the Project on the Monitoring of Illegal Killing of Elephants (M.I.K.E); 5.2 Promote the application of the Washington Convention; 5.3 Organise the training on the identification of endangered species.</p> | <ul style="list-style-type: none"> • The number of endangered species has reduced; • The number of meetings on the reflection on the conservation of endangered species; • Increase in the population of endangered species | |

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| <p>6. The Conservation and sustainable use of montane ecosystems is promoted</p> | <p>6.1 Promote the classification and management of transfrontier mountain ecosystems as Protected Areas;</p> <p>6.2 Promote sub-regional/international co-operation in monitoring volcanic eruptions around active volcanoes like the Nyiragongo and Nyamuragira Mountains in Rwanda and Mount Cameroon;</p> <p>6.3 Promote the management of transfrontier mountain chains in the sub-region; the Sabyinyo Mountains, for example, which stretches over Rwanda, Uganda and DRC;</p> | <ul style="list-style-type: none"> • A number of mountain ecosystems are classified as Protected Areas; • A number of elaborated emergency measures for territories with active volcanoes; • A number of integrated transfrontier montane ecosystems; • A number of research initiatives are actively followed | |
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| | <p>6.4 Develop a mechanism for the management of transboundary montane ecosystems like those of protected areas;</p> <p>6.5 Develop urgent measures to consider biodiversity on territories with active volcanoes like Mount Cameroon and Mount Nyiragongo;</p> <p>Establish an integrated management plan of shared and/or transfrontier montane ecosystems</p> | <ul style="list-style-type: none"> • | |
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| <p>7. Environmental friendly energy resources and alternative to wood are valorised; and the reforestation of DRC, of Rwanda and of Burundi are developed</p> | <p>7.1 Enhance regional capacities in monitoring the exploration, production, transportation and amassing of energy;</p> <p>7.2 Constitute a network to exchange experiences on studies to normalise impacts, notably, on exploitation of fossil fuels on the environment;</p> <p>7.3 Support reforestation activities in transfrontier zones in countries of the Great Lakes and the rehabilitation of transfrontier ecosystems.</p> | <ul style="list-style-type: none"> • A network to exchange experiences is constituted; • The reforestation surface and tranfrontier; ecosystems rehabilitated has increased; • Training on the follow-up of production activities and amassing of energy is organised. | |
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| <p>8.1 A communication strategy for the CEFDHAC is implemented</p> | <p>8.1 Implement the communication strategy of the CEFDHAC</p> | <ul style="list-style-type: none"> • Policy makers are regularly informed on the challenges of conservation and sustainable use of forest ecosystems in Central Africa; • Products of the Brazzaville Process are known by stakeholders of the Brazzaville Process | |
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| <p>8.2</p> <ul style="list-style-type: none"> ▪ A sub-regional applied research “reference centre” on the conservation and sustainable use of biodiversity is created; ▪ The capacity of the sub-region in conceptualising and implementing methods of sustainable management of biodiversity is enhanced; | <p>8.2.2 8.2.1 Update the training programmes of sub-regional training organisation in the domain of forestry management and inventory , industrialisation and woodwork, forest ecology, community management, conflict resolution and the preparation of co-management agreement, the domestication of fruit trees, analysis of the pharmacological cleanliness of medicinal plants and the development of medicinal preparation;</p> | <ul style="list-style-type: none"> • The number of training programmes is updated; • Trainings on new approaches (governance, conflict management, collaborative management, etc) are organised; • A sub-regional network for researchers on biodiversity is instituted; • The number and quality of sub-regional research programmes is implemented | |
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| <p>▪ Sub-Regional co-operation in training and research on biological diversity is reinforced</p> | <p>8.2.3 Uplift the image of the regional school (post-graduate) for tropical forest (ERAIFT);</p> <p>8.2.4 Establish sub-regional research programmes implicating all sub-regional research institutes;</p> <p>8.2.5 Promote sub-regional scientific networks;</p> <p>8.2.6 strengthen communication through the INTERNET, notably with the creation of a data base;</p> <p>8.2.7 Reinforce the training of specialist and trainers;</p> <p>Promote appropriate forms of communication adapted to local communities.</p> | | |
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| <p>9. “Responsible practices” to reduce the impact of economic activities on the environment is promoted</p> | <p>9.1 Facilitate the setting up of a rapid alert system and/or the prevention of catastrophes; 9.2 Promote the co-ordination of interventions during catastrophes; 9.3 Encourage the restoration of sites damaged by catastrophes; 9.4 Encourage the fight against unwanted species like water hycinth and other unwanted organisms.</p> | <ul style="list-style-type: none"> • Number of alert systems are operational; • Number of emergency intervention is implemented; • Number of sites are restored; • A network of parks for peace is functional; | |
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| <p>10. An adequate legal and institutional framework for the conservation and sustainable exploitation of common, shared and transfrontier resources is established</p> | <p>10.1 Promote the harmonisation of approaches to manage transfrontier protected areas; 10.2 Encourage the implementation of the convention on biodiversity; 10.3 Reinforce sub-regional meetings of forest ecosystems experts in Central Africa; 10.4 Support the harmonisation of donors' strategies vis à vis common, shared and transfrontier resources; 10.5 Promote a regular monitoring and evaluation system of legislations.</p> | <ul style="list-style-type: none"> • The number of sub-regional plans on the management of biological diversity has increased; • The level of implementing recommendations accepted during sub-regional consultation meetings has increased; | |
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| <p>11. Necessary financial resources that will be durable in the sustainable management of common, shared and transfrontier ecosystems of Central Africa is available</p> | <p>11.1 Promote co-operation in favour of sustainable funding of common, shared and transfrontier conservation programmes; 11.2 Establish a sustainable finance mechanism that will sustain actions favouring the sustainable management of common, shared and transfrontier ecosystems.</p> | <ul style="list-style-type: none"> • Amount of funds available for the management of ecosystems in Central Africa; • Number of projects/programmes financed. | |
| <p>12. Incentive measures that encourage actors to adopt conservation and sustainable use practices of biodiversity, are promoted.</p> | <p>12.1 Promote the elaboration and application of environmental taxation; 12.2 Promote eco-development and eco-tourism; 12.3 Encourage the elaboration at sub-regional level regulatory measures that will act as incentives to investors; 12.4 Encourage certification initiatives.</p> | <ul style="list-style-type: none"> • Promote the elaboration and implementation of environmental taxation; • Promote eco-development and eco-tourism; • Encourage the elaboration of regulatory measures (incentives) in the sub-region that attract investors; • Encourage certification initiatives | |

EXECUTING PARTNERS

| THEMES | ON-GOING ACTIONS | PROPOSED ACTIONS |
|-------------------------------------|---|--|
| Protected Areas | Ministries, IUCN, UNESCO, WWF, ECOFAC, CARPE, GEF, PRGIE, GTZ, WCS, SNV, TREES, Mc Arthur Foundation, PICG, local NGOs, local populations, Logging Companies. | Ministries, IUCN, UNESCO, WWF, ECOFAC, CARPE, GEF, PRGIE, GTZ, WCS, SNV, TREES, Mc Arthur Foundation, HCR, local NGOs, local populations, Logging Companies. |
| Wildlife resources | Ministries, ECOFAC, CARPE, GEF, World Bank, UNDP, OCFSA, European Commission, Economic Operators, UNESCO, NGOs, local populations | Ministries, ECOFAC, CARPE, GEF, World Bank, UNDP, OCFSA, European Commission, Economic Operators, UNESCO, NGOs, local populations |
| Marine and coastal resources | Ministries, fishermen, ship owners, local populations, tourism operators , OAU, NGOs. | Ministries, fishermen, ship owners, local populations, tourism operators , OAU, CEMAC, IUCN, COREP, Oil Companies. |
| Timber resources | Governments, ATO, IFIA, Managers of Forest Concession, ITTO, NGOs WRI, WCS, WWF, WCS, WWF-Belgium. | Governments, ATO, IFIA, Managers of Forest Concession, ITTO, NGOs WRI, WCS, WWF, WCS, WWF-Belgium. |
| Non-timber resources | Governments, donors, CARPE, WWF, IUCN ; CIFOR, ECOFAC, PRGIE, local populations. | Governments, donors, CARPE, WWF, IUCN ; CIFOR, ECOFAC, PRGIE, local populations. |
| Endangered species | Ministries, WWF, WCS, IUCN, ECOFAC, PRGIE, local NGOs, donors, local populations, CITES. | Ministries, WWF, WCS, IUCN, ECOFAC, PRGIE, local NGOs, donors, local populations, CITES |
| Montane Biodiversity | Governments, funding bodies, NGOs, IUCN, WWF, CARPE, ECOFAC, WCS, | Governments, funding bodies, NGOs, IUCN, WWF, CARPE, |

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| | BIRDLIFE ; Research Institutes (ICRAF, CIFOR, IRD, TROPENBOS, UNESCO, ILRI, Groupe Perrier, etc.) | ECOFAC, WCS, BIRDLIFE ; Research Institutes (ICRAF, CIFOR, IRD, TROPENBOS, UNESCO, ILRI, Groupe Perrier, etc.) |
| Energy Resources | Ministries, GEF, INECN, ICCN, IUCN, UNESCO, WFP, HCR, FAO, CARPE, Mc Arthur Foundation, ORTPN, local populations, NGOs. | Ministries, Oil companies, GEF, UUDP, agencies in-charge of energy, water, the environment, local populations, NGOs, |
| Communication | Ministries, national and regional NGOs, IUCN, CARPE, ECOFAC | Ministries, UNESCO, ECOFAC, PRGIE, CIFOR, GTZ, CIRAD, universities and specialised training centres, local populations, economic operators |
| Environmental emergencies and evaluation | Governments, Oil companies, OAU, CEMAC, NGOs, populations, etc. | Governments, Oil companies, OAU, CEMAC, NGOs, populations, etc. |
| Legal and institutional framework | Ministries, funding bodies, NGOs, local populations, parliamentarians. | Ministries, funding bodies, NGOs, local populations, parliamentarians. |
| Sources of funding for BD | Central African governments, the European Commission, the World Bank, UNDP, DGIS, CARPE, DFID, IUCN, WWF, CARPE, Mc Arthur Foundation, BMZ, GTZ, Forest Exploiters, Oil companies. | Central African governments, the European Commission, the World Bank, UNDP, DGIS, CARPE, DFID, IUCN, WWF, CARPE, Mc Arthur Foundation, BMZ, GTZ, Forest Exploiters, Oil companies. |
| Incentive | Governments, international | |

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| measures | funding bodies , private sector, ATO, ATIBT, IFIA, IUCN, ECOFAC, CEMAC, etc. | |
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6. MONITORING AND EVALUATION

6.1. OVERVIEW

The number of partners needed in the realisation of the SAP (ministers, parliamentarians, technicians, economic operators, co-operation agencies, NGOs, etc.) and the need to manage their synergy, will require a systematic monitoring and evaluation of activities. Lessons can be drawn from this process to correct mistakes. It is therefore a closed and permanent loop linking lessons, planning and actions.

6.2. OBJECTIVES

The monitoring and evaluation process aims at three main objectives:

- set shared, realistic and clear objectives per activity;
- measure the gaps between actual figures and estimates and thus identify problems relevant to the execution of the activities;
- propose corrective measures.

6.3. OTHER ASPECTS OF MONITORING AND EVALUATION

Monitoring and evaluation of the SAP shall be done internally and externally. They will constitute permanent management instruments of the SAP activities. Their efficiency will depend on the type and frequency of information that will be circulated within the SAP projects. Each project shall have its own retro-control system that will include information concerning the staff, the budget, technical and administrative

data, etc. This system should include meetings/discussions at regular intervals (for example: daily, weekly and monthly meetings). These meeting will cover all issues (personnel, budget, evolution of activities, etc.) relating to the activities of the project. Decisions should be clearly worded to enable them to be implemented and evaluated.

Monitoring and evaluation shall be done using technical and project management reports.

External evaluation will consist of a series of technical and financial reports and/or visits to projects by independent evaluation teams.

Planning methods such as the ZOPP or the logical framework will be used to enable monitoring and evaluation indicators to be defined.

Monitoring and evaluation indicators for each project will be specified in a concerted manner by the actors before the start of the project. During the execution of the project, the indicator values will be regularly forwarded to the Secretariat of the Brazzaville Process, the later will then consolidate them thus constituting a SAP flowchart.

Each semester, flowcharts produced by the Secretariat of the Brazzaville Process will de distributed to the project's partners. Furthermore, a monitoring and evaluation report will be produced once every year: it will prepare planning and monitoring workshops for activities of the year ahead where problems encountered by SAP projects will be discussed. Corrective measures could thus be taken.

6.4. AUDIT

Each SAP project will be audited yearly. Annual financial reports of the project will be verified by an auditing firm which will be selected and paid by the project. It will produce an audit report and certify financial accounts.

6.5. FINAL EVALUATION

Besides periodic reports and mid-term reviews, each SAP project shall produce an exhaustive report on its achievements (performance, impact and experience acquired) six months before its end.

The costing for monitoring and evaluation activities for each project shall be budgeted

REFERENCES

Anonyme, 2000: Projet d'Elaboration d'un Plan d'Action Stratégique pour la Gestion Durable de la Biodiversité dans la Bassin du Congo (PAS): Rapport de l'Atelier de Conception de projets. Kribi, Cameroun, 6-7 Avril 2000. Secrétariat de la CEFDHAC, Yaoundé, Cameroun

Aubé J., 1996.- *Approche pour favoriser le développement des Produits Forestiers Non-Ligneux dans le cadre de CARPE*

Bahuchet, S. 1995.- State of indigenous populations living in rainforest areas. European Commission DG XI Environment Brussels.

Banque mondiale, 1994. - Stratégie pour le secteur forestier en Afrique sub-saharienne.

Bello Y., 1998.-. *Circulation et commerce sous-régional de la faune sauvage*. Communication à la Deuxième Conférence sur les Ecosystèmes de Forêt Denses et Humides d'Afrique Centrale (CEFDHAC), Bata 08 – 10 Juin 1998. UICN-Bureau Régional pour l'Afrique Centrale, Yaoundé, Cameroun.

Bennet, A.F., 1998.- Linkages in the Landscape: The role of Corridors and Connectivity in Wildlife Conservation. IUCN, Gland, Switzerland and Cambridge, UK. X+254 pp.

Bergmans W., 1998.- Biological diversity of the Congo Basin. In «The Congo Basin », by IUCN.

Bigawa S. 1999.- Synthèse et analyse diagnostique de l'état de la biodiversité au Burundi. UICN-CEFDHAC, Projet PAS, 54 p.

Brenan, J.P.M., 1998.- Some aspects of the phytogeography of tropical Africa. *Annals of the Missouri Botanical Garden* 65-437-478.

BSP, 1993.- Central Africa global climate and development-technical report. Biodiversity Support Programme, Washington, D.C.

Caballé G. et Fontés, J., 1977.-Formations végétales. Planche A9 (échelle : 1 :2 000 000) in Atlas du Gabon, Ed. Berger-Levrault, Dir. Raphaelle Walter.

CAJAD, 2000.- *Domestication Project of Gnetum africanum ("Eru") to the communities in Central Africa.* a project proposal.

CEFDHAC, 1996.- Actes de la première Conférence. Brazzaville.

CIRAD, 2000.- Forêts/institutions et développement. Audit Economique et Financier du secteur forestier au Cameroun.

Damio T., Selebangue P., 1999.- Synthèse et analyse diagnostique de l'état de la biodiversité en République Centrafricaine, UICN-CEFDHAC, Projet PAS, 62 p.

Delvingt W., 1997.- La chasse villageoise: Synthèse régional des études réalisées durant la première phase du Programme ECOFAC au Cameroun, au Congo et en République Centrafricaine. ECOFAC/AGRECO. Bruxelles, Belgique.

Dethier, M. 1995.- *Etude chasse in the Dja Reserve, Cameroon.* ECOFAC/AGRECO-CTFT, Bruxelles, Belgique.

Devred, R. n.d.- Carte de la végétation des pays de la communauté économique des pays des Grand Lacs. Programme ERTS-Zaire, Kinshasa. (à l'échelle 1 :5,000,000)

De Wachter Pauwel, 1997. UICN/Projet Dja: Document de réflexion pour la phase opérationnelle. Rapport de consultation, pour le Projet UICN-Dja, Cameroun

Doumenge, C. 1998: *La gestion des Ecosystèmes Forestiers du Cameroun, du Gabon, et de la Guinée Equatoriale à l'aube de l'An 2000.* Rapport pour la CEFDHAC. UICN, Yaoundé, Cameroun., UICN-CEFDHAC, Yaoundé Cameroun

Doumenge Ch.,1997, C., Demontar, B., Hamide, F.C., & Wassa, W. M., (1997): *Projet d'aménagement forestier de la Sangha-Mbaéré, République Centrafricaine : Utilisation et gestion des produits forestiers non ligneux,* CIRAD-Forêt.

Doumenge Ch., et alii 2000. Conservation de la biodiversité forestière en Afrique Centrale Atlantique : le réseau d'aires protégées est-t-il adéquat ? Une évaluation des systèmes d'aires protégées du Cameroun, du Gabon et de Guinée Equatoriale. A paraître dans Bois et Forêts des Tropiques, CIRAD-Forêts , France.

Edwards M., 1999.-Sites prioritaires pour les initiatives trans-frontalières de conservation. Carte pour WCMC/WWF

FAO, 1997.- Stratégie d'assistance dans le Bassin du Congo. Analyse des causes de la dégradation des Ressources forestières dans le Basin du Congo. Division du Centre d'Investissement, Programme de Coopération FAO/Banque Mondiale.

Fretey J., 1998.- Bon départ pour le programme tortues marines en Afrique centrale ! Canopée N° 12, août 1998. ECOFAC, Libreville, Gabon.

Gauthier, B. 1995, révisé en 1998. Cadre de référence théorique pour le développement durable et la biodiversité au Québec. Ministère de l'Environnement et de la faune, Direction de la Conservation et du Patrimoine Ecologique, Québec, 21p.

Grut M., GRAY J., and EGLY N., 1999.-Forest pricing and concession policies : Managing the high forest of West and Central Africa.

Habiyambere T., 1999.- Synthèse et analyse diagnostic de l'état de la biodiversité au Rwanda. UICN-CEFDHAC, Projet PAS, 49 p.

Hakizumwami E., 2000: Synthèse et analyse diagnostique de l'utilisation des Produits Forestiers Non Ligneux (PFNL) en Afrique centrale: Contribution à l'elaboration du Plan d'action Stratégique (PAS) Régional pour la gestion durable de la biodiversité des Ecosystemes Forestiers d'Afrique centrale. Rapport pour UICN-Afrique Centrale-Projet PAS, Yaoundé, Cameroun

Heymans J., 1982.-Utilisation de la viande de chasse et élevage de certaines espèces animales au Zaïre et en R.F. Benin. In : Tropical animal production for the benefit of man. Antwerp.

Peeters, L. 1964.-Les limites forêt-savane dans le Nord du Congo en relation avec le milieu géographique. CEMUBAC, Bruxelles.

Hedber O.,1951.-Vegetation belts of the East African mountains. Svensk. Bot. Tidskr. 45 :140-202

Hubert Nicolas,1993.-Shell Gabon, Centre Culturel Français (Libreville) ISBN 2-907888-26-9. Splendeurs fragiles d'Afrique centrale.

Huijbregts B., 1999.-Elephant poaching in the northern parts of the Minkebe Forest, Gabon. Mission report to WWF-Minkébé Project.

Huntley B. 1988.-Conserving and monitoring biological diversity, some African examples. In : Biodiversity. National Academy Press, Washington, D.C.

Ipalaka Y., J. Kapa Batunyi F. 1999.- Synthèse et analyse diagnostique de l'Etat de la biodiversité en République Démocratique du Congo. IUCN – CEFDHAC, Projet PAS, 140 p.

IUCN, 1998.- The Congo Basin : Human and Natural Resources.

IUCN, 1998.-Conservation et utilisation rationnelle des écosystèmes forestiers en Afrique Centrale : Rapport national, Zaïre (document de travail). Gland

IUCN (1998). - 1997 United Nations List of Protected Areas: Prepared by WCMC and WCPA. IUCN, Gland, Switzerland and Cambridge, UK.1xii+412pp.

IUCN, 1996.-Les écosystèmes de forêts denses et humides d'Afrique centrale. Acte de la Conférence Inaugurale.

IUCN, 1996.-1996 IUCN Red List of Threatened Animals. IUCN, Gland, Switzerland

IUCN, 1992.-The Conservation Atlas of Tropical Forests : Africa.

IUCN/UNEP, 1987. The IUCN Directory of Afrotropical Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. Xix+1034pp.

Jenkins, M. 1992.- Biological diversity : 26-32. In : Sayer et al., The Conservation atlas of tropical forests ; Africa. Macmillan, United Kingdom.

Koechlin, J., 1961.- La végétation des savanes dans le sud de la République du Congo. ORSTOM , Paris.

Kolokosso B. et Porteous I., 1999.- Projet d'élaboration du Plan d'Action Stratégique pour la conservation de la biodiversité et de l'Utilisation Durable des Ressources Naturelles des Ecosystèmes Forestiers du Bassin du Congo. Rapport du Premier Atelier, Doula, Cameroun, 29-30 novembre 1999.

Kornélia, I, 1998.- Une activité économique qui se nourrit de la Crise : le commerce de viande. Communication au séminaire/atelier sur l'exploitation durable de la faune dans le sud-est du Cameroun.

Le Monde, 2000.- L'analyse de 174 pays et des régions françaises. Edition 2000.

Makaya J.F. 1999.- Synthèse et analyse des informations afférentes à la biodiversité le long du littoral congolais.

Mandjek Iyebi, O. , Talatala B., 1999.- Synthèse et analyse diagnostic de l'état de la biodiversité au Cameroun. UICN-CEFDHAC, Projet PAS, 63 p.

Mayaux, Philippe, Eve Janodet, Christopher Blair-Myers and Pascale Legeay- Janvier,1997.-. Vegetation map of Central Africa at 1 :5 000 000.

Mbog, D. M. 1999.- Synthèse et analyse diagnostique de l'état de la biodiversité au Cameroun : cas du milieu côtier. UICN-CEFDHAC, Projet PAS, 105 p.

Micha Ondo, V. ONA NZE, N. 1999.- Synthèse et analyse diagnostique de l'état de la biodiversité en Guinée Equatoriale, UICN-CEFDHAC, Projet PAS, 51 p.

Nasi R. 1996.- Le projet FORAFRI et la recherche forestière en Afrique centrale. Compte rendu de l'atelier sur les programmes de recherche en forêt naturelle au Congo. FORAFRI,

Ndinga A., 1996. Et si les sociétés ne participaient pas au développement durable ?Brazzaville.84p.

Ndoye O., 1998.- Valorisation des produits forestiers autres que le bois : Eléments de réflexion pour la deuxième Conférence sur les Ecosystèmes de Forêts Denses et Humides d'Afrique Centrale (CEFDHAC), Bata Guinée Equatoriale, 08-10 juin 1998

Ngnegueu P.R., 1998.- Exploitation de la faune sauvage dans la région du Dja (sud-est Cameroun). Communication au séminaire/atelier sur l'exploitation durable de la faune dans le sud-est du Cameroun. Ministère de la recherche scientifique, CIFOR, coopération française. 10-13 décembre 1996.

Nguingui J.C.,1997. Les approches participatives dans la gestion des écosystèmes forestiers d'Afrique Centrale. Revue des initiatives existantes. CIFOR, occasional paper.

Njifakue I. et Porteous I., 2000.- Rapport du deuxième atelier de planification du Plan d'Action Stratégique pour la conservation de la biodiversité en Afrique centrale: Rapport de l'atelier pour la CEFDHAC, Malabo, Guinée Equatoriale du 07 au 09 Mars 2000.

Nkéoua G. et Nkombo G., 1999.- Synthèse et analyse diagnostic de l'état de la biodiversité au Congo. UICN-CEFDHAC, Projet PAS, 56 p.

Oslisly, R. 1998.-The history of human settlement in the middle ogooué valley (Gabon) : implication for the environment in W. Weber, A. Veder, H. Simons Morland, L.J.T. White, and T. Hart, editors. African Rainforest ecology and conservation. Yale University Press, New Haven.

Oslisly R. 1995.-The middle Ogooué valley, Gabon : Cultural changes and palaeoclimatic implication of the last four millenia. Azania. 39-40 :324-331.

Overseas Development Institute,1997.-The Forestry Sector in the Congo-Basin-Introductory Overview of Donor Activities.

Peeters L., 1964.-Les limites forêt-savane dans le Nord du Congo en relation avec le milieu géographique. CEMUBAC, Bruxelles.

Plouvier D., 1998.-The situation of Tropical Moist Forest and Forest Management in Central Africa and markets for African Timber. In « The Congo basin : Human and Natural Resources.

PNAE, 2000.- Plan d'Action National pour l'Environnement. Doc multigr ; Gabon.

Porteous I., 1999.- Projet d'élaboration d'un Plan d'Action Stratégique (PAS) pour la Conservation et la Gestion de la Biodiversité des Ecosystèmes Forestiers du Bassin du Congo: Notes de synthèse des documents nationaux sur l'application de la Convention sur la biodiversité (CBD) dans la région. UICN-Bureau Régional pour l'Afrique Centrale, Yaoundé, Cameroun

Prescott J., Gauthier, B. et J. Nagahuedi Mbongu Sodi, 2000.- (en préparation). La planification stratégique de la biodiversité dans un contexte de développement durable. PNUD, IEPF et Ministère de l'Environnement du Québec.

Richard G. Tarasofsky (ed.), 1999.- *Assessing the international Forest regime*. IUCN, Gland, Switzerland, Cambridge, UK and Bonn, Germany. xii + 156pp.

Sournia G., 1998.- Les aires protégées d'Afrique centrale. ACCT. Editions Jean-Pierre de Monza.

Steel L., 1994.- Etude sur la quantité de la viande de brousse commercialisable au Gabon. In Projet Forêts et Environnement (PFE), Gabon. Actes du Colloque National sur la lutte contre le braconnage, Libreville, 23-25 novembre 1994

Stiassny M. et Meyer A. 1999.- La naissance des espèces. Revue pour la Science, Numéro de avril 1999. pages 70-75.

Tchappi G.F. ,1997.- Etude de la filière chasse commerciale dans la région de Lomié, Est Cameroun.

Tchatat M., 1999.- Produits forestiers Autres que le bois d'œuvre (PFAB) : place dans l'aménagement durable des forêts denses humides d'Afrique Centrale. Rapport pour FORAFRI, Libreville Gabon.

Twagirashyaka F., 1999 : Valorisation des Produits Forestiers Non Ligneux et l'Ecotourisme dans la Région de Lomié. Rapport pour UICN-Dja, Lomié et D.Ü (Dienste in Ubersee), Allemagne

UICN-BRAC, 1999.- Elaboration d'un Plan d'Action Stratégique (PAS) régional pour les ressources de l'environnement et de la diversité biologique des écosystèmes du bassin du Congo: Document de projet financé par PNUD-GEF.

Vandenput, R., 1981.-Les principales cultures en Afrique Centrale. Administration Générale de la Coopération au Développement, Bruxelles.

Walter, K.S. and Gillet, H.J. [eds], 1998.- *1997 IUCN Red List of Threatened plants*. Compiled by the World Conservation Monitoring Centre. IUCN - The World Conservation Union, Gland, Switzerland and Cambridge, UK. 1xiv+862pp

White L., 1995.-Etude de la végétation de la Réserve de la Lopé. Projet ECOFAC, Rapport final, AGRECO C.T.F.T., Libreville.

White F., 1983.-The vegetation of Africa. A descriptive memoir to accompany the UNESCO/AETFAT/UNSO vegetation map of Africa : 1-356, I map (4 sheets), errata. UNESCO, Paris.

Wilkie, D.S., Carpenter, J.F., and Zhang, Q. 2000. The under-financing of protected areas in the Congo Basin/ so many parks and so little willingness-to-pay. *Biodiversity and Conservation* (In Press).

WWF and IUCN. , 1994.-Centres of plant diversity. A guide and strategy for their conservation.

World Bank, 1999.- The Impact of Conflicts in Africa.

Zimmermann H.G,1998. Proposition en vue d'une initiative de lutte contre la jacinthe d'eau en Afrique. Institut de protection et de recherche végétale du CRA. OUA.

ANNEX 2: LIST OF ENDANGERED WILDLIFE SPECIES IN CENTRAL AFRICA

(SOURCE: THE 1996 IUCN RED LIST OF THREATENED SPECIES) (EN:
ENDANGERED, CR: CRITICAL; VU: VULNERABLE)

| Familles | Noms scientifiques | Noms communs | Burundi | Cameroun | Congo | Gabon | Guinée Eq. | RCA | RDC | Rwanda |
|----------------------------|-----------------------------------|-------------------------------------|---------|----------|-------|-------|------------|-----|-----|--------|
| Mammifères | | | | | | | | | | |
| Tenrecidae | <i>Micropotamogale ruwenzorii</i> | Ruwenzori Otter-shrew | | | | | | | EN | |
| | <i>Potamogale velox</i> | | | EN | EN | EN | | EN | EN | |
| Soricidae | <i>Congosorex polli</i> | | | | | | | | CR | |
| | <i>Crocidura attila</i> | | | VU | VU | VU | | VU | VU | |
| | <i>Crocidura caliginca</i> | | | | | | | | CR | |
| | <i>Crocidura congobelgica</i> | | | | | | | | VU | |
| | <i>Crocidura eisentrauti</i> | | | CR | | | | | | |
| | <i>Crocidura kivuana</i> | | | | | | | | VU | |
| | <i>Crocidura lotona</i> | | | | | | | | VU | |
| | <i>Crocidura ludia</i> | | | | | | | | VU | |
| | <i>Crocidura picea</i> | | | CR | | | | | VU | |
| | <i>Crocidura polia</i> | | | | | | | | CR | |
| | <i>Crocidura stenocephala</i> | | | | | | | | VU | |
| | <i>Crocidura thomensis</i> | | | | | | | | | |
| | <i>Crocidura zimmeri</i> | | | | | | | | VU | |
| | <i>Myosorex blarina</i> | | | | | | | | VU | |
| | <i>Myosorex eisentrauti</i> | | | | | | EN | | | |
| | <i>Myosorex okuensis</i> | | | | VU | | | | | |
| | <i>Myosorex rumpii</i> | | | | CR | | | | | |
| | <i>Myosorex schalleri</i> | | | | | | | | | CR |
| | <i>Paracrocidura graueri</i> | | | | | | | | | CR |
| | <i>Ruwenzorisorex suncooides</i> | | | VU | | | | | | VU |
| <i>Suncus remyi</i> | Gabon Dwarf Shrew | | | | | CR | | | | |
| <i>Sylvisorex isabella</i> | | | | VU | | | VU | | | |
| <i>Sylvisorex morio</i> | | | | EN | | | | | | |
| <i>Sylvisorex oriundus</i> | | | | | | | | | VU | |
| Pteropodidae | <i>Epomophorus grandis</i> | Lesser Angolan Epauletted fruit Bat | | | EN | | | | | |
| | <i>Micropteropus intermedius</i> | Hayman's Epauletted Fruit Bat | | | | | | | VU | |
| | <i>Myonycteris brachycephala</i> | Sao Tomé Collared Fruit Bat | | | | | | | | |

| | | | | | | | | | | |
|-------------------------|----------------------------------|-------------------------------|----|----|----|----|----|----|----|----|
| | <i>brachycephala</i> | | | | | | | | | |
| | <i>Plerotes anchietae</i> | d'Anchieta's fruit Bat | | | | | | | VU | |
| Nycteridae | <i>Nycteris major</i> | | | VU | VU | VU | | | VU | |
| Vespertilionidae | <i>Chalinolobus alboguttatus</i> | | | VU | | | | | VU | |
| | <i>Chalinolobus superbus</i> | | | | | | | | VU | |
| | <i>Eptesicus platyops</i> | | | | | | VU | | | |
| | <i>Myotis morris</i> | | | | | | | | VU | |
| | <i>Pipistrellus anchietai</i> | | | | | | | | VU | |
| Molossidae | <i>Chaerephon gallagheri</i> | | | | | | | | CR | |
| | <i>Chaerephon tomensis</i> | | | | | | | | | |
| | <i>Mops niangarae</i> | | | | | | | | CR | |
| | <i>Otomops martiensseni</i> | | | | | | | | VU | VU |
| Cercopithecidae | <i>Cercopithecus erythrolis</i> | Red-eared guenon | | VU | | | VU | | | |
| | <i>Cercopithecus preussi</i> | Preuss's Monkey | | EN | | | EN | | | |
| | <i>Cercopithecus solatus</i> | Sun-tailed Monkey | | | | VU | | | | |
| | <i>Colobus satanas</i> | Black Colobus | | VU | VU | VU | VU | | | |
| | <i>Mandrillus leucophaeus</i> | Drill | | EN | | | EN | | | |
| Hominidae | <i>Gorilla gorilla</i> | Gorilla | | EN | EN | EN | EN | EN | EN | EN |
| | <i>Pan paniscus</i> | pygmy Chimpanzee | | | | | | | EN | |
| | <i>Pan troglodytes</i> | Chimpanzee | EN | EN | EN | EN | EN | EN | EN | EN |
| Canidae | <i>Lycaon pictus</i> | African Wild Dog | EN | EN | EN | EN | | EN | EN | EN |
| Felidae | <i>Acinonyx jubatus</i> | Cheetah | | VU | | | | VU | VU | |
| | <i>Panthera leo</i> | Lion | VU | VU | VU | VU | | VU | VU | VU |
| Viverridae | <i>Genetta cristata</i> | Crested Genet | | EN | | | | | | |
| Trichechidae | <i>Trichechus senegalensis</i> | African Manatee | | VU | VU | VU | VU | | VU | |
| Elephantidae | <i>Loxodonta africana</i> | African Elephant | | EN | EN | EN | EN | EN | EN | EN |
| Rhinocerotidae | <i>Diceros bicornis</i> | Black Rhinoceros | | CR | | | | | | CR |
| Procaviidae | <i>Heterohyrax chapini</i> | | | | | | | | VU | |
| Bovidae | <i>Gazella rufifrons</i> | Red-fronted Gazella | | VU | | | | VU | | |
| Sciuridae | <i>Funisciurus carruthersi</i> | Carruther's Mountain Squirrel | VU | | | | | | | VU |
| | <i>Myosciurus pumilio</i> | Africana Pygmy Squirrel | | VU | | VU | VU | | | |
| | <i>Paraxerus cooperi</i> | | | VU | | | | | | |
| Muridae | <i>Dendromus oreas</i> | | | VU | | | | | | |

| | | | | | | | | | | |
|--------------------------|-----------------------------------|--------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | <i>Hybomys eisentrauti</i> | | | EN | | | | | | |
| | <i>Lamottemys okuensis</i> | | | EN | | | | | | |
| | <i>Lemniscomys mittendorfi</i> | | | EN | | | | | | |
| | <i>Mastomys pernanus</i> | | | | | | | | VU | |
| | <i>Mus goundae</i> | | | | | | VU | | | |
| | <i>Mus kasaicus</i> | | | | | | | CR | | |
| | <i>Mus oubangui</i> | | | | | | VU | | | |
| | <i>Otomys occidentalis</i> | | | EN | | | | | | |
| | <i>Pelomys hopkinsi</i> | | | | | | | | VU | |
| | <i>Praomys hartwigi</i> | | | EN | | | | | | |
| | <i>Praomys minor</i> | | | | | | | VU | | |
| | <i>Praomys morio</i> | | | VU | | | | | | |
| Pedetidae | <i>Pedetes capensis</i> | | | | | | | VU | | |
| Macroscelididae | <i>Rhynchocyon cirnei</i> | | | | | | | VU | | |
| Total | | | 5 | 33 | 11 | 13 | 12 | 11 | 42 | 10 |
| Aves (Oiseaux) | | | | | | | | | | |
| Threskiornithidae | <i>Bostrychia bocagei</i> | Dwarf Olive Ibis | | | | | | | | |
| Anatidae | <i>Aythya nyroca</i> | Ferruginous Duck | | VU | | | | VU | | |
| Falconidae | <i>Falco naumanni</i> | Lesser kestrel | VU | | VU | VU | | VU | VU | |
| Phasianidae | <i>Afropavo congensis</i> | Congo Peafowl | | | | | | | VU | |
| | <i>Francolinus camerunensis</i> | Mount Cameroon Francolin | | VU | | | | | | |
| Gruidae | <i>Grus carunculatus</i> | Wattled Crane | | | | | | | VU | |
| Rallidae | <i>Crex crex</i> | Cornecrake | | | VU | | | | VU | |
| Columbidae | <i>Columba thomensis</i> | Maroon Pigeon | | | | | | | | |
| Musophagidae | <i>Tauraco bannermani</i> | Bannerman's Turaco | | VU | | | | | | |
| Tytonidae | <i>Phodilus prigoginei</i> | Congo bay-owl | VU | | | | | | VU | |
| Strigidae | <i>Glaucidium albertinum</i> | Albertine Owlet | | | | | | | VU | |
| Caprimulgidae | <i>Caprimulgus prigoginei</i> | Itombwe Nightjar | | | | | | | VU | |
| Apodidae | <i>Schoutedenapus schoutedeni</i> | Schouten's Swift | | | | | | | VU | |
| Indicatoridae | <i>Melignomon eisentrauti</i> | Yellow-footed Honeyguide | | VU | | | | | | |
| Eurylaimidae | <i>Pseudocalyptomena graueri</i> | African Green Broadbill | | | | | | | VU | |
| Hirundinidae | <i>Hirundo atrocaerulea</i> | Blue Swallow | | | | | | | VU | |
| Pycnonotidae | <i>Chlorocichla prigoginei</i> | Prigogine's Greenbul | | | | | | | VU | |

| | | | | | | | | | |
|----------------------|-----------------------------------|---------------------------------|----|----|--|----|----|----|----|
| Laniidae | <i>Lanius newtoni</i> | São Tomé Fiscal Shrike | | | | | | | |
| | <i>Malaconotus gladiator</i> | Green-breasted Bush-shrike | | VU | | | | | |
| | <i>Malaconotus monteiri</i> | Monteiro's Bush-shrike | | EN | | | | | |
| | <i>Prionops alberti</i> | Yellow-crested Helmet-shrike | | | | | | VU | |
| | <i>Telophorus kupeensis</i> | Mount Kupe Brush-shrike | | EN | | | | | |
| MUSCICAPIDAE | <i>Apalis argentea</i> | Kungwe Apalis | VU | | | | | VU | VU |
| | <i>Apalis bamendae</i> | Bamenda Apalis | | VU | | | | | |
| | <i>Bradypterus graueri</i> | Grauer's Swamp-warbler | VU | | | | | VU | VU |
| | <i>Chloropeta gracillirostris</i> | Papyrus Yellow Warbler | VU | | | | | VU | VU |
| | <i>Cossypha keinrichi</i> | White-headed Robin-chant | | | | | | VU | |
| | <i>Eremomela turneri</i> | Turner's Eremomela | | | | | | VU | |
| | <i>Kupeornis gilberti</i> | White-throated Mountain-babbler | VU | | | | | | |
| | <i>Muscicapa lendu</i> | Chapin's Flycatcher | | | | | | VU | |
| | <i>Picathartes oreas</i> | Grey-necked Rockfowl | | VU | | VU | VU | | |
| | <i>Platysteira laticincta</i> | Banded Wattle-eye | | VU | | | | | |
| | <i>Terpsiphone smithii</i> | Annobon Paradise-flycatcher | | | | | VU | | |
| | <i>Zoothera guttata</i> | Spotted Ground-thrush | | | | | | | EN |
| Nectariniidae | <i>Nectarinia rockefelleri</i> | Rockefeller's Sunbird | | | | | | VU | |
| Zosteropidae | <i>Nectarinia thomensis</i> | Giant Sunbird | | | | | | | |
| | <i>Speirops brunneus</i> | | | | | | VU | | |
| | <i>Speirops leucophaeus</i> | Principe Speirops | | | | | | | |
| | <i>Speirops melanocephalus</i> | Mount Cameroon Speirops | | VU | | | | | |
| | <i>Zosterops ficedulinus</i> | São Tomé White-eye | | | | | | | |
| | <i>Zosterops griseovirescens</i> | Annobon White-eye | | | | | VU | | |
| Fringillidae | <i>Neospiza concolor</i> | São Tomé Grosbeak | | | | | | | |
| Estrildidae | <i>Cryptospiza shelleyi</i> | Shelley's Crimson-wing | VU | | | | | VU | VU |
| | <i>Estrilda nigriloris</i> | Black-lored Waxbill | | | | | | VU | |

| | | | | | | | | | | |
|---------------------|--------------------------------|------------------------------|----------|-----------|----------|----------|----------|----------|-----------|----------|
| Ploceidae | <i>Malimbus flavipes</i> | Yellow-legged Weaver | | | | | | | VU | |
| | <i>Ploceus aureonucha</i> | Golden-naped Weaver | | | | | | | VU | |
| | <i>Ploceus bannermani</i> | Bannerman's Weaver | | VU | | | | | | |
| | <i>Ploceus batesi</i> | Bates's Weaver | | VU | | | | | | |
| | <i>Ploceus nigrimentum</i> | Black-chinned Weaver | | | VU | VU | | | | |
| | <i>Ploceus ruweti</i> | Lake Lufira Weaver | | | | | | | VU | |
| | <i>Ploceus subpersonatus</i> | Loango Weaver | | | | VU | | | VU | |
| S/TO TAL | | | 6 | 14 | 3 | 4 | 4 | 2 | 27 | 6 |
| Reptilia | | | | | | | | | | |
| Crocodylidae | <i>Osteolaemus tetraspis</i> | West African Dwarf Crocodile | | VU | VU | VU | | VU | VU | |
| Cheloniidae | <i>Chelonia mydas</i> | Green Turtle | | EN | EN | EN | EN | | EN | |
| | <i>Eretmochelys imbricata</i> | Hawksbill Turtle | | CR | | CR | | | | |
| Dermochelyidae | <i>Dermochelys coriacea</i> | Leathrback | | | | | | | EN | |
| S/Total | | | 0 | 3 | 2 | 3 | 1 | 1 | 3 | |
| Amphibia | | | | | | | | | | |
| Fishes | | | | | | | | | | |
| Cyprinidae | <i>Caecobarbus geertsi</i> | African Blind Barb Fich | | | | | | | VU | |
| Clariidae | <i>Clarias maclareni</i> | | | CR | | | | | | |
| Cichlidae | <i>Konia dikume</i> | Dikume | | CR | | | | | | |
| | <i>Konia eisentrauti</i> | Konye | | CR | | | | | | |
| | <i>Myaka myaka</i> | Myaka Myaka | | CR | | | | | | |
| | <i>Pungu maclareni</i> | Pungu | | CR | | | | | | |
| | <i>Sarotherodon caroli</i> | Fissi | | CR | | | | | | |
| | <i>Sarotherodon linnelli</i> | Unga | | CR | | | | | | |
| | <i>Sarotherodon lohbergeri</i> | Leka Keppe | | CR | | | | | | |
| | <i>Sarotherodon steinbachi</i> | Kululu | | CR | | | | | | |
| | <i>Stomatepia mariae</i> | Nsess | | CR | | | | | | |
| | <i>Stomatepia mongo</i> | Mongo | | CR | | | | | | |
| | <i>Stomatepia pindu</i> | Pindu | | CR | | | | | | |
| | <i>Tilapia "jewel"</i> | | | VU | | | | | | |
| | <i>Tilapia "little bkack"</i> | | | VU | | | | | | |
| | <i>Tilapia "yellow-green"</i> | | | VU | | | | | | |
| | <i>Tilapia bakossiorum</i> | | | VU | | | | | | |

| | | | | | | | | | | |
|-----------------------|-----------------------------------|--------------------------|----------|-----------|----------|----------|----------|----------|----------|----------|
| | <i>Tilapia bemini</i> | | | VU | | | | | | |
| | <i>Tilapia bythobathes</i> | | | VU | | | | | | |
| | <i>Tilapia deckerti</i> | | | VU | | | | | | |
| | <i>Tilapia flava</i> | | | VU | | | | | | |
| | <i>Tilapia gutturosa</i> | | | VU | | | | | | |
| | <i>Tilapia imbriferina</i> | | | VU | | | | | | |
| | <i>Tilapia kottae</i> | | | VU | | | | | | |
| | <i>Tilapia snyderae</i> | | | VU | | | | | | |
| | <i>Tilapia spongotroktis</i> | | | VU | | | | | | |
| | <i>Tilapia thysi</i> | | | VU | | | | | | |
| S/Total | | | 0 | 26 | 0 | 0 | 0 | 0 | 1 | 0 |
| Crustaceans | | | | | | | | | | |
| Diaptomidae | <i>Tropodiaptomus burundensis</i> | | VU | | | | | | | |
| | <i>Tropodiaptomus kissi</i> | | | | | | | | | VU |
| | <i>Tropodiaptomus simplex</i> | | VU | | | | | | VU | |
| Potamonautidae | <i>Louisea edeaensis</i> | | | CR | | | | | | |
| S/Total | | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Insecta | | | | | | | | | | |
| Formicidae | <i>Pheidole neokohli</i> | | | | | | | | VU | |
| | <i>Serrastruma inquilina</i> | | | | | | | | VU | |
| Lycaenidae | <i>Erkssonia acraeina</i> | | | | | | | | VU | |
| Papilionidae | <i>Papilio leucotaenia</i> | Cream-banded Swallowtail | VU | | | | | | | VU |
| Coenagrionidae | <i>Argiocnemis umbargae</i> | | | EN | | | | | | |
| | <i>Enallagma camerunense</i> | | | EN | | | | | | |
| Gomphidae | <i>Cornigomphus guineensis</i> | | | | | | EN | | | |
| Libellulidae | <i>Palpopleura albifrons</i> | | | | | CR | | | | |
| | <i>Trithemis hartwigi</i> | | | | | | EN | | | |
| | <i>Trithemis nigra</i> | | | | | | | | | |
| S/Total | | 1 | 2 | 0 | 1 | 2 | 0 | 3 | 1 | |
| Vers de terre | | | | | | | | | | |
| Molluscs | | | | | | | | | | |
| Planorbidae | <i>Bulinus camerunensis</i> | | | VU | | | | | | |
| Ampullaridae | <i>Lanistes bicarinatus</i> | | | | | | | | VU | |
| | <i>Lanistes intortus</i> | | | | | | | | VU | |

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|-----------------------|-----------------------------------|--|--|--|----|--|----|----|--|
| | <i>Lanistes neavei</i> | | | | | | | VU | |
| | <i>Lanistes neritoides</i> | | | | CR | | | | |
| Thiaridae | <i>Anceya giraudi</i> | | | | | | | EN | |
| | <i>Anceya terebriformis</i> | | | | | | | EN | |
| | <i>Bathanalia howesi</i> | | | | | | | EN | |
| | <i>Bathanalia straeleni</i> | | | | | | | EN | |
| | <i>Bridouxiana giraudi</i> | | | | | | | EN | |
| | <i>Bridouxiana leucoraphe</i> | | | | | | | EN | |
| | <i>Bridouxiana ponsonbyi</i> | | | | | | | EN | |
| | <i>Bridouxiana praeclara</i> | | | | | | | EN | |
| | <i>Bridouxiana rotundata</i> | | | | | | | EN | |
| | <i>Bridouxiana smithiana</i> | | | | | | | EN | |
| | <i>Chytra kirki</i> | | | | | | | EN | |
| | <i>Hirthis globosa</i> | | | | | | | EN | |
| | <i>Hirthis littorina</i> | | | | | | | EN | |
| | <i>Lavigera grandis</i> | | | | | | | EN | |
| | <i>Lavigera nassa</i> | | | | | | | EN | |
| | <i>Limnotrochus thomsoni</i> | | | | | | | EN | |
| | <i>Martelia tanganyicensis</i> | | | | | | | EN | |
| | <i>Mysorelloides multisulcata</i> | | | | | | | EN | |
| | <i>Paramelania damoni</i> | | | | | | | EN | |
| | <i>Paramelania iridescens</i> | | | | | | | EN | |
| | <i>Reymondia horei</i> | | | | | | | EN | |
| | <i>Reymondia pyramidalis</i> | | | | | | | EN | |
| | <i>Reymondia tanganyicensis</i> | | | | | | | EN | |
| | <i>Spekia zonata</i> | | | | | | | EN | |
| | <i>Stanleya neritinoidea</i> | | | | | | | EN | |
| | <i>Stormsia minima</i> | | | | | | | EN | |
| | <i>Synolopsis gracilis</i> | | | | | | | EN | |
| | <i>Synolopsis lacustris</i> | | | | | | | EN | |
| | <i>Synolopsis minuta</i> | | | | | | | EN | |
| | <i>Tanganyicia rufiflosa</i> | | | | | | | EN | |
| <i>Tiphobia horei</i> | | | | | | | EN | | |

| | | | | | | | | | | |
|--------------------|-----------------------------------|--|---|---|---|---|---|---|----|---|
| Viviparidae | <i>Bellamyia contracta</i> | | | | | | | | EN | |
| | <i>Bellamyia crawshayi</i> | | | | | | | | EN | |
| | <i>Bellamyia leopoldvillensis</i> | | | | | | | | EN | |
| | <i>Bellamyia mweruensis</i> | | | | | | | | EN | |
| | <i>Bellamyia pagodiformis</i> | | | | | | | | EN | |
| | <i>Bellamyia rubicunda</i> | | | | | | | | EN | |
| | <i>Neothauma tanganyicense</i> | | | | | | | | EN | |
| Achatinidae | <i>Archachatina bicarinata</i> | | | | | | | | | |
| Total | | | 0 | 1 | 1 | 0 | 0 | 0 | 41 | 0 |

ANNEX 3: WORKING THEMES RETAINED BY THE CONFERENCE OF PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY

Biodiversity refers to the multitude of species and ecosystems of the earth as well as the processes to which they belong. It is therefore a broad field that can be interpreted or envisaged in different ways depending on one's point of view or from the area of expertise from which one looks at it (Prescott, 2000). For example, within the context of its work, the Conference of Parties stated several themes that may guide the work of biodiversity planners. These subjects are made up of a set of natural ecosystems (continental water, marine and coastal water, montane, forest, etc.), sectors of activity, (biosafety, sustainable tourism, taxonomy, etc.) or aspects related to evaluation, (criteria and indicators), benefit sharing, synergy between convention, etc. Table ... presents some twenty key thematic areas that could be treated in a national or regional biodiversity strategy.(Prescott, 2000)

| Themes |
|---|
| Access and benefit sharing |
| Protected Areas |
| Biosafety |
| Criteria and indicators |
| Agricultural biological diversity |
| Forest biological diversity |
| Montane biological diversity |
| Marine and coastal biological diversity |
| Continental water ecosystems |
| Non-irrigated land ecosystems |
| Species and taxonomy |

| |
|---|
| Impact Assessment |
| Incentive measures |
| Legal issues concerning biodiversity |
| Capacity building |
| Indigenous knowledge |
| Funding sources for biological diversity |
| Synergy with the Rio Convention and other Conventions on biodiversity |
| Sustainable tourism |

**ANNEX 4. LIST OF PARTICIPANTS AT SAP WORKSHOPS AND
AT THE SECOND
PREPARATORY MEETING TO THE THIRD CEFDHAC**

**FIRST WORKSHOP: Douala,
Cameroon**

BURUNDI

1. Samuel Bigawa, Ministère de l'Aménagement du Territoire
2. Daniel Bacinoni, PRAUTAO

CAMEROON

3. Dieudonné Marius Mbog APEMEC
4. Blondeau Talatala, Correspondant National PRGIE, Cameroun
5. Ebwele Fils Leroy, Secrétariat Permanent à l'Environnement SPE/ MINEF
6. Ursule Zang Zang, Correspondante Nationale de la CEFDHAC, Cameroun
7. Isabelle Porteous, UICN-CEFDHAC-PAS
8. Martin Zeh-Nlo, PNUD Cameroun
9. Charles Tekam, Carpe , Cameroun
10. Klaus Mersmann, GTZ, Cameroun
11. Roger Bako Gacha, ONG Nature et Avenir
12. Pierre Chekem, Partnership Management and Support Programme

CAR

26. Thomas Damio, Ministère de l'Environnement, Eaux, Forêts, Chasses et Pêches
27. Philémon Selebangué, Ministère de l'environnement, des Eaux, Forêts, Chasses et Pêches

CONGO-BRAZZAVILLE

28. Germain Kombo, MIME
29. Isaac Moussa, Alliance National pour La Nature

DRC

30. Trinto MUGANGU, Représentant Régional GEF-PNUD
31. Lapika Dimomfu, Université de Kinshasa
32. Joseph IPALAKA YOBWA, CNIE
33. François Kapa Batuny

GABON

34. Jean-Baptiste MEBIAME, CT du Ministre

13. Fernand FOKO, Aire du
District de New Bell Douala
13. Kenneth Angu Angu, UICN-
CEFDHAC
14. Bihini Won wa Musiti,
UICN/BRAC
15. Fernand Isseri, UICN-
CEFDHAC

16. Angèle Luh Mbazoa, UICN
Yaoundé

17. Samuel Makon Wehiong,
Project UICN-CEFDHAC

18. Kolokosso A Bediang, Vision
Positive du
Développement (VIPOD)

19. Assitou Ndinga, Coordinateur
UICN Afrique Centrale

20. Elie Hakizumwami, UICN-
CEFDHAC

21. Nicodème Tchamou,
Coordinateur CARPE-Cameroun

22. Olivier Iyebi-Mandjek, APFT,
Cameroun

23. Christopher S. Wanzie, IRAD

24. Marie-Solange NGONO,
Antenne Rurale GRAMUE

25. Maurice Chakowa, CUAD,
Douala

Jean François Makaya,
CENARES/IRET

35. Jean Roger Mamiah,
ADIE/PRGIE

36. Rose ONDO, du
GNT/Certification Gabon

37. Michel Fernandez,
Consultant PRGIE Gabon,
Développement/Exploitation
Durable des Aires Protégées

EQUATORIAL GUINEA

38. Nicanor ONA NZE,
CEFDHAC Malabo

39. Vicente MICHA ONDO,
Ministère des Forêts et de
l'Environnement

RWANDA

40. Thaddée HABIYAMBERE
Ministère de l'Agriculture, de
l'Élevage et des Forêts

41. Michel MASOZERA,
PCFN, WCS

UNITED STATES

42. John HOUGH, GEF
Regional Bureau for Africa,
UNDP

SECOND WORKSHOP: Malabo, Equatorial GUINEA

BURUNDI

1. Louis Nduwimana, Point Focal
Environnement PNUD, Burundi

CAMEROON

2. Jean-Claude Ngunguri, UICN-
Cogestion

3. Samuel Makon Wehiong, UICN-
CEFDHAC

4. Isabelle Porteous, UICN-PAS

5. Kenneth Agu Angu

6. Fernand Isseri, UICN-PAS

7. Martin Zeh-Nlo, PNUD,
Cameroun

8. Ursule Zang Zang,
Correspondant National de la
CEFDHAC, Cameroun

9. Blondeau Talatala, PRGIE
Cameroun

10. Jeanne-Marie Mindja,
GRAMUE (ONG)

11. Isaac Njifakue, Consultant
Privé

CONGO-BRAZZAVILLE

12. Germain Kombo, Ministère de

EQUATORIAL GUINEA

14. Joachim Mecheba, Vice-
Ministre des Forêts, Pêches et de
l'Environnement

15. Vicente Micha Ondo,
Ministère des Forêts, Pêches et
de l'Environnement

16. Pierre Randah, Ministère des
Forêts, Pêches et de
l'Environnement

17. NICANOR ONA NZE,
Ministère des Forêts, Pêches et
de l'Environnement

18. Juan Asama Ndong,
Ministère des Forêts, Pêches et
de l'Environnement

19. Bololo E. Paulino, Ministère
des Forêts, Pêches et de
l'Environnement

20. Mba Avoro José, Ministère
des Forêts, Pêches et de
l'Environnement

21. Fortunato Eneme Efua,
Ministère des Forêts, Pêches et
de l'Environnement

22. Ramon Wily Tomos,
Ministère des Forêts, Pêches et
de l'Environnement

23. Carlota Nsang, ONG Amigo
de la Naturalesa

24. Ramon Castelo, ONG
Associacion Amigos Donana

25. Représentant, Commission
Européenne, Guinée Equatoriale

DRC

25. Côte Nimbona, Université
de Bangui

27. Philémon Selebangué,

l'Environnement

Ministère de l'Environnement,
Eaux, des Forêts, Chasses et
Pêches.

28. Pierre Randah, CEMAC

29. Thomas Damio, Fonds
Forestier

GABON

13. Rose Ondo, GNT/Certification

RWANDA

30. Laurien Ngirabanzi,
Consultant

THIRD WORKSHOP : Kribi, Cameroon

1. Isabelle Porteous, UICN-PAS,
Cameroun
2. Timothée Fomete, Université de
Dschang, Cameroun
3. Oumarou Njifondou, IRAD-
SRHO Limbé, Cameroun
4. Ada Ndeso-Atanga, UICN-
BRAC, Cameroun
5. Olivier Iyebi Mandjek,
INC/APFT
6. François Kapa Batunyi,
Ministère de l'Environnement
Coordination Nationale de la
biodiversité, R.D.C
7. Jean Diamouangana, Groupe
d'Etudes et de Recherches sur la
Diversité Biologique Congo-
Brazzaville

8. Jean-Claude Nguingui,
UICN-Cogestion, Cameroun
9. Elie Hakizumwami, UICN-
BRAC, Cameroun
10. Martin Nganje, DF/MINEF,
Cameroon
11. Kenneth Angu Angu, UICN-
CEFHAC
12. Jean-Marie Fondoun, IRAD,
Cameroun
13. Jean-François Makaya,
IRET/CENAREST, Gabon

PARTICIPANTS AT THE THIRD PREPARATORY FOR THE THIRD CEFDHAC

1. Nshimirimana J. Donatien,
ONG PES
2. Bambara Léonidas, DT
I.N.E.C.N
3. Bararwandika Astère,

21. Gakukwe Bonaventure,
Directeur du Genie Rural
22. Nyakageni Boniface,
Groupe de contact
C.F.D.H.A.C
23. Kabwa Agapit,

- Direction des Forêts
4. Nigarura Nestor, Parc National de la Kibira
5. Dr Almeda Aida, Ministre d'Economie à Sao Tomé
6. Victor Delene, RAAF
7. Isaac moussa, Alliance Nationale pour la Nature (ANN)
8. Gisèle Masoka, CADIC
9. Ndabirorere Salvator, DGATE
10. Ntitanguranwa Herménégilde, M.I.N.A.T.E.
11. Nduwayo Eugénie, P.N.L.A.E
12. Nderagakura Ferdinand, Direction Environnement, Burundi
13. Bayani Ngoyi Emmanuel, ONG CIAJE
14. Zachée Nzoh- Ngandembou, RAAF/CERUT
15. Etienne kayengeyenge, Ministère de l'Aménagement du Territoire et de l'Environnement
16. Schola Uwanyiringira, M.I.N.A.T.E
24. Passe Sanand Patrice, Réseau des ONGs d'Environnement et du Développement Durable RON (GED) Rép.Centrafricaine
25. Chekem Pierre, ONG PARTNERSHIP
26. Bacinoni Daniel, Membre du Groupe de Contact CEFDHAC
27. Dorothée Nahayo, Membre du Groupe de Contact CEFDHAC
28. Mahuragiza P.Claver, INECN
29. Rufuguta Evariste, D.G.A.T.E
30. Fomete Timothée, Université de Dschang
31. Chantal Nimbona, Groupe de contact CEFDHAC
32. Bigendako M.José, Université du Burundi
33. Pierre-Mundeba-Mapendo, Groupe des contact
34. Bgakima Cécile, Département de l'Environnement, de la Recherche et de l'Education Environnementales
35. Samy Mankoto ma M'baelele, MAB/UNESCO
36. Jérôme

Journaliste

17. Godeliève Karikurubu,
AFEBEFADD

18. Gaudence Kanyange,
Groupe de contact
C.F.D.H.A.C

19. Zang Zang Ursule,
SIGIF/Direction des Forêts

20. Niyonsaba Aimée
Généreuse, G.G.T.E

Karimumuryango, INECN
37.Nguingiri J.Claude,
UICN-ROCA

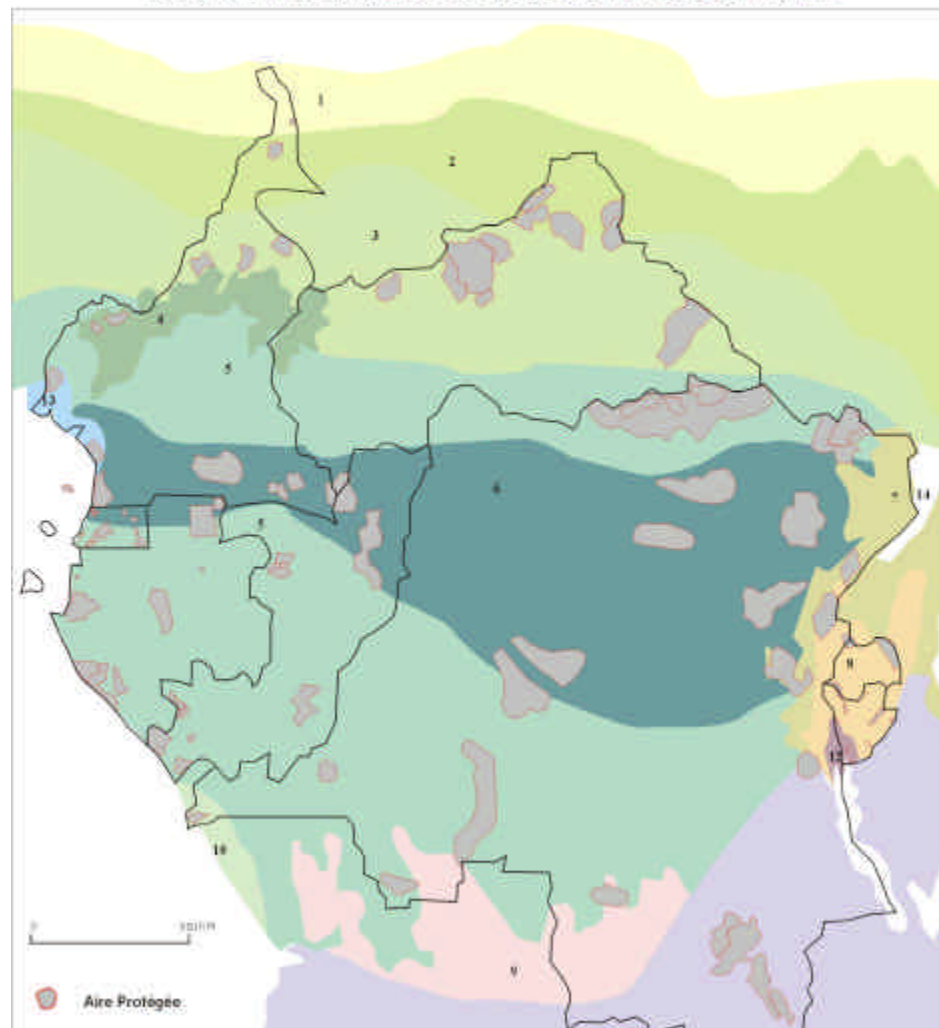
38. Cléto Ndikumagenge,
UICN-CEFHAC

39. Assitou Ndinga, UICN-
Bureau Régional pour
l'Afrique Centrale

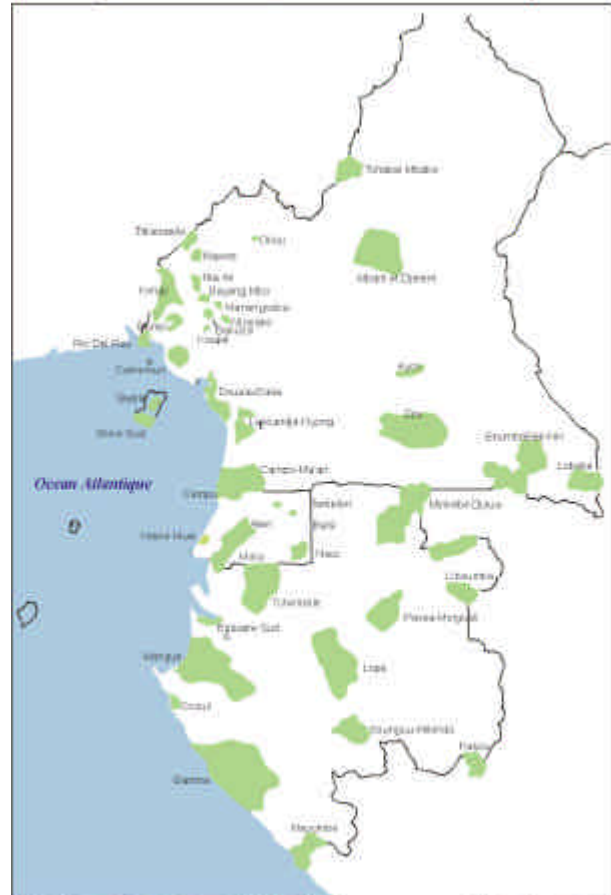
40. Augustin Mihigo,
Correspondant National
CEFDHAC, Rwanda.

ANNEX 5 : MAPS

ECOSYSTEMES ET AIRES PROTEGEES D'AFRIQUE CENTRALE

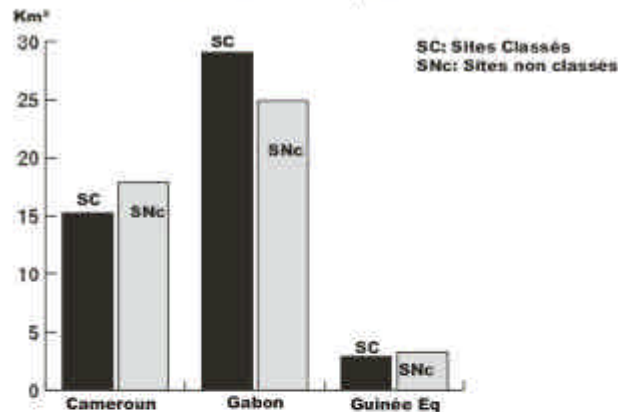


Sites critiques du Cameroun, du Gabon et de la Guinée Equatoriale



Source : "Le plan de Développement National du Cameroun, le plan de Développement National du Gabon et le plan de Développement National de la Guinée Equatoriale".

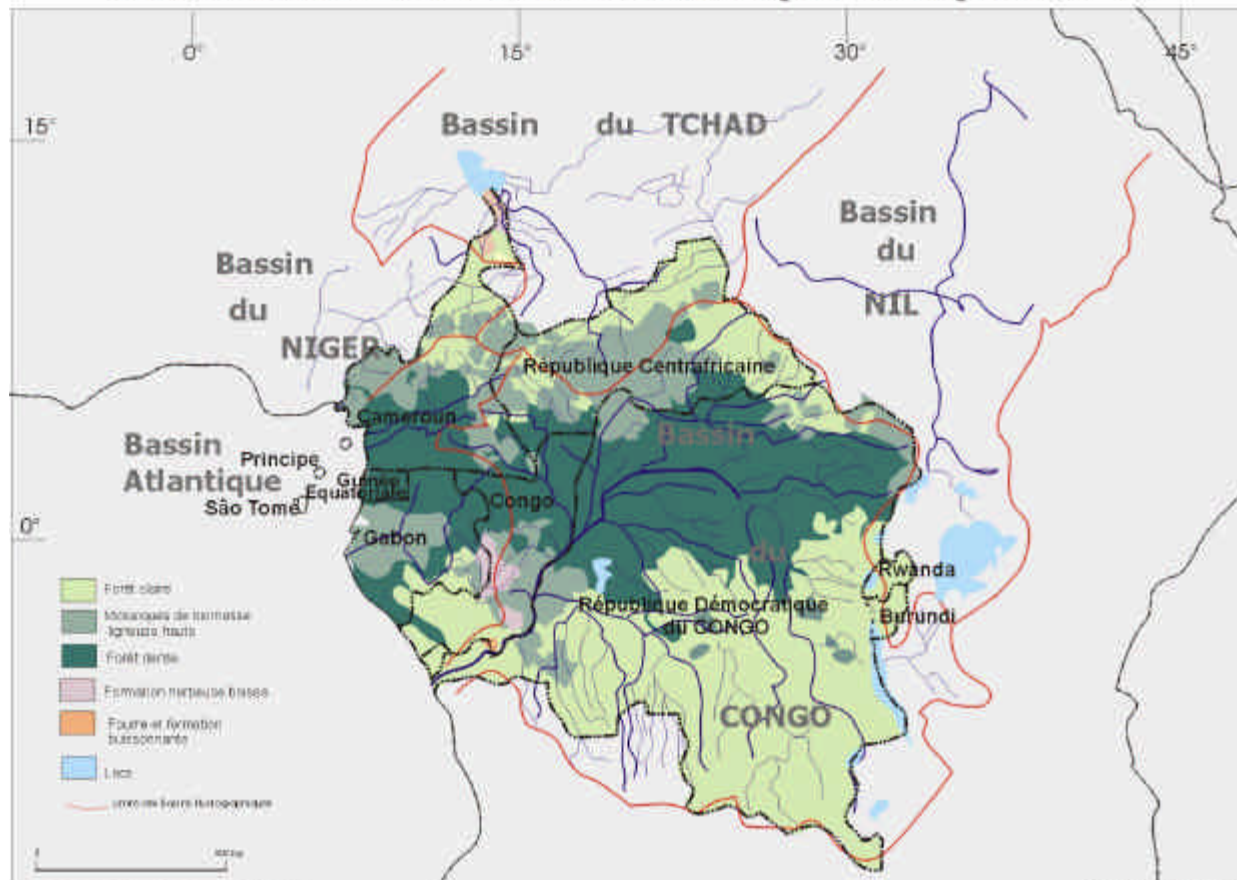
Superficies totales en Km² des sites critiques du Cameroun, du Gabon et de Guinée Equatoriale



Cette convention a pour objet de définir l'ensemble des sites critiques et les autres sites d'intérêt scientifique et culturel. Les "sites critiques" sont des sites d'intérêt scientifique particulier de type biologique, ou de conservation d'espèces menacées d'extinction ou pour la protection de paysages biologiques et/ou de sites d'importance de N.Y. Les sites critiques sont des sites d'intérêt scientifique et/ou culturel, les sites critiques sont des sites d'intérêt scientifique et/ou culturel.

- valeur biologique et écologique (diversité biologique, endémisme, rareté, etc.)
- degré de rareté et de menace (niveau de protection, etc.)
- valeur géographique, etc.

COUVERT VÉGÉTAL ET BASSINS HYDROGRAPHIQUES D'AFRIQUE CENTRALE



FORETS- FRONTIERE MENACEES D'AFRIQUE CENTRALE

