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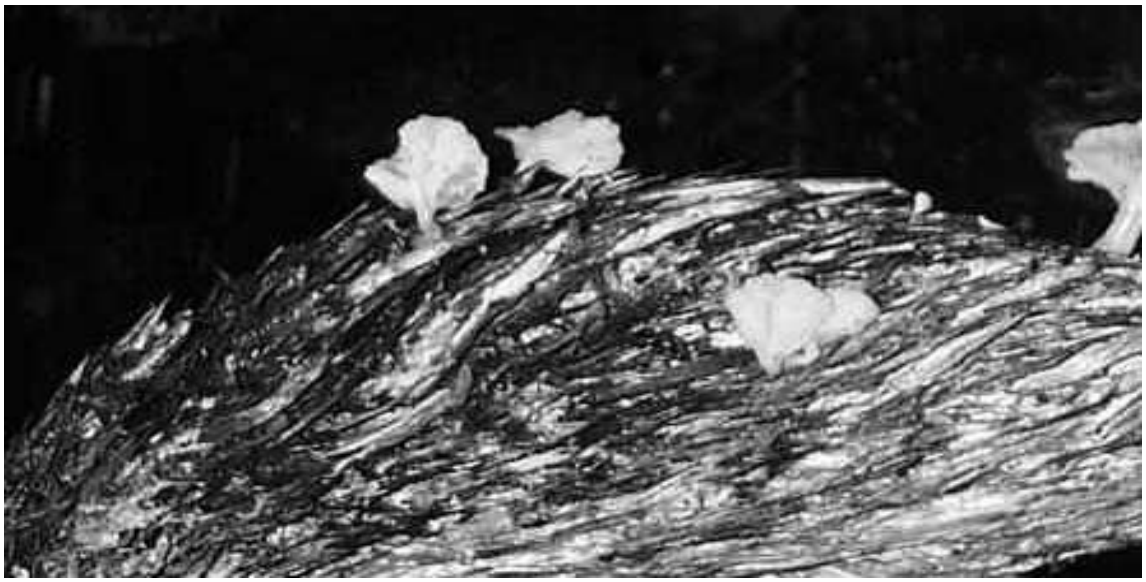

NATIONAL STRATEGY AND ACTION PLAN FOR BIOLOGICAL DIVERSITY

VOLUME 1: NATIONAL STRATEGY FOR CONSERVATION REGARDING BIOLOGICAL DIVERSITY AND THE SUSTAINABLE USE OF THESE RESOURCES.

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Conakry, January 2002

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PREFACE

Biological diversity is a resource that is of vital interest to all humanity. This natural biological capital offers major and important opportunities for all nations. It provides the means and indispensable services for human existence and aspirations.

Human society uses a vast array of biological resources and depends on their diversity for the production of goods such as food, clothing, construction materials, heat and medicines. This biological diversity also offers other values. Ethical, aesthetic, spiritual, cultural and religious.

Scientists estimate biological diversity to be between 13 and 14 million species, but only 1.7 million species have been discovered. Sadly, biological diversity is disappearing daily at an unprecedented rate. The loss of these diverse genes within and without ecosystems create changes to environments thus drastically reducing the goods and services coming from the earthly ecosystems.

Human life contributes harmful effects on the natural environment and this detrimental action increases dramatically to the point of endangering life itself.

Loss of biological diversity is a threat to food resources, forestry, medicines, energy, leisure opportunities for tourism that use these essential ecological benefits, the regulation of water flow, control of soil erosion, the cycle of nutrients, etc.. Thousands and thousands of habitats on the globe have either disappeared or have been transformed, and thousands of species are doomed to extinction. The reasons contributing to these disappearing assets are demographic, economic, institutional, and the use of inappropriate methods of conservation.

With regard to the preceding issues, without immediate action, strong measures are required in the very near future to stem this tide.

It is for these reasons that Guinea is participating actively in negotiations with the Convention for Biological Diversity.

The President of the Republic of Guinea, His Excellency General Lansana CONTE has personally signed the Convention at Rio de Janeiro in June 1992 and the government ratified the agreement on May 7th, 1993.

Guinea is therefore the second African country to ratify the Convention after the Seychelles and is the sixteenth country to ratify the document.

Guinea is also engaged in the execution of the convention, and thus has received financing from Global Environment Facility (GEF) for preparation of a national plan for the conservation and vital use of biological diversity and for the equitable sharing of benefits to develop biological diversity in response to the guidelines of Article 6 of the Convention for Biological Diversity.

This strategy brings vital importance to the conservation and sustainable use of biological diversity to both economic and social development. It will demand cooperation and coordination between members, necessitates measures and laws and rules to assure the protection and reasonable use of our biological resources. The long-term gains will be of social and economic value not only for Guinea, but for all humanity.

Being responsible for a certain number of decisions with great repercussion on biological diversity, our strategy will have a duration of 15 years and will consider two groups of priorities.

It is of prime importance for all parts of the project to support one another and work for the welfare of the international community.

Ibrahima SOUMAH
MINISTER OF MINES, GEOLOGY
AND THE ENVIRONMENT

FORWARD

The protection of natural resources and conservation of biological diversity formed the key focus of a National Action Plan for Guinea's Environment which was adopted in September 1994.

In fact, Guinea has participated in all the phases of negotiation regarding the Convention for biological diversity, before signing it in 1992 and ratifying it in 1993.

Thus, Guinea, being involved in the formation of the Convention and being a party to the contract, has been a recipient of GEF a national commission made up of representatives from the public and private sector working for the conservation and sustainable development of biological resources, and for the equitable distribution of benefits to participants.

To set up the strategy and action plans, the Ministry of the Environment set up a consultation group entitled "Unité Nationale pour la Diversité Biologique (UNBio)" which is a national commission that is a multinational and multidisciplinary comprised of representatives from the public and private sector, an NGO (Non Government Organization) to oversee the distribution of funds and to focus on the conservation and development of biological diversity.

The preparation for a plan of action started with the development of a monograph document for the national review of biological diversity.

This was prepared with the following information:

- The status and trends of species, genetic resources, and location of habitats.
- Existing means of conservation and development.
- Monetary and non-monetary advantages.
- The degree of public and political involvement.
- The level and quality of involvement.
- Strength and actual capacity of human and institutional resources.

This information was gathered by:

- Nine national experts who based their deductions on the different biological systems and different Guinea ecosystems.
- Four regional experts who based their report on four national regions.

The analysis of their information resulted in the proposition for a national strategy for Guinea, the goal for biological diversity by 2015, and the uses and sharing of biological benefits toward the welfare of future generations.

Workshops in Conakry and in the four largest national regions of the country put together fifty recommendations allowing debate and amendments that used their expertise.

All of these various reports have been studied and grouped in order to produce a good vision of the objectives. The final report was sent to the national workshop in Labé, who adopted it with the following recommendations:

1 - Conservation of land and water ecosystems and their biological diversity.
Create and develop protected areas representative of the diverse ecosystems for biological diversity of land and water;
Encourage participation in the conservation and use of similar systems outside of the protected areas;
Reinforce human capabilities and natural assistance for the conservation and use of biological diversity;
Reinforce local, regional and international cooperation for the conservation of all ecosystems related to biological diversity.

2 - Access to resources and the equitable sharing of available revenue.
Fill the judicial void concerning access to the biological resources and the equitable sharing of revenues for development;
Clearly outline the responsibilities for all levels of management and their access to revenues for developing biological diversity;

3 - Validation of ecosystems and their biological diversity.
Develop researchers in many disciplines and many sectors for better understanding of the potential of biological diversity from different ecosystems;
Inform and sensitize all participants on the actual state of the degeneration of ecosystems and the grave consequences of their loss;
Identify and promote all possible steps to sustain ecosystems of biological diversity for long-lasting use by future generations.

4 - Reinforcement of legal institutions.
Revise and harmonize existing legal language and acts that impact on the sustaining and protection of ecosystems for biological diversity;
Create a system for information, education and communication for everyone concerned with the use of ecosystems for biological diversity;
Assess the availability and use of human resources.

These recommendations served as a guide for the national strategy and the action plans for the conservation and sustainable use of biological diversity contained in this document.

Maadjou BAH
National Coordinator

ACRONYMS

AEF	French Equatorial Africa
AOF	French Occidental Africa
ACDI	Canadian International Development Agency
BCTT	Mapping Office of Thematics and Teledetection
BGDA	Copyright Office of Guinea
BAD	Africa Development Bank
BID	Islamic Development Bank
CBG	Bauxite Company of Guinea
CCTA	Commission for African Technical Cooperation
CDB	Biological Diversity Convention
CDP	Council Conference
CMDT	Mali Textile Company
CNUED	United Nations-Conference for Environmental Development
CRD	Rural Collective for Development
CSA	Soil Conservation in Africa
CERESCOR	Scientific Research Center, Conakry Rogbané
CFD	French Development Bank
CITES	International Convention for Endangered Flora and Fauna
CNSHB	National Halieutique (Biologic Water Resources) Science Center of Boussoura
CNSP	National Fisheries Surveillance Center
CNUCED	United Nations Conference for Commerce and Development
COL	Collaborators
COMARAF	Coastal Marine Research for Africa
DB	Biological Diversity
DNE	National Environment Directorate
DNEF	National Water and Forestry Directorate
DPDRE	Rural Development and Environment Prefecture
DNFC	National Forest and Hunting Directorate
FFN	National Forestry Fund
FAD	Arabic Fund for Development
FAO	United Nations Organization for Food and Agriculture
FEMF	French Global Fund for the Environment
FIDA	International Fund for Agricultural Development
FMC	Mesh-net Fishing (deep bottom)
FMDE	Mesh-net Fishing (stitched circular)
FME	Mesh-net Fishing (circle nets)
FT	Mesh-net Fishing (rotating)
GEF	Global Environment Facility
GTZ	German Technical Co-operation
Ha	Hectare
IRAG	Agronomy Research Institute of Guinea
IDA	International Development Agency
IRD	Development Research Institute
JICA	Japan International Co-operation Agency
LTC	Land Tenure Center
MPE	Ministry of Fishing and Stock Farming
OAPI	African Organization for Intellectual Property
OMPI	International Organization for Intellectual Property
OMS	World Health Organization
PAFN	National Forest Action Plan
PAFT	Tropical Forest Action Plan
PNUE	United Nations Environmental Program
PAL	Palangre
PNAE	National Action Plan for the Environment

UNDP	United Nations Development Programme
PROGERFOR	Management of Forestry and Forest Resources Program
SBK	Bauxite Association of Kindia
SNPA- DB	National Strategic Plan for Biological Diversity
SNPRV	National Service for Rural Development and Education
SPI	Intellectual Property Service
SAKOBA	Aquacultural Society of Koba
SALGUIDIA	Arabic, Libyan, Guinean Society for Agro-Industrial Development
SDAM	Planning Director for Management of Mangrove
SODEFOR	Forestry Development Society
TJB	Gross Tonnage
UICN	Global Union for Native Conservation
UNBio	National Unit for Biological Diversity
UNESCO	United Nations Organization for Education, Science and Culture
UNSO	United Nations Organization for Conflict and Drought in the Sahel
USAID	United States Agency for International Development
WWF	World Wildlife Fund
WRI	World Resources Institute
ZEEG	Exclusive Economic Zone for Guinea

USE OF TERMS

- Biological Diversity
Living organisms of various origin including land, sea and other aquatic ecosystems, including diversity within a species.
- Ecosystems:
Complex and dynamic communities of plants, animals and micro-organisms within their natural environment, their interactions, and their combined function.
- Conservation of biological diversity:
- Active management of biological diversity for the good of present generations and for the future need of generations.
- Proper human administration of various forms of life and ecosystems for maximum benefits and preservation that will satisfy and benefit future generations.

- Sustainable use:
Employing means to manage use and natural cycles that will preserve their potential for the needs of present and future generations.
- Biotechnology:
All forms of technology using biological systems with living organisms or their mutations to create or modify the products for specific use.
- Conservation ex situ:
The conservation of biological diversity factors outside of their natural habitat.
- Conservation in situ:
The conservation of ecosystems and natural habitats to preserve existing natural populations of the species whether domestic or cultivated, or to enhance and develop their distinctive character.
- Domesticated or cultivated species:
All species influenced by mankind to meet their needs.
- Habitat:
The locality or site where organisms grow in their natural state.
- Genetic material:
Primary material that is vegetable, animal, microbial, or other in origin that contains hereditary material for growth and propagation.
- Land of origin for genetic material:
Land where genetic material is available in in-situ conditions.
- Locations where genetic resources can be obtained:
All areas where genetic materials can be found in-situ, from domesticated or wild sources originating from inside or outside of the area.
- Biological resources:
Genetic resources, organisms or parts of their populations, or any other biotic element of ecosystems that are utilized or provide potential value for humanity.
- Genetic resources:
Any genetic material of any value or potential value.
- Technology:
All forms of technology including biotechnology.
- Protected zone:
Geographically limited, assigned and regulated able to give specific objectives and outcomes to conservation.
- Species diversity:
Group of individual organisms capable of reproduction in natural conditions.
- Genetic diversity:
Various genetic material from vegetable, animal or micro-organisms that inhabit the earth. These species have individual genetic characteristics that can be inherited.
- Endangered species:
Extinct species: Once existed in an area, but now completely extinct in the world.
Eradicated species: Once existed in an area, but now removed to another part of the world.
Endangered species: Existing in a region in very small numbers.
Threatened species: Potentially in danger in its own territory.
Vulnerable species: In decline in its own territory with progressively smaller numbers.

Endemic species: Existing in only one territory.

- Protected area:

Protected reserve due to its particular situation allowing natural evolutionary factors to apply freely for the public good.

- Natural capacity:

The maximum number of species able to survive and reproduce under general conditions without affecting the natural habitat.

- Hunting:

All efforts to chase, capture or kill a wild animal, destroy birds, or threaten the nests of reptiles.

- Zoological fauna:

Various forms of fish from a particular region.

- Wild game:

All forms of wild animals that are susceptible to hunting.

- National parks:

Preservations for the protection, conservation and natural evolution of all wildlife. The areas are also for the protection of geological formations that are scientifically valuable or of particular aesthetic interest.

- Biological reserves (Natural):

An area or region with a remarkable ecosystem containing animal or plant species of scientific importance nationally where man's actions are forbidden or limited to interfere. Such biological reserves must limit human interference without permission.

- Special reserves or sanctuaries:

Areas reserved for the protection of flora and fauna species where animals and plant material are in danger and where exploitation would threaten their survival.

- Exclusive economic zone:

A law introduced at the United Nations Convention in 1982, limiting coastal use for 200 nautical miles.

INTRODUCTION

Resources from biological diversity are essential to the economic and social development of all humanity. They offer essential goods and services for life and allow society to adapt to different situations.

Consequently, biological survival equals human survival.

A balance between economic needs and the survival of biological ecosystems is necessary to assure harmonious life. It is this living and harmonious pact with nature that allows man to exploit biological resources in a sustainable manner. This diversity of species plays an essential role in the function of the ecosystem. Today the threat to species and the ecosystem weigh heavily on this issue. In effect, the loss of species is due to human activities wasting biological diversity at an alarming rate to the point of being irreversible.

According to the International Foundation for Rural Development, biological diversity is being destroyed at a rate of 100 species per day. It must be remembered that a lost food or animal species is lost forever along with its economic potential and ecological functions. Today we are unable to estimate the number of plant and animal species where precious genetic material has been lost without the opportunity to identify, study or catalog these.

To analyze the pressures and threats putting pressure on the ecosystems and their biological diversity, the following principal causes are put forward that cover demographic, economic, institutional, regulatory and technology:

- Increase in the need for biological resources due to population growth and economic development.
- Lack of concern for the long-term consequences of economic activities on the environment.
- Lack of appreciation for the consequences of using technology inappropriately.
- Lack of recognition for economic measurement and real value of biological diversity.
- Lack of adequate application of community government support to develop biological resources.
- The accumulation of human migration.
- Political instability and civil war in neighboring countries.

It is important to remember that biological diversity is of inestimable value for humanity everywhere. The loss of this value must be seen as a global preoccupation.

Everywhere in the world, governments are beginning to realize the seriousness that biodiversity is both precious, and that it is threatened. It has been decided that under the auspices of the United Nations, urgent actions are required to preserve the biological resources for the benefit of present and future generations. For this reason the International Convention for biological diversity is tabling this question/issue and is dealing with it. At the World Summit in Rio de Janeiro of in 1992, 156 countries signed the treaty on biological diversity. With this agreement, these states agreed to conserve biological diversity, and they agreed to equally share the advantages of their outcomes.

The aforesaid Convention, signed and executed on 29 December 1993, stipulates:
Article 6, "each party commits in keeping with its own needs and conditions to:
Develop strategies that are national plans and programs that will assure the use and sustainable development of these biological diversities and measures to comply as described in the Convention.
Integrate conservation and uses of these biological diversities in all its pertinent political programs."
Article 7, "Each party contracts that in as much as possible and reasonable in compliance with articles 8 to 10 that they will:
a) Identify elements that constitute biological diversity that are important for conservation and sustainable use, compile a list of these in categories outlined in Annex 1.
b) Supervise the sampling and techniques of those elements identified in (a) and pay special attention to those that are in particular danger of extinction and those that are prioritized to offer the best use. "
c) Identify the process for cataloging activities that include risk assessment and that offer practical measures for sustainable use of biological diversity, and the preservation of specimens."

The president of the Republic of Guinea, His Excellency General Lansana CONTE, signed the Convention in Rio de Janeiro in June 1992 and the Government ratified it on May 7, 1993. Thus Guinea became the second African

country to ratify the Convention after the Seychelles and is the sixth signatory for contractual commitment. This ratification became part of the political agenda on 22 December 1985 by support of the President of the Republic. This fundamental commitment is the basis for the voluntary inclusion of these initiatives in the public and private domains.

For this initiative, the Government has adopted a program to develop a program based on the needs of the population that will safeguard food supply, and restore a national economy while respecting indigenous people and a program that reinforces international cooperation.

The Government has adopted a program to the private sector by decentralizing public vehicles into Regions, Districts and Rural Communities and is engaged in economic structural reforms for an open economy in the hope to create a favorable climate for private enterprises.

Guinea is participating very actively in all forms of negotiation dealing with biological diversity.

This document defines the strategies that Guinea has chosen for the conservation and sustainable development of biological diversity falling under the guidelines of the Convention. The initiative to develop this document is made possible by the kind help of funding from UNDP/GEF to Guinea.

I - PRINCIPAL ECOSYSTEMS OF GUINEA

For the purposes of this study, the main grouping of ecosystems are identified along the following lines:

1. Land/terrestrial ecosystems
2. River/fresh water ecosystems
3. Sea and coastal ecosystems

1. Land/terrestrial Ecosystems

Guinea has six principal land based ecosystems:

- Ecosystems in dense and humid forests
- Ecosystems in dense and dry forests
- Ecosystems in the south Guinea savannah
- Mountain ecosystems
- Agricultural ecosystems
- Island ecosystems
- Plantation forest ecosystems

1.1 - Ecosystems in dense and humid forests.

These are located in the south-east of Guinea similar to Libero-ivoirien ecosystems. From a mass of 14 million hectare, (Guillard 1989) the area has been reduced to 700,000 hectare in the districts of the Guéckédou , Lola, Macenta, N'zérékoré and Yomou. The ecosystems of the areas have suffered in the past from fires, extensive stock farming, destructive forest exploitation, and mining on both private and industrial scales. This has been found to create a very fragmented situation.

Species of vegetation characteristic of these areas are: *Picnantus angolensis, Piptadenia africana, Alstonia congolensis, Antiaris spp, Khaya grandifolia etc.*

1.2 - Ecosystems in dense and dry forests.

These cover the north half of Guinea with the exception of the central plateau of Fouta-Djallon. These are constantly plagued by annual forest fires. An area of about 800,000 hectares is covered with beautiful stands; Mafou, N'Dama, Kissidougou and the exctreme north of Macenta.

Species of vegetation characteristic of these areas are: : *Melicia excelsa, Antiaris africana, Khaya senegalensis, Afzelia africana, Sterculia tragacanta, Cola cordifolia, Daniellia oliverii, Parkia biglobosa, Pterocarpus erinaceus, Terminalia spp, Combretum spp etc.*

These ecosystems are also home to a rich and varied fauna: antelope Guib harnaché *Tragelaphus scriptus,* wild pig Potamochère *Potamocherus porcus*, lion *Panthera leo,* baboon of Guinée *Papio papio*, antelope Sitatunga *Tragelaphus speckii*, various monkeys *Colobus spp*.

1.3 - Ecosystems in the South Guinea savannah

These cover the largest part of the territory subject to annual fires. These are subdivided based on vegetation: Timbered savannah, Tree-like savannah, Scrub savannah and Herbaceous savannah.

- Timbered Savannah: characterized by the presence of trees and bushes. This type is located in many small parts of Guinea and particularly in Upper Guinea with the following characteristic species: *Isoberlinia doka, Cacia sieberiana, Parkia biglobosa* and *Daniellia oliverii*.
- Tree-like savannah: characterized by a few trees and shrubs located on plateaus and hillsides. Species include: *Pterocarpus erynaceus, Erythrophleum guineense, Parkia biglobosa, Cuissonia angolensis* as well as similar types of vegetation.
- Scrub savannah: characterized by shrubs and lichen blankets but without trees. This type of Savannah is typical of the region of Fouta-Djallon. Typical cover includes *Hymenocardia acida, and Andropogon gayanus.*
- Herbaceous Savannah: characterized by the absence of trees and shrubs. Areas are swampy during the rainy season where Poacae and Pennisetum is abundant. This savannah covers large areas of the districts of Boké, Gaoual, Tougué, Koundara, Lélouma and Koubia .

1.4 - Mountain ecosystems

Mid-Guinea and Timbered-Guinea are two mountainous regions with elevations from 500 to 1,752 metres. These regions have important water reservoirs and are justly called the "Water Tower" of West Africa.

1.5 – Agricultural ecosystems

A mosaic of lands reserved for agriculture and stock-breeding (grazing) either permanently used or temporarily used. The excess use of fertilizers is a source of pollution. In places, the introduction (intentional or accidental) of foreign plants constitutes a danger to the health of local species.

1.6 - Island ecosystems

Guinea has very few islands. Principal ones are: Alcatraz, Naufrage, Tristao, Loos Islands (Kassa, Tamara, Room, Korail and Banche), and Moteba Island (Rio pongo).

1.7 - Plantation forest ecosystems.

Some of plantations were established during the Colonial Period and during the economic development period between 1963 to 1979. In places replanting continued until 1994. The plantations are mainly located in Mid-Guinea and Forested-Guinea, but they are notably:

- Pine plantations of Sébhory in Dalaba
- Gmélina and Teak in Kindia
- Teak in Gaoual, Bérékéna, Kankan and Pensély in Mamou.
- Terminalia species in Ziama in Macenta

2. RIVER/FRESH WATER ECOSYSTEMS

Guinea possesses a relatively dense fresh water system with 1161 rivers and drainage basins from five square kilometers to 99,168 square kilometers (Niger). 13 of these rivers irrigate most of the territory of West Africa. This network of waterways is characterized by two sources of running water.
Source of water in mountainous regions: torrents, waterfalls, lakes, ponds and swamps (Mid-Guinea and timber regions).
Sources of water on flat terrain: deltas, lakes, ponds, swamps. These sources depend on the mountainous regions, water is deeper and very rich in animal and aquatic plants.

These ecosystems are always in a state of change as they react to weather and other circumstances.

2.1 - Lower-Guinea

Slow moving water ecosystems: these flood plains and tidal areas are generally estuaries with mangrove. These ecosystems are the center of intense economic activity.
Fast moving water ecosystems: a major source of water from torrential downpours. Important rivers are the Coliba, Kogon, Tinguilinta, Fatala, Konkouré, Soumba, Kolenté, and Forécariah.

2.2 - Mid-Guinea

Slow-moving water ecosystems: the plains lack water except in the Koliba Basin in northwest district of Koundara. There are lakes and ponds in the district of Tougué. These provide excellent fishing and serve to attract animals.
Fast moving water ecosystems: these are essentially limited to Bafing and Gambie .

2.3 – Upper Guinea

Slow-moving water systems: the low land forms vast plains where large rivers flow, and ponds are formed in the flood plain. A large number of these lakes and ponds provide significant reservoirs of water with surface areas from 2 to 4 square kilometers.
Fast moving water systems: these are water systems of the Niger basin with affluents of Mafou, Niandan, Milo, Tinkisso, Dion, Sankarani and Fié totaling 2500 km of waterways.

2.4 - The forests of Guinea
Slow moving water systems: these consist of very few small ponds that are less than one hectare (rainy season lakes at 1,400 metres altitude on Mount Nibma, and Samoe ponds of N'zérékoré)

Fast-moving water systems: these exist in Cavally, Mano, Diani, Loffa and the Makona.

3. SEA AND COASTAL ECOSYSTEMS

The Continental plateau of Guinea is 300 km along the coast and covers an area that is 47,400 square kilometers, making it the largest in West Africa.

3.1 - Coastal ecosystems: Characterized by sandy coast, vast plains with luxurious vegetation and mangrove forests providing cover for a vast number of marine species. This coastal zone plays an important role in growing rice, and for the supply of wood products and heating fuel.

Mud-banks: these cover a large surface area of 305 square kilometers and are an excellent area for hibernation and reproduction for many species of rare birds.

Estuaries: Main estuaries are those of Kogon, Tinguilinta, Fatala, Konkouré, Bofon and Mellakoré.

Coral reefs: ecology knowledge of these ecosystems is still very limited. They occur on the islands of Loos and the coral islands of Blanche and Capri.

3.2 - Sea Ecosystems
These are the domain of individual as well as commercial fishing. These ecosystems are divided into two zones:
- The center of the continental plateau with an area of 40 to 100 km that is reserved for individual fishing but moving toward freezing catches for industrial use.
- Areas outside of the continental plateau by 30 km in water 60 to 200 m deep that is reserved for industrial fishing.

II - BIOLOGICAL DIVERSITY OF ECOSYSTEMS

Guinea's rich heritage in biological diversity is unique in West Africa, notably in its dense, humid forests that are part of the great tropical forests known as Guineo-Congolaise. Experts in ecology estimate that forests of Ziama and Diécké in Guinea rank 4 and 7 in the 12 major sites for the conservation of biodiversity in West Africa.

Cataloging and collection of biological species indicates an inventory of 6926 species of flora and fauna in five regions of which:
- 3263 are animal, represented by: 1734 invertebrates (14 sponges, 8 snails, 11 flat worms, 23 nematodes, 163 mollusks)- 45 annelida, 65 arachnid, 184 crustacean , 1,177 insects in 12 genus, 7 chetognathes, - 20 chinoderms, 1 hemichorde and 16 chordes),
- 1529 vertebrates divided in:35 chondrichthyes, 501 osteithyes, 76 amphibians, 140 reptiles, 518 birds and - 260 mammals.
- 3062 plants represented by: 55 bryophytes (hépatique et mousse), 163 ptéridiphytes (20 lychopodiophyta and 143 other species) ; 11 Gymnospermes (3 cycadaceae and 8 pinaceae), 2 833 angiospermes (2 067 dicotylédones and 766 monocotylédones) ,
- 237 Protocaryotae (protozoa, algae)
- 167 Protoctista (bacteria, micoplasms and rickestties),
- 142 Eumycota : mushrooms (61 basiodiomyces, 23 ascomyces, 15 phycomyces, 14 zigomyces and 11 others) ; lichens : (18 species),
- Virus (31 species)

This monograph of biological diversity reveals:
- Endemic species: 69 plants, 20 fish, 1 reptile, 1 amphibian, 1 mammal, 1 insect.
- Endangered species: 41 plants, 8 insects, 93 fish, 7 shark, 6 ray fish, 8 crustaceans, 6 cephalopodes, 1 amphibian, 8 reptiles, 10 birds and 47 mammals.
- Threatened species:16 plants, 9 amphibians, 7 reptiles, 1 bird and 9 mammals.

1. - BIOLOGICAL DIVERSITY OF TERRESTRIAL AND ISLAND ECOSYSTEMS

Guinean flora and fauna are rich and diversified because of the multitude of ecological sites distributed over four natural regions. One finds in Guinea the whole gamut of microcosms in the sub tropical zones. 3077 plant species grow and 3273 animal species have been cataloged.

1.1 - Diversity of flora:

Lower right ranking plants: are not very well known or researched. In 1997 the National Monograph noted a census of 86 algae, 100 bacteria, 124 mushrooms, 18 lichens and 31 viruses. None of the endemic species was threatened or in danger of extinction.
Higher ranking plants: these constitute a group that is best known and recognized. they consist of 11 Gymnosperms (3 Cycadeceae and 8 Pinaceae) and 2,833 Angiosperms (2,067 Dicotyledones and 766 Monocotyledones). Six families of angiosperms have been identified: Poaceae (264), Fabaceae (210), Rubiaceae (198), Cyperaceae (164), Compositae (135) and Orchidaceae (110).

The number of indigenous plants in Guinea consist of 88 species. They are found mostly in Fouta-Djallon and Mount Nimba areas.

1.2 - Diversity of Fauna:

In 1997, the National Monograph cited 3,273 species with most being insects (1117). These were followed by amphibian (76 species), reptiles (140 species), birds (518 species), and mammals (260 species).

Considerable damage has occurred to the species, due to encroachment of industry and a lack of concern by the rural community. This has resulted in more and more species nearing extinction.

Indigenous animal species noted are:
- 1 (one) Reptile *: Lacertidae: Lygosoma nimbaensis*
- 1 (one) Mammal : *Rhinolophidae: Rhinilophus maclaudi*
- 1 (one) Amphibian. : Bufonidae: *Nectophrynoides occidentalis*
- 1 (one) Insect : Coccinenidae*: Diomus guilavogui*

Rare species that are threatened and in danger - 8 insects, 1 amphibian, 8 reptiles, 10 birds , 47 mammals, and species near extinction; - 9 amphibians, 7 reptiles, 1 birds and 9 mammals.
In spite of the large number of species considered in this study, another indigenous species is the genus from Coléoptères from coccinenidae. : *Diomus guilavogui*
N.B. No literature or references mentions either plant or animal species that are completely extinct. However, oral reports mention the existence of the giraffe (*Girafa cameloperdalis*), the rhino (*Diceros hicornis*) and even zebra in Guinea.

2. - BIOLOGICAL DIVERSITY OF SEA AND COASTAL ECOSYSTEMS

2.1 - Diversity of Flora

The flora diversity of sea and coastal systems is rich and varied. It is composed mostly of algae and angiosperms.
Algae: the waters of the plateau of Continental Guinea harbor 393 species divided into 7 families of phytoplancton with a predominance of diatomes.
Angiosperms: the mangrove swamps all along the coast form a taxonomic reserve of Rhizophoras divided into four families and seven species.

2.2 - Diversity of Fauna

Invertebrates: Many invertebrates are present in the sea and coastal ecosystems with protozoa, spongiforms, polychetes, chaetognathes, echinodermes, gasteropodes, bivalves, cephalopodes and insects.
Mollusks: In the swamps of the mangroves there are species of mollusks, gasteropodes and bivalves.
Crustaceans: There are many crabs of different species of pagures and Clibanarius. About 200 species are identified in the Economic Zone of Guinea. The zooplancton plays an important role in the production of food and organic nutrients for whales.
Insects: There are a vast number of insects in the mangrove swamps characterized by Culicidae and Muscidae
Vertebrates: Principle vertebrates are fish, reptiles, birds and mammals.

3. - BIOLOGICAL DIVERSITY OF RIVER ECOSYSTEMS.

3.1 - Diversity of Flora

The vast flowing and still water systems of Guinea are rich in a variety of flora. These flora consist of lower ranking plants and higher ranking plants.
- Low-lying Guinea, abundant in the humid areas, there is varied plant and aquatic macrophytes dominated by Nymphéacées, Cypéracées, which are gramineous in the calm water.
- Running (fast-flowing) waters are full of a aquatic plants such as *Vallisneria, Potamogeton, Elodea, Marantacées, Cypéracées, and Graminées*, as well as filament algae on rocks.
- River shores are bordered with palm trees and herbaceous plants.
- The river estuaries are extremely briny and brackish but very rich in organic material creating a perfect bed for the growth of shellfish, mollusks and fish species.
Mid-Guinea harbors aquatic and semi-aquatic plants growing on the banks and around ponds. Dominated by Nympheacees.
River banks are characterized by an absence of trees but there are bushes, reeds, mimosa and many rose bushes. An exception is Tinkisso where the river banks are covered with dense forest.
Forest Regions of Guinea: river banks are covered with dense growth of trees but few aquatic plants. The dominant vegetation is Cypéracées used for firewood and palm oil trees.
Transition zone between the forest regions and Upper Guinea, is notably poor in aquatic species.

3.2 – Diversity of Fauna

Soft-water protozea are not common in Guinea.
Gasteropode mollusks are represented by two families in the Niger.
Bivalve mollusks are plentiful in the Konkouré basin. There are also two species of oyster.
Arachnid consist of a few species along the rivers, in ponds, swamps, and the flooded regions of the Niger.
Crustaceans are represented by 15 species from 7 families.
Insects: There are 1,177 known species in Guinea, with 53 species identified in Cavally and Mount Nimba.
Amphibians:76 species are cataloged in Guinea: five of those in both fast-moving and slow-moving water (3 Bufonidae and 2 Ranidae). One species is native to Mount Nimba.
Fish: presently known:

- 135 species in the water basins of Lower-Guinea.
- 132 species in the Niger and its affluants of Upper Guinea.
- 112 species in the basins of the Mid-Guinea.
- 93 species in the forest water sheds.

Reptiles: in fresh water systems are lizards, turtles, snakes and crocodiles.
There are many types of birds in fresh water systems of Lower Guinea where there are five key locations favorable to migrating birds species: Rio-pongo, Rio Kapatchez, Konkouré and Tristao. The sites are included in the international list of important humid zones since 8 December 1992.

Mammals are more or less plentiful in water systems, and they prefer running water, swamps, and ponds. There are 260 species of mammals hippopotamus and Trichechidae along the Niger and the Kagon systems.

III – EVALUATION OF BIOLOGICAL DIVERSITY

Biological diversity is of high value and importance to Guinea society: for habitation, food sources, clothing, health products, construction materials and fuel for combustion. It is difficult to estimate the full value of these benefits, but there is no doubt that economy, ecology and culture all gain immensely from this biological diversity.

1. - Ecological value

The proper functioning of ecosystems enables natural processes and recycling of nutrients indispensable for human and animal life, for example carbon, nitrogen and oxygen. Biological diversity in the ecosystems absorb and decompose pollutants, organic waste, pesticides, heavy metals, greases and oils thanks to bacteria and mushrooms. Wooded areas stabilize erosion and soil degradation and help to maintain a proper water level. The same systems contribute to the quality of air and play a role in regulating climate.

2 - Economic value

2.1 - Food value:

This relates to animal and vegetable resources either wild or domestic.

Wild vegetable resources:

Tubules, roots, fruits, flowers and leaves of certain wild plants that enter the national food chain.

Cultivated vegetable resources:

Plant cultivation is quite similar in all four regions of Guinea. The socio-economic importance to the culture of the areas depends on eating habits, climatic conditions and the commercial value of market products.

The following cultivated plants retain an important role:

- **Cereal:** (rice maze, flour, sorghum, millet).
- **Tuberous plants:** (manioc, potato, yam, taro)
- **Fruits:** (mango, banana, oranges, mandarins and lemons)
- **Legumes:** (lettuce, tomato, onion, gombo).
- **Export plants:** (coffee beans, cocoa, tea).
- **Plant oils:** (palm and coconut oil).

Wild animal resources:

There are many species of wild animals in Guinea that can be used for food supply. These animals are captured by hunting and snaring. The hunting and consumption of animals is common, along with a number of birds. Hunting and fishing plays an important role in providing protein foods for the population.

Domestic animal resources:

Domestic animals play an important role not only as a meat supply but in traditional ceremonies, rituals, initiation and religious events.

The census of cattle was 1,130,029 cows in 1987 and 2,000,187 506 in 1995 which represents a 94% rate of increase. Similarly, sheep, goats and pigs increased at 77%, 94% and 148% over the same period. Officials estimates put these species at 6 million in 1987 and 7 million in 1995. The direct meat production from all these species is estimated at 33,599 tons of meat representing 58% of national demand. Milk production is estimated at 56,438 tons and egg production at 1,659 tons.

Adding together these general products for annual 1996, with total income in 1989 of FG 206,478,000 to FG 29,876,000, this represents a growth of 31.8%.

2.2 Wood products value:

It is difficult to evaluate the revenue from the commercialization of wood products in the Guinea area, as information and statistics are difficult to obtain. Nevertheless, wood and forest products contribute greatly to the national economy.

2.3 Valuation of energy sources:

Wood and charcoal products represent 90 percent of all energy consumption for sources of energy. Wood for home heating use will remain the sole product for quite a while yet. Small enterprises still use wood and charcoal for fish-smoking, baking, soap manufacturing and brick making.

2.4 The value of medicinal products:

Vegetable (plant) and animal products are used extensively for medicinal purposes in Guinea.

- Plants

Certain plants are used specifically as medicinal products (roots, leaves, bark, flowers) and are greatly appreciated. More than 1200 plant species of are used traditionally to treat diseases and for health.

- Animals

Many animal species have healing value and are used in traditional treatment (meat, hide, bones, teeth, claws, hair, organs, fat, milk and blood).

2.5 Value of ornamental use (exportation):

It is difficult to estimate the value of products exported, as it is largely a local market that contributes to the management and use of green areas.

2.6 Use by artisans:

Artisans of Guinea make great use of the biological diversity and it produces a substantial income. Plant and animal products are used in many trades: sculpture, shoe making, tanning, furniture, carpentry, etc.

2.7 The value of eco–tourism:

The biological diversity of Guinea possesses much natural beauty. The variety is immense: Parks, forests, natural aquariums, gardens, rare animal species, mountains and cliffs, caves, waterfalls, spas, lakes and beaches. The beauty of the landscape attracts and encourages tourism. A well-organized tourist trade would bring more resources and revenues than just hunting and fishing in a few regions. This would also increase the chance of a higher yield per hectare of agricultural development.

Not only would tourism use and benefit local natural resources, it would diversify the local economy by increasing demand for other products through use of the rural resources through all the services of hotels, restaurants, transportation, use of guides and craftsman. It would not only stimulate the local revenues, but it would provide a valuable education in the importance of conservation and the local ecosystems.

3. - Cultural values:

Certain traditional cultures contribute to maintain the health and well-being of ecosystem diversity. A number of plants and animals supply sociological, cultural and religious value. In Guinea, the coconut is used in social functions and cultural ceremonies, reunions, and nuptual ceremonies. Also, some plants and certain animals are considered sacred.

IV – ACCESS TO BIOLOGICAL RESOURCES AND EQUITABLE SHARING

Fair sharing of resources in the development and exploitation of ecosystems has not been considered important in Guinea. Laws and legislation regarding the topic have remained weak. As a consequence, national or international access to resources remains open without mechanisms for equitable sharing of advantages, and with no clear and directive definition.

FOR THE NATIONAL PLAN

Equal, fair distribution of benefits from the exploitation of resources from ecosystems relies on the jurisdiction.

Guinea developed and adopted laws and regulations for the environment in general, and then particularly the biological resources. However, these regulations are not always clear in the process of distribution to stakeholders.

These are:

- Laws regarding mining, forestry, stock-breeding, fishing and cultivation as the most important.
- Regulations regarding organization and use of funds to safeguard the environment.
- The distribution and responsibility for use of rural funding: Communautés Rurales de Développement (CRD).

FOR THE INTERNATIONAL PLAN

Elements of sharing and distribution are not equitably controlled. For example, the codes for hunting and fishing stipulate that authorization to exploit these resources subject to taxes and tariffs are under the Ministry of Finance.

Guinea exports a variety of palm oils to other countries such as Indonesia.

The material in gene banks in Guinea have 899 entries in the world catalog (genetic material from local varieties and new varieties created by the Center for Agronomics Research). These genes are kept in the principal collection. As far as exchanges in agri-diversity, Guinea has accessed improved cereals from China.

Material from forestry resources: Twenty two (22) species of wood are on the world market. Wood is also exported as many finished products (statues, masks, drums, furniture), to Holland, France, Belgium, Germany, UK, Japan, USA, Russia and Ukraine.

Wild fauna exports include:
- Reptiles (python, varan, crocodile, turtle, viper) in particular**.**
- Birds (Psitacidae, Gruidae, Estridae, Colombidae, Musophagidae, Proceïdae, Turdidae, Alcidinidae) usually to Europe.
- Living mammals (Céphalophes à flanc roux et de Grimm, chimpanzes, Guib monkeys and young) to Belgium, Germany, Holland and Spain.
Living halieutique resources: represented by three families (Cichlidae, Ciprinodontidae et Ciprinidae).

Frozen, dried or smoked halieutique resources (sharks, crustaceans, carp, gasteropodes, fish).
Domestic cattle: In order to increase productivity of the N'Dama breed, Guinea imported the Krasnaya from the Soviet Union. The N'Dama, by virtue of its ruggedness and resistance to trypanosome, is an ideal breed for the plain regions.
Research activities:
Outside researchers have had an interest in Guinea for a long time. This interest has been in gathering scientific information and for bio-prospecting. Many foreign research teams have benefited legally and illegally from Guinea genetic and biological resources. However, scientific information has left the country to be used by independent researchers and it has not always been correctly shared.

Principle animal resources have been the subject of study:

- **Stock breeding resources:** N'Dama species.
- **Wild animal resources:** Chimpanzees from Bosson, toads from Mount Nimba, and insects from the biosphere of Nimba and Ziama.

V - MEANS OF EXPLOITATION OF VARIOUS BIOLOGICAL RESOURCES AND THE RESULTING PRESSURES

Mankind is responsible for the rapid decrease of the number of plants and animal species on our planet. Biological ecosystems on the planet have been endangered through agricultural activity, stock breeding, hunting, exploitation of mining and quarries, grass fires, urbanization, exploitation of forests, picking and gathering, introduction of exotic species, daming and containment, extraction of secondary forest products, commercial industry, crafts, fishing, tourism, etc.

However, on top of the human threats, certain natural threats contribute to degradation, but these are rare in Guinea.

Guinea depends upon its forests, animals and pasture land for its survival, but these have reached the limit of their potential.

Degradation is manifested by its soil erosion, over harvesting, clear-cutting, upsetting natural water tables, destruction of natural pasture, etc..

It is vital to ensure a proper system to maintain fertility of soil, reduce erosion and satisfy the present and future needs of generations by saving the ecosystem and properly utilizing resources and development.

1. - AGRICULTURAL SYSTEMS:

Climatic conditions are favorable for agronomy in Guinea, and water systems are abundant for the most part of the year. Nevertheless, the potential of agricultural land estimated at 64,000 square kilometers against 4,000,000 of rural land is very unbalanced making the Natural Regions and prefectures and their populations also unbalanced.

Agriculture is the principal employment occupation in Guinea and concerns 85 % of the population.

The contrasting climate of Guinea adds to the erosion of land and lack of fertility of the soil.

The lack of fertility of the soil is due to the following:

1.1 - Inappropriate cultivation practices:

- Cultivation of hillsides, without a precaution for soil erosion.
- Continual plowing without soil amelioration
- Pollution of soil and water through uncontrolled use of chemicals (pesticides, fertilizer).
- Nomadic population.
- Agricultural fires by the nomadic population.

Consequences:
On the ground (soil): fires destroy herbaceous plants leaving the soil susceptible to flood degradation.
On the flora: destruction of dried forest, shrubs, arbours, dense wood and growth by fire destroys the savannah and forests, reduces pollination, and eliminates species.
On the fauna: large quantities of animals perish in the flames.

1.2 - Introduction of improved varieties:
This is the principal cause of the weakening of genetic resources that are naturally occurring.

1.3 - Destructive insects and diseases:
Poor control of practices allows this menace to destroy both cultivated and wild plants.

1.4 - Mechanization:
Poor plowing methods and depth of plowing management destroys the fertile layer of soil.

1.5 - Development of hydro-electric power contributes to the destruction of habitats for a multitude of species, fauna and flora, it changes the natural migration path of aquatics birds and disturbs their reproduction.

2 - BRUSH FIRES
Causes can be natural (lightning) or caused by humans (hunting, forestry, cars, fishing, traveling, camping, smoking, etc.)

3 - CHARCOAL PRODUCTION:
This is a real plague in the district surrounding Conakry. Practiced using only forest products (wood), charcoal production is now using fruit species such as mango.

4 - BRICK OVENS:
Urban expansion has necessitated the growth of brick ovens. They consume thousands of cords of green wood per year. This destroys river banks promoting a loss of silt, sludge, and creating mud banks.

5 - FORESTRY EXPLOITATION:
All over the country national and foreign companies, individual mills and cooperatives are in the business of the lumber and timber. They are selling wood for construction, heat and charcoal.

The situation is now very grave and merits quick consideration. The supply of wood and charcoal in the region of Conakry is now critical.

The shores of most rivers in West Africa are now mostly bare, resulting in serious erosion and degradation of the local and regional waterways. The rapid increase of population in aggregated areas has caused the destruction of natural habitats and coupled with indiscriminate fires and hunting has affected many interior areas. It has caused a migration of animals to far-away, less populated areas. These zones now constitute large animal refuges and parks favorable to the safeguarding of biological diversity.

6 - INTRODUCTION OF NEW FOREST SPECIES:
The introduction of new plant and animal species has been done for the purpose of enhancing indigenous species. Although the objective presents certain advantages, it weakens the genetics of the local species and may lead to extinction of the existing gene pool.

7 - MANGROVE HARVESTING:
The harvesting of wood from mangrove is used for energy sources. However, natural resources cannot keep up with demand which is threatening all sources of wood products. More than 70,000 tons of wood is cut yearly in 9 districts.

8 - SMOKING OF FISH:
Traditional techniques utilize great quantities of Rizophora (Kinsi) at about 530 tons per year. This activity is controlled by women.

9 - EXTRACTION OF SALT:
A niche area has developed for extracting salt using fire wood from mangrove.

The total production of salt in Guinea is about 30,000 tons per year, and for this use of 93,000 tons of mangrove is necessary. This has resulted in new large areas of clear-cutting.

10 - EXTRACTION OF SECONDARY PRODUCTS FROM FORESTS:
Secondary products from forest resources are mostly palm wine, raffia, toothpicks, tubers, roots and leaves of certain plants. The products are used locally but are also sold to markets in urban centers. At the present rate of utilization, the species that supply these products are at a risk of disappearance very soon.

11 - HARVESTING:
This is an area of considerable need for human and animal consumption; it provides economic value as well as contributing to the health of both humans and animals. Key products are fruit, leaves, bark, roots, sap, rubber, fibre, rope, stalks, flowers, buds: all used for food, medicine, dyes, ornaments, science and commerce. It is estimated that there are at least 1200 species that have traditional medicine value in Guinea, but only a handful of these have been studied.

Traditional use and methods of harvesting constitute a threat that could mean the destruction of these species.

12 - LIVESTOCK FARMING:
Throughout four national regions, several domestic species of animals are raised. The importance of these varieties varies based on climatic conditions, as well as the traditions of the local people, and the socio-economic importance of raising animals.

The main group of animals raised in Guinea are:

- Large grazing stock (cows, horses, asses).
- Small grazing stock (sheep, goats, pigs).
- Farm yard (poultry, rabbits, etc.).
- Domesticated (dogs, cats, etc.).
- Bees

Three basic systems exist for stock farming:

a) Small traditional family farming.

b) Mid-sized pasture use.
c) Large scale pasture use.

These systems are influenced by the size of available land, the practice in place for agriculture and stock farming, social conditions and human resources, as well as available capital to fund activities. In large enterprises, herds are often required to move to other locations and the result is soil erosion and the destruction of vegetation.

13 - FISHING:
The total biomass resource was disproportionately high at 135,000 tons in 1990. This resource declined by 80,000 tons to 60,000 tons in 1993.

An indication of this is seen by 93 kilograms being caught by 30 minutes of trawling in November 1992. This declined to 68 kilograms in February 1993. All experimental dragnet fishing since 1985 indicate a great reduction in the natural resource.

13.1 - Sea-fishing:
Two principal types of fishing exist: small-scale fishing and individual fishing. The former is further divided into individual traditional fishing and more advanced fishing using ice (refrigeration).

- Traditional small-scale fishing.
Small-scale fishing occurs from 120 ports with 8000 fisherman and 2197 owners. They operate 2,600 motorized boats of which 50 percent are equipped with 14 types of fishing tackle. The yield was in the vicinity of 50,000 tons in 1997. Most of the resource comes from south of Conakry.

The use of fine fishing nets, the increase of industrial fishing boats in the region, pollution, the growth of small boats by 23 % between 1989 and 1992 all contribute to the danger of preserving biological diversity in the coastal regions and estuaries.

- Operators using refrigeration:
These are made up of a modern vessels (length less than 29 metres, TJB less than 800, strength of 95 - 800 cv). The fleet consists of about 18 ships that harvested an estimate of 2,000 tons in 1993.

- Industrial fishing:
Industrial fisherman exploit different zones depending on the type of license that they have (fish product, cephalopodes, or shrimp). 116 ships obtained fishing permits in 1993 while 172 ships were licensed in 1997 made up of 14 from Guinea, 80 from CEE and 78 under other flags.

In 1995 pelagic fisherman brought in 3,400 tons, 8,600 tons of démersaux, 10,100 tons of cephalopods and 600 tons of shrimp.

Deep sea fishing is characterized by a little to no measures taken to fish selectivity.

Since 1994, resources have been exploited without any concern for the depletion of the species. Oyster beds are commercially harvested with no controls and this is contributing to the rapid decline of coastal and marine resources.

13.2 - Continental fishing:
There is an estimated potential of 12,000 tons annually. In 1993 it is estimated that the harvest was between 7,000 and 9,000 tons with 6000 to 8,000 tons harvested from the Niger basin.

The total number of fisherman is estimated to be 7000 with 6000 of them professional. They use conical mesh nets, lines, sweep-nets, seines and cast-nets. The use of forbidden small-mesh nets, explosives, etc. are creating almost total destruction of stocks in freshwater locations. It must be noted that poaching is damaging aquatic fauna in water systems. This is the practice of the Bozos with hippopotamus, crocodile and varan.

14 - HUNTING:
Wild meat is the principal source of protein for the population in Guinea. The exploitation of wild game by an increasing population is contributing to the danger of depleting a number of species.

Commercial hunting is a serious threat to Guinea as it is encouraged by the demand for meat and the international demand for living animals, skins and trophies. Many citizens have become professional hunters and they even capture snakes and young mammals. Poachers have no regard for female animals in gestation, young animals, or the scarcity of game in most parts of the natural areas.

Hunting of game, if practiced rationally is a good control of species, but the use of modern firearms, and traps used in all seasons should be forbidden.

14 - MINING INDUSTRIES:
Guinea's landscape has vast areas of open pit mining that are poorly controlled and overly exploited with no effort to rehabilitate these areas. These mining activities not only destroy the landscape but provide severe pollution in water, soil and in the atmosphere. Industrial mining and mining activities cause damage to the environment, and without controls and measures, they are dangerous to the development of environmental zones and future sites for exploitation. These mining areas also encourage unregulated hunting and are favorable for poaching in a grand scale with the resulting stress on wild animals.

The mining of bauxite, granite, gold and diamonds as well as extraction and removal of sand, gravel and clay have a negative effect on the biodiversity of water and water purity.

15 - URBANIZATION INFRASTRUCTURE:
The development of urban infrastructure (population shift, roads for moving people, large energy systems and irrigation) provoke considerable loss to the biological diversity.

VI - VARIOUS FORMS OF DEGRADATION

Degradation takes many forms, but principally:
Degradation of living things: reduction of the density and diversity of vegetation and animal forms.
Soil degradation: it is manifested in the change of landscape (erosion), loss of nutritional elements (poor fertility and reduced productivity), loss of organic material by salienation, build up of acidity, poor water absorption and retention, etc..
Wood land degradation: reduces the number and quality of many types of vegetation

VII - CONSERVATION MEASURES AND SUSTAINABLE USES OF BIOLOGICAL DIVERSITY

A number of measures exist in Guinea that focus on biological diversity, conservation measures, and sustainable use of resources. These measures are judicial laws, regulations and institutional measures. Principal ones are:

1. - CONSERVATION IN-SITU.

1.1 - Classified forests
Of major importance and material to biological diversity, the classification of forests started in 1936 as a protective measure, and these are still in place. These classified areas represent 4.8% of national land for a total of 162 forests covering 1,000,182,133 hectare.

1.2 - Nature reserves
These constitute the resources of Mount Nimba with 145,200 hectare and Ziama with 112,300 hectare for a total of 257,500 hectare.

Since June 1991, the administrative plan of Guinea with MAB and UNESCO approved a total area of 145,200 hectare with a transition zone of the 18,800 hectare and a buffer area of 38,120 hectare.

1.3 – World Heritage Area
This includes a focused nature reserve including the chain of mountains including Mount Nimba, the central regions of Bossou, and Déré, for a total land area of 18,800 hectare. These regions are rich in rare and endemic species and have an influence on the climate of West Africa.

1.4 - Parks
Guinea has two national parks:
The National Park of Badiar (38,200 hectare), which, with Niokolokobu Park in Senegal form the trans-border park of Niokolo-Badiar.
The Mafon Park (52,400 hectare) which covers three regions (Faranah, Kouroussa and Dabola).

1.5 - Protected forests
Although these are not officially recognized, they cover four natural areas. These thickets and woodlands serve community interest and use and are protected by members of local groups.

1.6 - Sacred forests
These sacred and cultural sites are found in Guinean forests in Upper and Lower Guinea. They constitute a traditional conservation of ecosystems.

1.7 - Forest plantations
These plantations are generally of one type of growth and are very relevant to the biological diversity conservation in Guinea. They provide control of vegetation and maintain an ambience by their maintenance. They are used by communities, families and individuals.

2 - CONSERVATION EX-SITU

Guinea has two Botanical Gardens that are in a state of neglect. These are the Botanical Gardens of Camayenne in Conakry, and the A. Chevalier garden in Dalaba. There are certain research centers such as CERESCOR, the Centre Nationale des Sciences Halieutiques in Boussoura, the agronomy center of Foulayah, the Institut de Biologie Appliquée in Kindia, and the University of Conakry all have modest collections of botanical species but the conditions for conservation of them is very precarious.

3 - PRUDENT CONDUCT FOR LASTING BIOLOGICAL DIVERSITY
These very important initiatives are:

- National Plan for the Environment (PNAE).
- National Forestry Action Plan.
- Direction for the Management of Mangrove.
- Study Program for Energy.
- National Program for Human Development.
- Plan of Action for the Promotion of Women.
- Plan for Decentralization of Civic Action.
- Program for the Protection and Support of Base Initiatives.

VIII - CONSERVATION METHODS FOR BIOLOGICAL DIVERSITY

Methods of conservation for biological diversity depend on national legislation rules and laws that are regional and international with Guinea as a contracted party, as well as institutional and financial influences.

1. - NATIONAL LEGISLATION.
Civic rights in Guinea dealing with natural resources and the environment are made richer through the adoption of global rules and legislation. These texts also deal with the management of biological diversity with particular emphasis on the management of forests and mining with the appropriate penal codes.

1.1 - Major framework of national legislation
The judicial framework for the management of natural resources and the environment consists of texts and regulations some of which are general and some specific. They tend to favor the population having responsibility regarding the management of development, and preservation of resources relevant to national interests and empowering them to take a custodial role for the common good of present and future generations. These principal texts focus on environmental codes, management for freshwater and forestry, protection of wild animals and the control of hunting, as well as enforcement codes.

1.2 - Lesser framework of national legislation
Discrepancies are noticed in the basis and application of existing codes. There are problems in the application of laws and very little harmony in the preparation of the text. Gaps are mostly notable in the codes for the environment, forestry, the fiscal and financial platform of CRD, as well as general codes relating to these matters.

2. - CODE OF LAW

Many texts deal with the function of the legislation itself.

3. - REGIONAL AND INTERNATIONAL CODES

Due to the importance of the Conventions, and in view of the implied co-operation, the Republic of Guinea is a member of many of these:

- Convention for the Management of the Niger Delta.
- The African Convention for the Conservation of Nature and Natural Resources.
- Convention for Locust Control.
- Convention for Biological Diversity.
- International Convention on Wild and Endangered Flora and Fauna (CITES).
- Convention for the Protection of Global Heritage.
- United Nations Convention for Drought and Water Rights.
- International Convention for Preservation of Wetlands.
- United Nations Convention for Relief of Desertification and Drought.
- Convention for Climate Changes.

4. - INSTITUTIONAL MEANS

All central elements are covered and represented that deal with the environment and natural resources at the regional and local level. There are about twenty groups under national direction, institutions for research and other services required for the protection of the environment and the conservation of renewable natural resources.

Guinea is confronted with numerous constraints regarding these institutional means:

- The lack of cooperation and coordination among the different sectors.
- The lack of sensitivity and implementation of development processes.
- A disproportionate hierarchy of personnel involved.
- Weakness in the capabilities of administration for planning and implementation of measures to manage natural resources.
- Insufficient material and money for the programs to function well.

5. - HUMAN RESOURCES

Guinea has important human potential but means are inadequately distributed for the task of conserving biological resources. Specialized knowledge for the application of measures in biological diversity are new and insufficient. The local population is not sufficiently structured, informed, sensitive, and motivated to the importance of programs for the implementation and sustainable development of resources in biological diversity in their regions and areas.

6. - FINANCIAL RESOURCES

Financial help and resources are provided by the National Development Budget (BND) that includes internal funding as well as external gifts and loans. A few of the national plans and programs have a positive impact on the conservation and sustainable development of biological diversity.

The principle plans that facilitate this are the PNUE, The Plan of Action for the Promotion of Women, the National Forestry Plan, the National Program for Human Resource Development, the Program for Promotion of Decentralization and Development of the Civil Service, the Programs and Initiatives for Base, and programs for the study of the energy sector.

Key projects that have resulted from the plans are:

- Research Center for documenting environmental issues in Labé and N'zérékoré.
- National parks of Badiar and the Upper Niger.
- Protected lands between Guinea and Mali and between Guinea and Guinea Bissau.
- Sharing of rural resources.
- Pilot studies in 25 deltas belonging to the Niger, Gambie, Sénégal, Konkouré, Koliba, Corubal, Kolenté, and Kaba.

7. - RESEARCH AND TRAINING

Guinea has a number of research institutions for applied research and fundamental research in the area of biological diversity. However, these institutions are poorly equipped and staffed to generate quality outcomes.

IX - PRINCIPAL CAUSES OF PRESSURE AND THREATS TO ECOSYSTEMS

An analysis of the pressures and threats to ecosystems of biological diversity points to fundamental causes for this situation. These derive from demographic, economic, institutional, regulatory, and technology issues.

Factors worth mentioning are:

- The increased demand for biological resources due to growth of population and economic development.
- Lack of consideration by the Guinean population for long-term consequences of activities affecting the environment.
- Lack of appreciation for the consequences of using technology inappropriately.
- Lack of recognition of the real value of economic contribution of biological diversity.
- Lack of control by the government sector on the over-exploitation of biological resources.
- Increase in population shifts.
- Political instability and civil wars in the neighboring countries.

1. - ECONOMIC AND POLITICAL SITUATIONS

The government has adopted a program for development based on the fundamental needs of the population in order to assure the basic dietary needs, re-stabilize the national economy, all keeping in mind the capacity of the local population and reinforcing international cooperation. By doing so, the State has disengage itself from the economic sector for the advantage of the private sector; it decentralized power and started a very liberal plan of structural and economic reform to create conditions that are favorable to private initiatives.

2. - RAPIDLY CHANGING DEMOGRAPHICS

The last census of the population in Guinea was completed in December 1997 and listed about 7 million inhabitants with a density of 28.5 persons per square kilometer. The density will increase to over 48 persons per square kilometer by the year 2018. This represents a 2.8% increase per year.
This increase in population is hastening the pressure on biological resources and it is accelerating the degradation of conditions to ameliorate the current situation.

3. - THE INCREASE OF REFUGEES

Since the early 90's, West African countries have suffered insecurity, coup d'état, rebellion and civil wars that have exposed populations to massacre and created the exodus of people. Countries like Liberia, Sierra Leone and Guinea Bissau have been in turmoil.

African solidarity in Guinea has welcomed more than 600,000 refugees. This sudden increase of population has greatly increased need.

This massive arrival of refugees has brought disaster to national resources. Local natural resources are not plentiful enough to take care of the needs of indigenous people in addition to the refugees. The consequences are mostly felt in the wooded areas of Guinea, which is a key area of biological diversity in the country.

In those regions the density of population has reached 400 persons per square kilometer due to this influx of refugees. For example, by itself, the region of Gueckedou supports 288,467 refugees in a local population of 348,053, bringing the total population to 636,520 in 1997.

4. - NON-SUSTAINABLE EXPLOITATION SYSTEMS

Man typically upsets and disturbs the natural equilibrium in order to produce necessary resources and supply basic needs that are necessary (water, air, plants, energy, soil, animals). All these human activities degrade the environment and constitute a threat to life itself due to the lack of equilibrium in nature's ability to regenerate itself, auto-regulation and auto-purification of nature. The durable use of biological resources is based on the principle that present needs should not compromise the needs of future generations.

4.1 - Agricultural exploitation

This is manifested by traditional methods of operation that contribute to degradation such as clear-cutting of forests, nomadic agricultural practices, lack of concern for soil erosion, use of poor mechanization and overgrazing by animals.

4.2 - Flora exploitation

Exploitation takes many forms. In effect forests provide combustible products, materials for construction, food, foraging, medicines, fiber and wood for many other uses.

Varying forms of harvesting have a damaging impact on natural habitats, the over-exploitation of certain species, it impacts climate change, the degradation of soil and the loss of biological diversity, etc.. The supply of wood and charcoal in Conakry and other large population clusters in the interior has reached a critical state with total destruction of resources that leave areas now unprovided for.

The exploitation and commercialization of wood products have reached considerable volume in all of the districts of the country.

4.3 - Fauna exploitation

The need to provide food sources rich in protein and at the same time to bring economic revenues from their use has obliged the population to draw on natural sources of both land and sea supplies. This has resulted in the effect that hunting (poaching, tracking and chasing by fire, and the use of traps and snares), the commercial capture of birds, fishing (using non-conventional means), all constitute principal activities that deplete their resources.

5. - POVERTY

The rural population is destroying the natural resources and the nature that is required for their very survival. This degradation in turn, contributes to more poverty.

The question of poverty is a complex problem that has its origins in events that have been present for many years:

- A system that has not had the equitable mechanisms for fair distribution and no rights or clear directions.

- Political insecurity and non-participation of groups, organizations and individuals with the attending recognition of their interests.

6. - LACK OF ECONOMIC ALTERNATIVES

Economic alternatives are insufficient and non-existent. As a consequence, almost the entire population is actively oriented toward the exploitation and use of natural resources which are notably biological resources. The population that live in rural communities, where the ecosystems are the most fragile do not benefit from the economic and alternative solutions. In general, the degradation of natural resources is associated with their life style and pressures that reflect directly on their possibility to survive.

7. - LACK OF CONCERN FOR GOOD PRACTICES

Different aspects of Guinean culture used to integrate good methods for the use of natural resources that comprise the ecosystems. The people's knowledge had conserved the ecosystem, flora and fauna while everyone profited from their benefits. The natural resources were used according to customs and traditional authority, and there was an annual fair distribution according to culture, zone limits, protection of plants and animals, collective fishing and harvesting, good hunting practices, training of hunters and the regulation of use. All these practices were eliminated in the sixties.

8. – ILLITERACY:

This is a problem as the large majority of the population is illiterate. This lack of education and illiteracy is directly associated to poverty. In 1996, 69 % of the population of Guinea was classified as illiterate. This illiteracy affected 81% of females and 56% of males as reported in the national report on human development (RNDH 1997).

9. - EXPLOITATION OF MINES AND QUARRIES:

Mines and quarries extract bauxite, granite, gold and diamonds as well as material for construction such as sand, gravel, rock and clay. This activity has a negative impact on biological diversity (flora and fauna) and effect air quality and climate.

The countryside of Guinea is scarred by mining concerns and open pits. Mining activity has important effects on vegetation cover, the soil, and on animals. These activities do not only change the landscape, but they produce serious pollution of the atmosphere as well as the water supplies and soil.

Industrial mining and use of mined products by individuals caused a number of serious problems to the environment, and without curative and preventive methods, the situation will worsen to the point of total destruction in these zones to the vast majority of fauna and flora.

X - THE COST OF IN ADEQUATE MEASURES

In spite of in-situ and ex-situ conservation measures from plans, programs and projects, legislative means, regulations, laws, institutions and funding, the following apply:

- Almost 140,000 hectare of forests are destroyed annually.
- Nomadic cultural practices are very damaging to the survival of plant biomass.
- Bush fires annually destroy vast areas of the country (2/3).
- Mangrove resources that cover 350,000 hectare in 1965 are estimated to date at 250,000 hectare, representing an annual loss of 4.2%.
- Of the 190 mammal species in Guinea, 17 are threatened with extinction.
- 16 species of birds are endangered out of 526 categorized.
- From the 3000 species of plants of which 88 are indigenous, 36 species are considered endangered.

Strong measures of conservation are necessary or Guinea will suffer catastrophic consequences in less than 20 years.

XI - NATIONAL STRATEGY FOR CONSERVATION OF BIOLOGICAL RESOURCES AND THE SUSTAINABLE USE OF THESE RESOURCES.

STRATEGIC VISION

The strategy represents a global vision for the next 15 years.

"For the national and regional benefit and for the welfare of present and future generations, the working population that comprises the socio-economic structure must be sufficiently informed on the values of biological diversity and the risks involved in its loss and be made responsible and must be engaged in the conservation and sustainable use of the resources."

In support of this vision, the strategies give a series of principal directions and forms a foundation for future implementation. The strategy, for focus and implementation, provides direction to all levels of administration to work for the improvement of productivity, maintaining diversity and integrating systems and capacity to develop a long-term platform. It promotes the conservation of biological diversity in a sustainable manner.

This strategy sets four principal objectives:

- Conservation of biological diversity divided into 5 sub-objectives and 35 priority actions.
- Sustainable use of resources from biological diversity divided into five sub objectives and 28 priority actions.
- General measures for conservation and sustainable use divided into 11 sub-objectives and 54 priority actions.
- International co-operation measures with 1 sub-objective and 8 priority actions.

The strategy recognizes that conservation and sustainable use of biological resources is a foundation for local activities.

The success of the project will depend mostly on the acceptance of the strategy and the principles to implement the objectives by all levels of society.

For this to happen, it will be necessary:

- To establish good practices of conservation and sustainable use of biological diversity through legislation, regulation, administration and finance.
- To adopt good measures of equitable distribution related to available funding.
- To safeguard biological diversity and protect genes, species, habitats and ecosystems.
- To provide fair value to different resources and making sure that exploitation does not harm nature.

In order to respect these principles:

- Strategies, action plans and programs for biological diversity must preserve or better the living conditions of the population.
- Only equitable distribution of financial support provided will achieve the goal.
- Objectives and plans must be conscribed to by all participants in the Convention for Biological Diversity.
- Processes and plans for biological diversity must be adaptable, cyclical in nature, and integrated into all decision making bodies in the land.
- Communication and negotiation (consensus) are the cornerstones for gaining support and commitment.

As such, the strategic acts are as follows:

- Support and reinforce institutional and legal offices.
- Conservative land ecosystems and their biological diversity.
- Conserve water ecosystems.
- Make access and sharing possible for the benefits resulting from the use of the ecosystems.
- Value the ecosystems and their biological diversity.

It is for these reasons that strategies aim to incorporate biological needs with corresponding political sectors. The attainment of objectives must be reached through action plans focused toward:

- Identification and supervision
- In-situ conservation
- Ex-situ conservation
- Sustainable use of elements consisting of biological diversity
- Motivational measures
- Research and training
- Education to sensitize the public
- Reduction of harmful effects
- Access to genetic resources
- Exchange of information
- Scientific and technical cooperation

Conservation and sustainable use of biological resources demands participation from all sectors; local, regional, central, the ONG, public and private enterprises, schools of learning, research centers and the cooperation of the international community.

XII - OBJECTIVES OF THE STRATEGY

KEY OBJECTIVE I - CONSERVATION OF BIOLOGICAL DIVERSITY

Sub-objective 1.1: Identify the components of biological diversity.

1. Support institutional capability to identify the components of biological diversity.

2. Inventory biological diversity elements in their location.
3. Map the location of biological distribution
4. Increase the knowledge of endangered species in ecosystems.

Sub-objective 1.2: Observe pressures on biological diversity and reduce their impact.

1. Identify and evaluate the impact of pressures on biological diversity.
2. Define and apply measures to control processes.
3. Control all pollutants having an impact on biological diversity.
4. Complete a survey on wild meat consumption.
5. Define and apply measures to control pressures.
6. Control the introduction of exotic species that endanger ecosystem.
7. Control the risks associated with the introduction of modified genetic organisms (OGM).
8. Harmonize concepts, plans and strategies related in particular to the management of water, transport, mining and energy and their effect on the conservation of biological diversity.

Sub-objective 1.3: Reinforce in-situ conservation of biological diversity

1. Reinforce and redefine its boundaries to allow administration of the plan of action.
2. Reinforce the population participation for the conservation and sustainable use of these resources.
3. Confirm areas for the conservation of ecosystems, habitats and species and classify them for the benefit of the state and rural communities.
4. Create new classified forests in the districts where they do not exist.
5. Initiate good management of rural territories and villages around the protected zones.
6. Prepare a summary of relevant text from the Bible and Koran that mention preservation and sustainable use of biological diversity.
7. Print posters or atlases to show flora and fauna that are endangered.
8. Parcel out safe corridors for the safe migration of endangered species.
9. Repair areas of land where habitats and ecosystems have degraded.
10. Promote the conservation of biological diversity outside of protected areas.

11. Assure proper protection of primordial reserves of typical biological diversity.
12. Develop programs of conservation for endangered species and reintroduce extinct species.
13. Promote the conservation of plants and animal species that are beneficial to agriculture.
14. Catalog customs that are associated to the conservation of biological diversity.

Sub-objective 1.4: Reinforce the national infrastructure for ex-situ conservation

1. Develop programs for genetic protection ex-situ.
2. Create and/or confirm institutional capacity regarding the structure and supervision of ex-situ conservation.
3. Rehabilitate existing structures for ex-situ conservation.
4. Identify and fill gaps in ex-situ conservation materials and methods.
5. Develop low-cost techniques for the conservation of species and the propagation of vegetation.

Sub-objective 1.5: Establish an accessible system to control the development and growth of biological diversity.

1. Develop a program to control biological diversity.
2. Develop methods to facilitate understanding of controls and changes required for the ecosystems.
3. Develop practical measurements to monitor the necessary rapid changes to biological diversity and the ecosystems.
4. Create a system to share and exchange all information between National Information Center and all points of control.

KEY OBJECTIVE II - SUSTAINABLE USE OF BIOLOGICAL DIVERSITY

Sub-objective 2.1: Maintain a sustainable ecological development program for biological resources.

1. Develop national criteria (texts) for the administration of programs regarding biological resources to insure their application.
2. Promote an understanding for processes and planning in the national system for biological diversity.
3. Implement studies on the main ecosystems regarding their conservation and sustainable use.
4. Assure programs are in place to restore degraded ecosystems and those threatened.
5. Integrate traditional consciousness of the strategies for conservation of biological diversity and the sustainable use of these resources.
6. Create uniformity in the processing of fruits and vegetables.
7. Improved and modify systems for charcoal production.
8. Promote alternative forms of energy.

Sub-objective 2.2: Improve progressively pastoral and fishing practices that are inappropriate for ecological sustainability.

1. Promote sustainable traditional agricultural practices, including cultivation.
2. Promote the use of natural gas as a renewable second form of energy.
3. Promote customs and traditional cultural practices that are compatible with the imperatives of conservation and sustainability.
4. Initiate studies on the effects of fires on the soil and the effect on biological diversity.
5. Prepare laws to regulate the exploitation of medicinal plants.
6. Stop and prevent soil erosion.
7. Increase and restore the soil fertility.
8. Based on the principle of preservation, determine the critical processes and activities that add to the threat facing biological diversity.
9. Reinforce suspension of the exploitation of the elements constituting biological diversity.
10. Promote and encourage the growth and breeding of important biological species.

Sub-objective 2.3: Achieve the conservation of biological diversity by the introduction of sustainable prectices in hunting and fishing.

1. Reinforce existing regulations forbidding excessive hunting and fishing.
2. Prevent illegal poaching and replace this with alternative methods.
3. Wild game ranches.
4. Make an inventory of wild flora and fauna and establish quotas for export.

Sub-objective 2.4: Promote durable tourism with respect for the environment.

1. Make a list of particular landscapes, natural and traditional sights to encourage tourists.
2. Promote plans for national and local tourist attractions, working with authorities responsible for their management (private sector and international agencies for tourism).
3. Develop national tourism that respects the environment.
4. Create villages focused on handicrafts that appeal to tourists.

Sub-objective 2.5: Promote access to biotechnology and/or its benefits while assuring the security of these biotechnologies

1. Develop laws and appropriate jurisdiction for the production, importation and use of living organisms either genetically modified or derived from indigenous species.
2. Work out detailed procedures and instruments for the evaluation and administration of the risk associated with the use of genetically modified organisms.
3. Develop research tools to identify the risk and contend with possible negative effects from genetically modified organisms.

KEY OBJECTIVE III: - GENERAL ACTIONS FOR CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL DIVERSITY

Sub-objective 3.1: Strengthen present regulations to insure the balanced relationship between conservation and use of biological resources.

1. Examine the general political questions that have an influence on global attitudes toward conservation and sustainable use of these biological resources.
2. Plan and/or review strategies for an effective administration of the Convention, dealing with conservation and utilization.
3. Increased help to the political administration and promote the need for lasting utilization.

Sub-objective 3.2: Develop legislative means to sustain the Convention

1. Promote the success of the Convention by supporting new laws and instruction to provide compliance to the obligations of the Convention.
2. Support all existing rules and recommendations to achieve conservation and sustainable use of resources.

Sub-objective 3.3: Encourage unity among participants, minimize the possibility of duplication and assure the effective conservation of biological diversity and lasting value of the resources.

1. Assure active participation of private sector, and the ONG in planning and processes for the local, district, regional and national involvement.
2. Promote consultation between/among partners in the sustainable use of resources.
3. Establish a mechanism for compensation and spending.
4. Create and monitor plans for co-activity of all groups that have interest or involvement in the execution of programs for conservation and sustainable use of biological resources.

<u>Sub-objective 3.4:</u> Develop systems to promote motivation for the conservation and use of biological diversity.

1. Establish a good national plan that fosters excitement and motivation for conservation and the sustainable use of biological resources.
2. Complete a quick evaluation of biological resources and estimate of the promised benefits to the national economy.
3. Combine the economic value of both resources and services originating from the ecosystems to establish the real value.
4. Put into place programs to incent and encourage efforts in conservation and sustainable use of biological diversity. These programs should also include evaluation on the outcomes.
5. Develop additional and new methods of financing conservation while promoting decentralization and the participation of the ONG.
6. Constantly evaluate the effect of measures that encourage and promote conservation and sustainable use of biological diversity.

<u>Sub-objective 3.5:</u> Place importance on planning for both terrestrial and aquatic ecosystems as key areas of biological diversity.

1. Include biological diversity as a key element in all planning that impacts terrestrial and aquatic ecosystems.
2. In order to assure ecological stability, introduce regulations dealing with the environment in all plans that affect the landscape.
3. Take into consideration all ecologic impacts in the planning that deals with landscape and use.
4. Consider the needs of all rare species when dealing with plans and programs.

<u>Sub-objective 3.6:</u> Encourage research that is focused on biological diversity and sustainable use of these resources.

1. Develop a clear program for short, mid and long-term research for conservation and sustainable use of biological diversity.
2. Establish standard operating procedures covering experimentation that will cover all aspects of biological diversity.
3. Encourage and implement research that includes risk assessment when dealing with organisms that are genetically modified.
4. Ensure the participation of both national bodies as well as international research bodies for biological research.
5. Improve existing methods for research in biological diversity.

<u>Sub-objective 3.7:</u> Promote the enhancement and development of human and institutional research for the conservation and sustainable use of biological resources.

1. Support the capabilities and productivity of institutions now focused on research, including controls and administration to enhance their work on biological diversity.
2. Promote cooperation between existing national institutions to assure of the best utilization and efficiency of present capabilities.
3. Adopt proper administrative and regulatory measures to assure active and equal participation of the ONG and the private sector for the research and control of processes and outcomes focused on biological diversity.
4. Reinforce the power of the ONG and other structures involved in the field of biological diversity.
5. Promote the formation and education of specialists in different fields of expertise.
6. Create and strengthen the capability for research institutions to properly describe, classify and archive scientific specimens.
7. Institute talent and continuity for the proper sharing and dissemination of information.

<u>Sub-objective 3.8:</u> Promote all forms of education and the specificity of educational information for the conservation and sustainable use of these components.

1. Insist on coordination and standardized development of the different units involved.
2. Develop a communication and information program to include both education and field workers.
3. Promote access to information by the private sector in all aspects of implementation for conservation and sustainable use of biological resources.
4. Promote the use of new technology and knowledge and education to use this.
5. Promote ethnic aspects and education of their value that will contribute to conservation and the sustainable use of biological diversity.

<u>Sub-objective 3.9:</u> Give more importance to biological diversity and processes to evaluate their impact on the environment.

1. Promote higher education that will ensure better knowledge, better comprehension and better adoption for the necessity of conservation and the respect for all forms of life.
2. Promote public education by disseminating information and strive for their participation that is necessary for conservation and the respect for all forms of life.
3. Used the studies as a model for future projects for development and as a means to create acceptance of programs that influence conservation.
4. Insure active public participation in all procedures and decisions that impact the environment.

<u>Sub-objective 3.10</u>: Create a National Coordination Body to oversee the enactment of Convention activities and information transfer for conservation and the sustainable use of biological diversity.

1. Start a national mechanism for coordination, the exchange of knowledge and monitoring actions that are scientific, technical, socio-economic and cultural that impact biological diversity.
2. Adopt judicial directions to facilitate the access to resources and the circulation of information.
3. Create and strengthen the basic platform of biological diversity.
4. Promote the application of new technology and the administration required for these new methods.

<u>Sub-objective 3.11:</u> Design and implement mechanisms of financial support for conservation and sustainable use of biological resources.

1. Promote the growth of investment for conservation and sustainable use of biological diversity.
2. Support private initiatives for the restoration of degraded ecosystems and the protection of biological diversity.
3. Promote the creation of special funds to support conservation and the sustainable use of biological resources.

KEY OBJECTIVE IV - INTERNATIONAL COOPERATION

<u>Sub-objective 4.1:</u> Support national cooperation, regional and international cooperation for conservation of biological diversity, sustainable access to biological resources and equitable division of benefits resulting from these activities.

1. Promote participation of Guinea in technical and scientific cooperation with the parties of the Convention.
2. Participate actively in all initiatives concerning the conservation of biological diversity and the sustainable use of these resources.
3. Reinforce cooperation in the field of in-situ conservation with neighboring countries, appointing additional protected areas bilaterally and multilaterally.
4. Reinforce cooperation in many fields of research for conservation of biological diversity and the sustainable use of these resources.
5. Encourage development of scientific research for biological diversity.

6. Reinforce bonds between the structures of administration for the Convention for biological diversity and any other suitable conventions.
7. Establish appropriate rules for promoting access and transfer of technology.
8. Facilitate the exchange of information for the support of the Central Exchange.

4.2 - Initiating and starting strategies and action plans

Coordination of the administration of strategies and action plans will be enacted through an organization created especially for such responsibility and named : Bureau National de coordination de la mise en œuvre de la stratégie et des plans d'action sur la diversité biologique (BNCMO/SPA-DB) - National Office of Coordination for Administration of Strategies and Action Plans for Biological Diversity.

The mission of this organization is:

- Watch over the of administration of the Convention of biological diversity in Guinea.
- Provide useful information to specialists in biological diversity.
- Sensitize the public through publications, exhibitions and collections, specimens, documentary films, etc..
- Create and maintain repositories of basic data on the conservation and management of natural resources and also for biotechnology.
- Publish work done in research with public lectures on biological diversity.
- Be available to decision makers, industry participants, scientists and environmental organizations.
- Act as an intermediary between users and suppliers of information on biological diversity.
- Promote collaboration between organizations and institutions working in biological diversity.
- Be the focal point of a network made up of all national agencies (public and private) that are concerned with the application and administration of biological diversities.
- Promote all possible means for lasting development that will result in improved conditions of life for the whole world (No. 8 of the ONG declaration in Rio).

This organization will be part and connected to the Directorate of the National Environment whose mission is to organize a national program for the environment.

XIII - FINANCIAL STRATEGIES

Objectives for financial strategies

Guinea just started the final stages of processes that outline the national strategy and action plans for biological diversity. All of the documents issued on the project will be of no value if their content is not concertedly supported by lasting financial support of projects. More and more traditional sources of funding have reservation in their willingness to support initiatives and cost of projects in developing countries. Several reasons support and contribute to this attitude, notably the government's of the north, while fighting deficits, are putting taxpayers under strict rationalization of spending. Add also their doubt as to the "profitability" of investments in developing countries. It is justifiable for subscribers to somewhat question the durability of the project and the security of financial vehicles. At a time when a new world economy is emerging with the help of new ways and means, it is imperative to finance the administration of a National Strategy and plans and actions for biological diversity in order to allow the strategy to operate and adapt, while keeping in mind an arsenal of contingencies and the pre-disposition of certain national and international key players. Stressing the need for new strategies of finance is justified by the growing international expectation. Such strategy is the only guarantee of assuring profitable use of funds.

Furthermore, a clear and coherent financial strategy is a powerful instrument when dealing with the deployment of funds coming from different sources, and thus assuring the logic of allowing additional funding. This strategy for financing taking into account local, national and international contexts will reap substantial benefit and will allow the participation of important players who were ignored in the past for environmental projects. We are talking about the private sector.

The present strategy proposes an approach where Guinea will mobilize all subscribers that can establish durable financing of the activities proposed in the National Action Plan for biological diversity. We mean subscribers for all forms of contribution whether direct or in kind. Salaries for employees in the project is part of contributions.

Subscribers - Targeted:

At the national level:

- The State of Guinea.
- Multilaterally cooperation.
- The national private sector (mining, agriculture, food processors, forestry, fishing, engineering, breweries, petroleum, shopkeepers, tobacco, etc.) including:
    - Corporations
    - Entrepreneurs
- State controlled societies and national lotteries.
- National patrons (merchants and professionals).
- National associations and mutuals.

At the International level:

- Traditional agencies for assistance
- Zoological and botanical parks
- Certain foreign centers of research specializing in specific species of biological diversity of Guinea
- Airline companies operating in Guinea (Air France, etc.)
- Freight and marine transport
- Large publications dealing with environmental issues (National Geographic, Revue GEO, etc.)
- Foundations and patrons
- Large multinational companies (IBM, Microsoft, Pharmaceutical companies, etc.)

Steps for the process:

- Prepare a succinct document for presentation of the strategy and plan of action for biological diversity in Guinea (color pamphlet for potential subscribers) and if possible a web-site with more details. The pamphlet and web-site would present not only the strategy and action plans but could demonstrate how political subscribers could advantageous engage as partners.
- Quickly identify potential subscribers by using the categories mentioned above (identify substantial capability).
- Proceed to a survey of selected potential partners/subscribers. The first survey will allow the coordination of UNBio to know the profile, the interest, and level of possible contribution of each subscriber. This survey would also see how far potential contributors are prepared to go in the financing and the support of the activities of BNCMO/SPA-DB. It is understood that this commission, its status and function (including means of financing the activities of BNCMO/SPA-DB) will be the object of discussion with potential subscribers before its enactment.
- Round Table of Subscribers. Following an expression of interest by subscribers, there will be a selection of groups or individuals that will be invited to the Round Table. It is important to mention that in places in the northern countries, like Canada, mechanisms exist for consulting firms, or others, to move rapidly toward bilateral financing. Therefore, it is strongly recommend that these groups should be identified and invited, especially those active in, or interested in Guinea, even if they are not classified as major subscribers.

Preparation of the roundtable in collaboration with international expertise:

- Produce a pamphlet.
- Produce a promotional web-site.
- Finalize the list of potential subscribers.
- Prepare and send a questionnaire to potential subscribers (through postal mail or internet). The contacts should be made beforehand in order to acquaint them and allow them to answer the survey and express their opinions on their expectations.

- Identify all participants in the Round Table.
- Invite.
- Conduct the Round Table

Bibliography

1. Abayomi Sofowora (1996). - Plantes médicinales et médecine traditionnelle d'Afrique. Ed. Karhala. 378 p.
2. Altenburg W., Kamp J. V. D., 1991. The ornithological importance of coastal wetlands in Guinea. Rapport 91.02/ICBP study report nr. 47/WIWO report nr. 35, Veenwoudden / Cambridge / Zeist.
3. Altenburg W., Kamp J. V. D., 1989 - Etude ornithologique préliminaire de la zone côtière du Nord Ouest de la Guinée WIWO - Report 23, Zeist and ICBP - Report 30 - Cambridge, 61p
4. Bah M., 1993 : Gestion des écosystèmes fragiles. Réseau d'aires protégées - Plan d'actions environnementales. Conakry.
5. Bah M., et N.F. Loua 1999, Promotion de l'exploitation durable des plantes médicinales en Guinée. Atelier national sur les plantes médicinales et les communautés locales, ENATEF, Mamou, 23 p.
6. Bankoungou E.G. (1997) - Monographie du karité.
7. Baran E. 1995.- Dynamique spatio-temporelle des peuplements de poissons estuariens en Guinée. Relation avec le milieu abiotique. Thèse et documents microfichés. 236 p
8. Barry M.S., M. Dioubaté, A.K. Baldé, M.S. Diallo et A. Diakité, 1999 " Identification, Hiérarchisation des pressions humaines et analyse de la durabilité des systèmes d'exploitation des ressources sur la diversité biologique terrestre, marine et côtière et des causes principales des pressions en Haute Guinée" Ministère Mines, Géologie et Environnement, DNE/projet Gui/97/G32/A/1G/99 Stratégie Plan D'action Diversité Biologique/ mai 1999 66p.
9. Blasco F. 1991. Les mangroves in La Recherche, journal N°231 "première revue européenne d'information scientifique et technique ", pp. 445-452.
10. BNUS / PNUD, mai 1993, Le renforcement des capacités pour la gestion des ressources Naturelles 20 pages.
11. Bondar A., G. Zouev et 1984. Les ressources de poissons de la Zone Economique Exclusive Guinéenne et les perspectives de leur exploitation ..M . P. E,. Conakry – Guinée, 106p.
12. Breuil C., D. Greboval J.P. Marquet (1996) Schéma directeur Pêche continentale et Pisciculture, Analyse et Propositions pour le sous-secteur Pêche Continentale FAO Rapport tech N°2 TCP/GUI/4556 Italie, Rome 61 pages.
13. Brown M. et B. Wyckoff-Baird, 1992. Programme d'appui à la biodiversité: Projets Intégrés de Conservation de la Nature et le Développement. World Resources Institute, USAID.
14. Cacaud P. 1997, Schéma Directeur Pêche et Pisciculture en Guinée / Aspects Institutionnels et Juridiques 61 pages
15. Camara S. et al., 1999 Sur les possibilités d'élevage des huîtres sur fond dans la préfecture de Boffa. Bulletin du Centre de Rogbanè N^{o} 14. Décembre 1999 pp 72-78.
16. Camara S., Bangoura K., Magassouba M., 1998 - Causes potentielles de la pollution des eaux côtières Guinéennes et stratégies de lutte pour l'assainissement du littoral, Bulletin du CERESCOR N° 12 ; pp. 151 - 157.
17. Camara S., Loua F.N, B. Lamou 1998 Projet Plantes Médicinales et Communautés Locales /Guinée : rapport pré-enquête, 32p.
18. Camille P, 1991, Plan d'action biodiversité de la République de Guinée, 122 p.
19. Chavance P., Diallo A. et autres, 1997 - Atlas des pêches maritimes en Guinée. ORSTOM- CNSHB, 25p.
20. Chavance P., Diallo A 1997 - Schéma Directeur et Pisciculture Ressources et Exploitations Halieutiques (document1) FAO 37 p.

21. CNSHB, 1993 Rapport technique situation du secteur des pêches maritimes et recommandations au Ministère de l'Agriculture de la pêche et des ressources animales. doc. hors séries Novembre,.24 p
22. CNSHB, 1994-Rapport technique-Situation du secteur des pêches maritimes et les recommandations au ministère des pêches et de l'Aquaculture. Doc hors série Conakry.15p
23. CNSHB, 1997 - Rapport Scientifique et Technique de Conjoncture-Diagnostic sur les Ressources et les Exploitations Conakry.12 p
24. CNUED, 1993, Agenda 21, Chapitre X, Conception intégrée de la planification et de la gestion des terres, 4 p.
25. CNUED, 1993, Agenda 21, Chapitre XI, Lutte contre le déboisement, 11 p.
26. CNUED, 1993, Agenda 21, Chapitre XIV, Promotion d'un développement agricole et rural durable, 19 p.
27. CNUED, 1993, Agenda 21, Chapitre XL, L'information pour la prise de décision, 4 p.
28. CNUED, 1993, Agenda 21, Chapitre XVIII, Protection des ressources en eau douce et de leur qualité, application d'approches intégrées de la mise en valeur de la gestion et de l'utilisation des ressources en eau, 24 p.
29. Conseil de l'Europe, 1992, Séminaire des gestionnaires des zones diplômées, rencontres environnementales, 41 p.
30. Convention de Ramsar 1999 Priorités en matière d'inventaire des zones humides 1999 "L'homme et les zones humides: un lien vital", 7è^{me} Session de la Conférence des Parties contractantes à la Convention sur les zones humides (Ramsar, Iran, 1971) Ramsar COP7 DOC. 15.21. San José, Costa Rica, 10 au 18 mai 1999
31. Convention Ramsar 1999 Programme d'information- 1999 - 2002. "L'homme et les zones humides: un lien vital", 7è^{me} Session de la Conférence des Parties contractantes à la Convention sur les zones humides (Ramsar, Iran, 1971) Ramsar COP7 DOC. 15.9. San José, Costa Rica, 10 au 18 mai 1999
32. Convention Ramsar 1999 Questions relatives à la définition des sites Ramsar et à la compensation pour la perte de biotopes dans les zones humides "L'homme et les zones humides: un lien vital", 7è^{me} Session de la Conférence des Parties contractantes à la Convention sur les zones humides (Ramsar, Iran, 1971) Ramsar COP7 DOC. 15.26. Rev1. San José, Costa Rica, 10 au 18 mai 1999
33. Convention Ramsar 1999 Sites de la Liste Ramsar des zones humides d'importance internationale: description officielle, état de conservation et plans de gestion, y compris situation de sites particuliers sur le territoire de certaines Parties contractantes "L'homme et les zones humides: un lien vital", 7è^{me} Session de la Conférence des Parties contractantes à la Convention sur les zones humides (Ramsar, Iran, 1971) Ramsar COP7 DOC. 15.12.Rev.1. San José, Costa Rica, 10 au 18 mai 1999
34. Diallo H. et S. Sagna, juin 1999 : Analyse des cadres législatifs, politiques, institutionnels et des ressources humaines afférentes aux objectifs de la convention sur la diversité biologique, 71 pages
35. Direction Nationale de l'Elevage 1995 Recensement National du cheptel. ; Conakry
36. DNEF, 1988, Politique forestière et plan d'action, Plan d'action de 6 ans. 50 p.
37. DNEF, 1988, Politique forestière et plan d'action, Principes et stratégie, Plan d'action forestier tropical, 54 p.
38. DNFC, 1990 - Etude et élaboration du Schéma Directeur d'Aménagement dela mangrove guinéenne (SDAM) Conakry 92 p.
39. DNFC, 1994- Résumé du plan d'aménagement forestier des mangroves de la baie de sangaréya. Doc.n° 5/94 .24p.
40. Domain F., Doumbouya A., Chauveau J.P, 1993 - La composante ressource in Acquis et perspectives interdisciplinaires et halieutique marine - CNSHB - Conakry - pp.2 -14.
41. Etudes Mondiale de la Biodiversité Résumé à l'intention des décideurs
42. Evaluation de la Diversité Biologique de la Guinée : Vision Buts et Objectifs de la

43. Fairbridge R.,1980 -The estuary: its definition and geodynamic cycle, pp. 1-35 in Clausson and Cato (Eds): chemistry and biochemistry of estuaries, N.Y.

44. FAO, B.M., BIRD, WRI, 1985, Le plan d'action Forestier Tropical. Washington D.C, 6 ème Partie atteindre les gens : le rôle des institutions pages 25 à 32

45. FAO, UNSO, UNESCO, 1996, Développement durable des écosystèmes de montagnes en Afrique. Actes de la consultation gouvernementale sur la mise en valeur durable des zones de montagnes 3 – 7 mai 1996, Addis Abeba 45 p.

46. Fontana A., B. Lootvoet 1994. Etudes diagnostique du secteur des pêches maritimes guinéenne. Doc. ORSTOM, Guinée, Conakry. 20 p

47. Fontana A., 1998 - Les pêches maritimes guinéennes- Réalité et enjeu. ORSTOM, 16 P.

48. Fontana A., Morize E. et autres, 1995 - Rapport de fin d'étude - Prospection et surveillance des pêches de la ZEE guinéenne (volet scientifique du projet(-CNSHB- ORSTOM, 137 p.

49. Fortin D., M. Lô., G. Maynart (1997). - Plantes médicinales du Sahel. Ed. Enda Tiers Monde , Dakar, 280 p.

50. Kaba B., G.V. Zouev et A. R. Boltatchev 1988. Necton: composition, distribution, évaluation (estimation des ressources en poissons industrielles). Océan Atlantique tropical, région guinéenne. Kièv Naoukova Dumka. P ; 301-324

51. Keita A. et al., 1995 - Plancton et bioproductivité de la zone côtière guinéenne. Atelier régional sur la Gestion intégrée du littoral (ICAM) UNESCO-COI - N° 121, pp.4-5.

52. Keïta A., .et al. 1999 Identification, hiérarchisation des pressions humaines et analyse de la durabilité des systèmes d'exploitation des ressources de la diversité biologique marine et côtière et causes principales des pressions. Projet :GUI/97/G32/A/1G/99 ; 52P.

53. Keita A., 1996 - Etat des ressources aquatiques vivantes de la Guinée - Atelier sous régional sur les ressources marines vivantes du Golfe de Guinée COI / UNESCO Cotonou - Bénin N° 125, résumé p.4.

54. Keita A., 1999- Analyse et synthèse des informations recueillies, ébauche de la vision, des objectifs, des buts et de la stratégie en matière d'écosystèmes marins et côtiers. Projet : GUI/97/G32/A/1G/99 ; 55P.

55. Malgras D. (1992).- Arbres et arbustes guérisseurs des savanes maliennes. Ed. ACCT- Karthala; 478 p.

56. Matthes, H. (1993): Rapport préliminaire de la mission d'évaluation de la pêche continentale et de l'aquaculture en République de Guinée (FAO/SEP) 101 pages.

57. Ministère de l'Agriculture et de l'Elevage 1997 Stratégies et plans d'actions de développement de l'élevage à moyen et long termes (résumé) 27 pages , avril 1997

58. Ministère de l'Agriculture et de l'Elevage, 1988 ; Politique Forestière et plan d'action 88 pages

59. Ministère des Mines et de la Géologie /PNUD 1996 Monographie Nationale sur la Diversité Biologique Guinéenne 224 pages. Chapitres XII, XIII Pages 88 à 124 juillet 1996

60. Ministère des Ressources Naturelles et de l'Environnement, 1987 – Ordonnance No 045/PRG/87 Portant code de l'Environnement de la République de Guinée, 51P.

61. MMGE/PNUD/GEF 1999 Evaluation de la Diversité Biologique de la Guinée; Vision, Buts et Objectifs de la Stratégie Nationale pour sa conservation et son utilisation durable. Ministère des Mines, de la Géologie et de l'Environnement DNE septembre 1999. 212p

62. MPC (1996) Recensement général de la population et de l'habitat, Direction Nationale de la Statistique – Bureau National du recensement . RGPA 96/doc. 11.

63. Musée Canadien de la Nature,1995 La Stratégie canadienne de la Biodiversité 80 pages.

64. Nirmal J.S., Rolph P. and Kerstin H., 1997, Seychelles national Biodiversity Strategy and Action Plan, Draft Document for review, 188 p.

65. Office fédéral de l'environnement, des Forêts et du paysage, 1998, Rapport national de la Suisse pour la Convention sur la diversité biologique, 64 p.

66. Pandare D. & Al. , Dakar 1992. "Observations ichtyologiques au Sénégal et en Guinée Conakry ; Rapport final de L'E. P.E . E .C : Etudes des estuaires du Sénégal : Sénégal , Saloum, Casamance , Univ. C. A Diop, p-p: 35-.51.

67. Pandaré D., Tamoïkine M. Y. 1993. Observations préliminaires des peuplements ichtyologiques des zones d'estuaires et de mangrove de l'Afrique de l'Ouest : cas de la Guinée et du Sénégal . Série documentaire Comaraf , N°10 UNESCO, 43 p.

68. PNUE décembre 1995, Directives techniques internationales, concernant la prévention des risques Biotechnologiques 33 pages

69. PNUE, 1978, Droit de l'environnement. Lignes directrices et principes. Ressources naturelles partagées 6 p.

70. PNUE, 1994, Questions relatives à la convention de la diversité biologique et présentant un intérêt pour l'Afrique, Réunion ministérielle régionale sur la convention sur la diversité biologique, 75 p.

71. PNUE, 1995 Etude mondiale de la biodiversité- Résumé à l'intention des décideurs. Cambridge,53P.

72. PNUE, 1996 Convention sur la Diversité Biologique-Texte et annexes- Montréal,34P.

73. PNUE/CBD, 1996 Convention sur la Diversité Biologique textes et annexes 34 pages.

74. REDDA NESDA, 1994, Compte rendu de l'atelier sur les indicateurs de développement durable en Afrique, Banjul, Gambie, 16 – 18 1994, 174 p.

75. Rej Dali M. et A. Birouk (1996). – Diversité biologique et valorisation des plantes médicinales Ed. Actes; 240 p.

76. RPTES 1998 Le secteur énergétique traditionnel : analyse, stratégie et programme d'action .

77. Rue O. 1995 La mémoire des mangroves .Revue des interventions publiques en milieu de mangrove 50 ans délégation de la Commission Européenne .doc multigrade ,198 p .

78. Rue O. 1998. l'Aménagement du littoral de Guinée mémoire des mangroves; Harmattan, France.

79. Samoura A.B., S.T. Diallo, F.L. Keita, S. Sidibé, I. Cissé, et P. Koivogui (1999) " Analyse de la Biodiversité des écosystèmes des eaux continentales" Ministère Mines, Géologie et Environnement, DNE/projet Gui/97/G32/A/1G/99 Stratégie Plan D'action Diversité Biologique/ mai 1999 59p.

80. Secrétariat d'Etat à la Peche à l'Elevage et, 1985 - Code de la pêche maritime et textes d'application. Conakry-Guinée ,60 p.

81. Shah N.J., R. Payer and K. Henri : 1997. Seychelles National biodiversity Strategy and Action Plan. Draft Document for Review. UNEP/GEF 188 p

82. Sidibé M. et al. (1989). – Contribution au raccourcissement du cycle de production du karité et a l'amélioration du matériel végétal.

83. Sidibé M. M (1989). - Contribution à la valorisation de certaines essences agroforestières de la région Soudano Sahelienne. Cas du karité. – In acte II Symposium International de Yamoussokro sur le rôle de la biologie dans la résolution de la crise alimentaire en Afrique. Yamoussokro/ Côte d'Ivoire ; Juillet 1989. Pp 677-684.

84. Tamoikine M. Y., 1993 - Ichthyoplanktonic research in Western African Coastal zone; communication at IOCEA, International symposium. Dakar - 22p.

85. Traoré F. I., 1993 -Résultats et analyses de filières : bois de feu , riz, pêche et fumage de poisson sel. Doc.n° 7/93 du Projet Pilote de Gestion des Mangroves de la Baie de Sangaréya. 26p.

86. UNDP-GEF 1999 . Biodiversity Porfolio. June 1999.

87. UNDP-GEF Project : 1999 : African NGO-Government partenarships for sustainable biodiversity action. Regional Biodiversity Project for Africa UNDP United Nation Plaza New York.

88. USAID, 1995. Ecologie/écosystème et gestion des écosystèmes: Biodiversité en Guinée. Communication faite au séminaire sur l'étude d'impact sur l'environnement et la surveillance de l'environnement, tenu à Labé du 17 au 21 juillet 1995. 5pp. VI Pages 167 à 180, chapitre VIII pages 195 à 196.

89. Von Maydell H.J. (1983)- arbres et arbustes du Sahel leurs caractéristiques et leurs utilisations.
90. WRI, PNUD, PNUE, 1997 - Ressources mondiales - 1996 - 1997, Ottawa, 397 p.
91. WRI, PNUE, UICN, 1995 –Planification nationale de la biodiversité. Baltimore 169P.
92. WWF, 1994, Rapport annuel, 32 p.
93. Yansané. A1998. Schéma Directeur d'Aménagement de la Mangrove de Guinée (SDAM) et sa mise en œuvre. Bulletin du centre de Rogbanè No 12, PP 210-223.

ANNEX 1

SUMMARY TABLE OF ACTION PLANS DEALING WITH BIOLOGICAL DIVERSITY AND THE SUSTAINABLE USE OF RESOURCES

AREA	PRIORITIES	Articles of Convention	ACTIONS	RESPONSIBLE BODY	PROJECT	BUDGET	PRIORITY
LAND ECOSYSTEMS	Identification of components of biological diversity	6 , 7	Inventory of agricultural ecosystems	Ministry of Agriculture	Project N° 1	850.000 $ US	I
	Creation of protected areas	8	Creation of protected forests in the districts of Boké, Boffa, Kérouané, Mandiana, Fria and Siguiri	Ministry of Land and Forests	Project N° 2	960 000 $US	I
	Identification of components of biological diversity	6, 7 et 8	National inventory of wild fauna	Ministry of Land and Forests	Project N° 3	965 000 $US	I
	Manage pressures on the diversity to reduce the impact	6, 8, 9 et 10	Investigate the wild meat consumption and establish annual quotas for the exploitation of wild fauna species	Ministry of Land and Water	Project N° 4	1.190 000 $ US	I
	Reinforce in-situ conservation of biological diversity	7 et 8	Census of sites in need of protection, and include them in state or rural domain	Ministry of Land and Water	Project N° 5	3.000 .000 $ US	I
		6, 8, 13	Produce and publicize a selection of biblical and Koranic verses dealing with conservation and sustainable use of biological diversity.	General Secretary of the Islamic League and the Archevêché of Conakry	Project N° 6	34.000 $ US	II
		8 et 13	Produce films, postcards, postal stamps and atlases of endangered species of wild flora and fauna.	Ministry of Communications	Project N° 7	325.000 $US	I
		8	Census and cataloging of customs related to the use of biological diversity.	Ministry of the Environement	Project N° 8	100.000 $ US	I

	Reinforce ex-situ conservation of biological diversity	9	Strengthen institutional capacity in charge of ex-situ conservation.	Ministry of the Environement	Project N° 9	3.500.000 $ US	I
	Secure the lasting ecology of forests	6, 8 et 10	Improve the administration of forests that are ecologically viable.	Ministry of Forests	Project N° 10	1 280.000 $ US	II
		6, 8 et 10	Preservation of a mountain ecosystems.	Ministry of the Environement	Project N° 11	1550.000 $ US	I
		6, 8 et 10	Re-evaluation of boundaries of classified forests.	Ministry of Land and Water	Project N° 12	5.000.000 $ US	I
		6, 8 et 10	Creation and/or reinforcement of planning, evaluation, observation, programs, projects and activities related to forests.	Ministry of Land and Water	Project N° 13	2 060 000 $ US	II
		6, 8 et 10	Restoration of degraded sites.	Ministry of Agriculture and Forests	Project N° 14	3.300.000 $ US	I
	Progressive replacement of inappropriate practices in agriculture with ecologically lasting practices.	6,8,10 et 14	Administration of brush fires and environmental amelioration in Upper Guinea.	Ministry of Land and Water	Project N° 15	375.000 $ US	I
		6, 8, 10 et 14	The printing and production of a guide to medicinal plants.	Ministry of Health	Project N° 16	235.000 $ US	I
	Ensure the conservation of biological diversity by introducing good hunting practices.	6, 8 et 10	Create a ranch for cane rats in the district of Kankan and Kérouané in Upper Guinea.	Ministry in charge of Stock Breeding	Project N° 17	285.000 $ US	I
		6, 8 et 10	Create a pilot ranch for ongulate animals from the Bovidae (*Céphalophe sp.,Guib harnaché, Bubale* etc) family in the district of Faranah.	Ministry in charge of Stock Breeding	Project N° 18	285.000 $ US	I
		6, 8 et 10	Promote the raising of Guinea fowl in the districts of Gaoual and Koundara.	Ministry in charge of Small Enterprise	Project N° 19	175.000 $ US	II

	Promote durable and environmentally conscious tourism.	6, 8 et 10	Creation and management of ecologic tourist parks in protected forests of Kounounkan (Kamalaya / Forécariah)	Ministry in Charge of Forests and Water	Project N° 20	2 625 000 $ US	I
	Give important consideration to the planning and utilization of biological diversity on land.	6	Better systems of the use and productivity of soil.	Ministry in Charge of Agriculture	Project N° 21	7 860.000 $ US	I
	Develop an intensive system of motivation for conservation of biological diversity and its use.	6, 8 et 11	Development of rural territories and the administration of villages in protected zones.	Ministry in Charge of Agriculture	Project N° 22	2.000.000 $ US	I
	Promote all forms of education and information to preserve biological diversity.	12, 13,17, 18	Restore the education Center for the Environment and Development at Pita (CEED).	Ministry in Charge of Technical Education and Professional Development	Project N° 23	2 990 000 $US	I
	Reinforce regional and international cooperation for conservation of biological resources, access and long-term use, and fair distribution of resources and profits.	7, 8, 9, 10, 11, 12, 13,14, 15, 16, 17, 18 et 19	Creation of parks across borders.	Ministry in Charge of Forests and Water	Project N° 24	10 175 000.$ US	I
		12, 16, 18 et 19	Research in biological diversity materials	Ministry in Charge of Scientific Research	Project N° 25	2 000 000 $ US	I
	Assure proper protection of primordial reserves representing typical forms of biological diversity.	6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 18	Ongoing administration of the Fauna Reserve of Kankan	Ministry in Charge of Land and Water	Project N° 26	1 510 000 $ US	I
	Develop a program to control biological diversity.	6, 7, 8, 9, 10, 11, 12, 13, 14	Create a national collection with reference to insects.	Ministry in Charge of Agriculture	Project N° 27	170 000 $US	I
		6, 7, 8, 9, 10, 11, 12, 13, 14	Create a collection of basic food and fruit specimens.	Ministry in Charge of Agriculture	Project N° 28	205 000 $US	I
		6, 7, 8, 9, 10, 11, 12, 13, 14	Create a national collection of native fruit trees of Guinea for their cultivation and use.	Ministry in Charge of Agriculture	Project N° 29	86 000 $US	I

	Increase or restore the productivity of soils.	6, 7, 11, 12, 13, 14	Manage lands in zones of high intensity of cultivation in mountains	Ministry in Charge of Agriculture	Project N° 30	260 000 $ U$	I
	Progressively replace inappropriate old customs of agriculture and fishing by durable ecological practices.	6, 7, 8, 10, 11, 12, 13, 14	Administer human practices in Mid and Lower Guinea	Ministry in Charge of Stock Breeding	Project N° 31	240 000 $US	I
	Reinforce in-situ conservation of biological diversity	6, 7, 8, 10, 12, 13, 14	Create a wooded corridor for migration of chimpanzees of Bassou and Mountain Nimba	Ministry in Charge of Forests and Water	Project N° 32	655 000 $US	I
	Reinforce the support to administration of conservation rules dealing with biological diversity and promote durable uses of these	6, 7, 8, 10, 12, 13, 14	Create model villages of ecodevelopment outside the biosphere reserves of Mount Nimba and Ziama	Ministry in Charge of Agriculture	Project N° 33	723 000 $US	I
CONTINENTAL WATER ECOSYSTEMS	Identify components of biological diversity	**7**	Inventory biological diversity in humid ecosystems	Ministry in Charge of the Environment	Project N° 34	835.000 U	I
	Develop additional and new means of financing conservation and promote decentralization and the participation of ONG.	10 et 11	Evaluate the contribution of biological resources of humid ecosystems to the national economy, and define and provide measures to mitigate the negative effects of certain activities.	Ministry in Charge Fishing and Aquaculture	Project N° 35	900 000 $US	I
	Replace old inappropriate fishing practices with ecologically profitable ones.	8, 10, 11, 12 et 13	Upgrade traditional continental fishing of the Niger Basin in Upper Guinea	Ministry in Charge Fishing and Aquaculture	Project N° 36	695 000 $US	I
	Develop communication and information programs that are effective between educational institutions and workers involved in the programs.	5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18,	Promote the participation of the public in the integrated administration of humid zones.	Ministry in Charge the Environnement	Project N° 37	590 000 $US	I
	Progressively replace inappropriate practices with ecologically lasting ones in the humid zone.	10, 16	Support production of clay brick making in Guinea.	ONG / ESSOR	Project N° 38	2 415 000 $US	I

	Reinforce in-situ conservation of biological diversity and assure ecologically lasting exploitation of biological resources.	6, 7, 8, 9, 10, 11, 12, 13	Conservation and lasting use of biological diversity in the humid zones of Foutah-Djallon	Ministry in Charge the Environnement	Project N° 39	4175 000 $US	/
	Strengthen the capacity of the ONG and other structures involved in areas of biological diversity.	8, 10, 11, 13, 16, 19	Develop the partnership between the ONG and the government of Guinea for conservation and the sustainable use of biological diversity.	Ministry in Charge the Environnement	Project N° 40	4 600 000 $US	I
	Determine areas of conservation for ecosystems, habitats, species and the landscape and proceed to classify them for use by the state and rural communities.	8	Create protected areas in humid ecosystems.	Ministry in Charge of Agriculture Land and Water	Project N° 41	1 980 000 $US	I
	Restored surfaces and damaged areas of ecosystems, habitats and degraded landscapes	6, 7, 8	Restore ecosystems of degraded continental waters.	Ministry in Charge the Environnement	Project N° 42	1 135 000 $US	I
	Increase and restore land productivity.	10, 15, 16, 17	Improve the productivity and systems for agricultural development in humid ecosystems of Mid Guinea	Ministry in Charge of Agriculture and Stock Breeding	Project N° 43	645 000 $US	I
SEA AND COASTAL ECOSYSTEMS	Determine areas of conservation for ecosystems, habitats, species and landscape and proceed to classify them for the benefit of state and rural communities.	7, 8, 10,12, 13 et 18	Conservation of biological diversity and sustainable development in the southern zone of mangrove areas (Commune de Matoto, districts of Coyah and the Forécariah)	Ministry in Charge of Land and Water	Project N° 44	1 215 000 $US	I
	Assure proper protection of reserves representing primordial species for the conservation of typical forms of biological diversity.	7, 8, 13,14, 17, 18	Protect the sea turtles of Guinea	ONG / Ecology of Guinea	Project N° 45	395 000 $US	I

		7, 8, 10, 12, 14	Create a national marine park	Ministry in Charge of Fisheries	Project N° 46	780 000 $US	I
		8, 10, 13, 14, 18	Administration of Ramsar site	Ministry in Charge of Forests and Water	Project N° 48	640 000 $US	I
		7, 8, 10, 12, 18	Strengthen monitoring/oversight of the National Exclusice Economic Zone	Ministry in Charge of Fisheries	Project N° 50	1 020 000 $US	I
	Develop practical indicators for use in quick control of biological diversity and ecosystems.	7, 8, 10, 13	Official organization of the use of mangrove forests.	Ministry in Charge of Land and Water	Project N° 47	835 000 $US	I
	Control of pollution having impact on biological diversity.	8, 12, 13, 14, 18	Prevent and administration of programs to abate sea pollution	Ministry in Charge of Environment	Project N° 49	790 000 $US	II
THE VALUE OF BIOLOGICAL DIVERSITY	Promote and encourage culture of principal species of biological diversity	10, 12,13, 14 et 16	Create a pilot project for oyster culture in the Bay of Sangaréah	Ministry in Charge of Science and Research	Project N° 51	235 000 $US	II
		10,12,13 et 17	Create a pilot karité plantation in Dabola district.	ONG "COLUFIFA"	Project N° 52	300 000 $US	I
		10, 12, 13, 14 et 16	Create a pilot project for snail growing in Lola.	Ministry in Charge of Advanced Education	Project N° 59	500 000 USD	I
	Conservation and lasting uses of biological diversity	7, 8, 10,12,13 et 17	Investigate and survey ethnobotany in Guinea	ONG / Ecology of Guinea	Project N° 53	350 000 $ US	I
	Create and/or reinforce responsible institutional capabilities for ex-situ conservation.	7,9, 0,12,13, 17, 18	Create a national biology museum in Guinea.	Ministry in Charge of Culture and Communication	Project N° 54	900 000 $US	II
	Integrate traditional know-how with conservation strategies for biological diversities and lasting use of the resources.	8, 9, 10, 11, 12, 13, 14, 15, 17, 18	Inventory and analysis of traditional methods relating to exploitation of mangrove and alternative economic research for abusive wood harvesting.	Ministry in Charge of Land and Water	Project N° 55	255 000 $ US	I

	Create or reinforce the know-how of ex-situ structures of conservation.	9, 10,11,12, 13, 17, 18	Create a medicinal plant garden in the district of Dubréka	Ministry in Charge of Health and Welfare	Project N° 56	360 000 $US	I
	Promote to the use of biomass as a renewable secondary source of energy	10,11,12, 13, 14	Support the use of natural gas in Mid and Upper Guinea.	Ministry in Charge of Energy	Project N° 57	530 000 US $	II
	Create processing systems for fruits and vegetables	10,11,12 et 13	Create pilot plants for fruit and vegetable dehydration in Kindia, Pita, Kankan amd N'zérékoré and support the education of new techniques by communication.	ONG	Project N° 58	375 000 $US	I
	Improved the systems for making charcoal.	6, 8, 10	Improve results of traditional methods of charcoal making in Lower Guinea.	Ministry in Charge of Forests and Water	Project N° 60	310 000 USD	I
	Create hand-craft villages to attract tourism.	9, 10, 11, 12, 13, 14, 15, 17, 18	Rehabilitate the hand-craft village of N'zérékoré	Ministry in Charge of Cottage Industry	Project N° 61	240 000 $US	II
	Progressively replace agro-pastoral practices and inappropriate fishing practices with good ecological practices	8, 10, 11, 12, 13, 14 et 16	Ameliorate traditional practices of honey production in Upper Guinea	Ministry in Charge of Stock Breeding	Project N° 62	290 000 $US	I
	Promotion of alternative energy sources	8, 11, 12, 13, 14, 16, 17	Popularize the micro-technology of solar energy	ONG "VGE"	Project N° 63	490 000 $US	II
INSTITUTIONAL AND JURISDICTIONAL FRAMEWORK	Start national program for coordination and exchange of information on scientific, technical, socio-economic and cultural issues dealing with biological diversity	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Provide support to BNC/MO for strategies and action plans in biological diversity	Ministry in Charge of Environment	Project N° 64	1 095 000 $US	I
	Promote and reinforce human and institutional abilities for biological diversity and lasting use of these resources.	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Strengthen and develop human and institutional capabilities.	Ministry in Charge of Environment	Project N° 65	3 545 000 $US	I

	Reinforce the application of existing legislative power to support the biological diversity and lasting use of these resources.	6,8, 9, 10, 11, 12, 14, 15, 16, 18, 19	Adopt national jurisdictional functions to meet the pressing need for biological diversity and lasting use of these resources.	Ministry in Charge of Environment	Project N° 66	375 000 $ US	I
	Develop administration and jurisdictional rules that are appropriate to production, import and use of genetic living organisms.	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Elaborate a national jurisdictional plan on biosecurity and research in biotechnology.	Ministry in Charge of Environment	Project N° 67	465 000 $US	I
	Reinforce actual legislative tools to support conservation of biological diversity and lasting use of these resources.	6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19	Disseminate International Conventions and national jurisdictional texts dealing with biological diversity and lasting use of these resources.	Ministry in Charge of Environment	Project N° 68	770 000 $US	I

ANNEX 2

2.1 - MEMBERS OF NATIONAL UNIT FOR BIOLOGICAL DIVERSITY

N°	NAMES AND SURNAMES	Related service
1	Abdel Kader BANGOURA	Direction Nationale de l'Environnement
2	Abdoulaye Sadio DIALLO	ONG / Volontaires pour l'Environnement
3	BARRY Mamadou Hady	Ministère du Plan
4	Dialakoro DOUMBOUYA	Institut National de la Recherche Agronomique
5	Djibril CAMARA	Direction Nationale de l'Environnement
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ANNEX 3

3.1 – LIST OF EXPERTS AND THEIR ASSIGNMENTS DEALING WITH NATURAL REGIONS

LOWER GUINEA
Cécé Alain CAMARA
SUBJECT: Identification and classification of human pressures and the analysis of sustainability for development of resources from the biological diversity on land and threats in Lower Guinea.

MID GUINEA
Abdoulaye Kouyé BAH
SUBJECT: Identification and classification of human pressures and the analysis of sustainability for development of resources from the biological diversity on land and threats in Mid Guinea.

UPPER GUINEA
Mamadou Samba BARRY
SUBJECT: Identification and classification of human pressures and the analysis of sustainability for development of resources from the biological diversity on land and threats in Upper Guinea.

GUINEAN FORESTS
Thierno Daouda DIALLO
SUBJECT: Identification and classification of human pressures and the analysis of sustainability for development of resources from the biological diversity on land and threats in Guinean forests.

3.2 - LIST OF EXPERTS AND THEIR ASSIGNMENTS DEALING WITH CONAKRY

1. Dr Djibril BANGOURA , M. Samba Ténin DIALLO : Analysis of biological diversity on land and the identification of priorities for conservation.

2. M. Alhassane BANGOURA : Identification and classification of human pressures and analysis of sustainability in the development systems for resources, dealing with biological diversity on land and principal causes of pressures in natural regions.

3. Dr. Selly CAMARA : Analysis of biological diversity in seas, coastal and inland waters and the identification of conservation priorities.

4. Dr Ansoumane KEITA : Identification and classification of human pressures and analysis of sustainability in the development systems for resources, dealing with biological diversity of sea and coastal waters and the principal causes of pressures on these systems.

5. M. Abdourahmane BALDE Analysis of the relationship between demographic growth, sustainability of developing agricultural systems and these pressures on biological diversity.

6. M. Bassirou Bachir BANGOURA : Analysis of access to resources and biotechnology, and equal sharing of benefits derived from the exploitation of biological resources.

7. M. Lanciné TRAORE : Identification and classification of threats to plants and domestic animals.

8. Mme Hawa DIALLO : Analysis of legislative, political and institutional framework and human resources in relation to objectives for the Convention on biological diversity, (Conservation and sustainable use of biological diversity and equal sharing of resources and profits from the exploitation of biological resources), including the framework related to biosecurity.

9. **M. Baïdi SAMOURA** : Analysis of biological diversity in ecosystems of continental waters.

10. M . Maadjou, Dr Ansoumane KEITA : CERESCOR ;M. Samba Ténin DIALLO : CNSHB;

Dr Selly CAMARA : Guinée Ecologie : M. SAGNA Saténin : The analysis and collation of all gathered information and the outline of goals and objectives.

11. **M . Maadjou: DNE; Dr Ansoumane KEITA : CERESCOR ;M. Samba Ténin DIALLO : CNSHB;**
Dr Selly CAMARA : Guinée Ecologie : M. SAGNA Saténin: DNEF: Develop strategies and action plans corroborating with the objectives of the Convention on biological diversity; Propose an approach for the management and organization; Present and execute workshops in the four districts of natural regions; Note suggestions coming from the workshops; Prepare a final report and submit it to the Government.

Annex 4 :

4.1 - SOME PHOTOGRAPHS ILLUSTRATING THE ECOSYSTEMS

Mountain ecosystem	Ecosystem indoor water (Kolenté)
	
Mountain ecosystem	Forest leftovers
	
Rice field on hillside	
	

4.2 - SOME PHOTOGRAPHS ILLUSTRATING THE ACTIVITIES

Rice field on hillside	Transport of wood for exportation
Sale of snail at the market	Traditional oven for charcoal production
Sale of palm oil at the market	Fish smoking
Craft rattan furniture	Heating wood in landing stage