

# **Biodiversity and Forests**

## **Mali Case Study**

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## Summary

Mali is a continental country in West Africa forming part of the Sahel zone. Currently 90% of its population lives on 30% of the National territory, in the South part of the country, which is considered as an essential shelter of forest formations. The economy is essentially based on the primary sector, which contributes about 45% of the GDP, including the forest sector, which contributes 16.72% of this.

The forest sector, including fauna and other resources were influenced negatively during the three decades after independence by a tentative state management which did not share decision making powers regarding natural resources in spite of certain interesting outcomes. The increase in people's consumption needs and the climatic hazards contributed further to worsen the state of affairs.

It is estimated that in 1995, about 26% of the national land (approx 100 m ha) were covered by forests and that 100,000 ha of forests disappeared each year. It is estimated that from 1930 up to present forest plantations have grown up to 80,000 ha. For a country that still had an important biodiversity at the beginning of the century, today this biodiversity is threatened for a large number of animal and plant species, both wild and domesticated.

Forest products satisfy the basic needs of the Mali communities. Among them is the use of wood for energy (90% of the needs), construction wood, pharmacopoeia and sociocultural needs.

The partners in management of forests and natural resources are the state (through different ministries and agencies), decentralized territorial communities, civil society and partners in development.

The country learnt a lesson from the road taken, the actions and participative community approach in decision making for natural resources management, during the Convention on Biodiversity, which was ratified in 1995. The biodiversity resources management in general and forests in particular is from now on seen in the light of the new laws and the national forestry policy, the national strategy and action plan in matters of biodiversity, and the national decentralization policy.

The future of the country is in the area of biodiversity (forest resources in particular), based on disengagement by the state to the advantage of the communities and their organs. It is geared towards capacity reinforcement and improvement of information systems, the reinforcement of conservation tools, better utilization of resources and equitable sharing of the benefits, and promotion of biotechnology and bio-security.

# **I Present state of forest management in the national plan**

## **1.1 History of forest management**

### *1.1.1 Traditional management before the 20<sup>th</sup> century (before 1980)*

It dates back to the period before colonisation of the country by France and corresponds to the earlier period of the end of the 90's of the last century. It is characterised by its communal nature, the essential social role of forest resources for the satisfaction of subsistence needs (energy, food, pharmacopoeia, tools, etc.). Its efficiency derives its force from beliefs, taboos and customs. One of the classics of this era is the sacred wood.

### *1.1.2 Colonial management*

It started at the end of the 90's of the last century. It was characterised by the colonial forest code, which dates back to 1935. This only remained as a theory with the country's accession to independence.

This management was marked by the introduction of the colony's priorities. It recognised the creation of classified forests and reserves. This period saw the rise of needs, notably wood energy for locomotion (ship and train).

It had a unilateral and repressive character. From a purely social value and free flow of natural resources, evolving progressively towards a monetary value which would in turn lead to an important change.

### *1.1.3 Post independence management (after 1960)*

It began with the independence of Mali on 22 September 1960. This management was to be strengthened by the inheritance of the colonial code, which was reviewed successively in 1962, 1968, 1986 and 1995.

The fundamental aspect in this management is its "repressive" character and the fact that it does not define the individual and community rights on forest resources.

The last revision in 1995 marks an end to the unilateral character of the state in decision making on the natural resources. It gives an option to a participative approach in the management of resources. It is marked by significant aspects such as endemic drought, agricultural development policies, socioeconomic transformations, the recent social movements of the 90's (the general state of the rural areas in 1992), the increase and changes in the consumption needs of the people, in terms of forest products.

The most important point to note is the option of the 3<sup>rd</sup> Republic on decentralisation.

## **1.2 Priorities in national planning policy**

What holds globally from the forest sector is the hostile climate (endemic drought since the 70's) leading to a continuous degradation of the resources. It is also furthered by the increase in the needs of growing population (growth rate of 2.2% in 1987 and 1998), poverty, insufficiency and instability of the institutional management framework of natural resources in general and forests in particular.

From this situation, the country has set out priorities for the forestry sector namely:

- Participatory management of natural resources;
- Fight against desertification by forestry activities;
- Satisfaction of wood energy consumption needs currently at 90%.

N.B. Refer to the national policy document.

### 1.3 Importance in the economy

The forest sector occupies an importance position in the economy of Mali. This is because nature products mainly satisfy the needs of the community.

Some indications from the forest sector management context:

- Country's population in 1998: 9,790,492 inhabitants;
- Average density: 7.9 inhabitants (from 0.1 in some areas of the desert North to 26 in some areas in the South);
- 91% of the population on 30% (southern part) of the area;
- 50% of the population at less than 20 years;
- Significant rural exodus;
- Rate of urbanisation ranging from 6% in 1987 to more than 26% today;
- According to DNSI the population will be 13,003,769 in 2010;
- Average revenue in 1994: 120,874 CFA;
- 71.6 % of Malians live below the poverty line (world Bank 1987 – 1998);
- 78.3% of poor Malians are in the rural areas.

From different sectors in the economy (Sustainable human development report, 1999):

- Primary sector (agriculture and extraction): 43.73% of PIB;
- Secondary sector (industry and mine): 17.52% of PIB;
- Tertiary sector (commerce and services): 38.75% of PIB.

It is nevertheless predicted that this division will vary in the years to come, creating a drop in the primary sector due to rapid development of the other sectors.

Forest products (extraction) comprise wood products and gatherings (energy, work, service).

**Table 1: Change in value of gathering and wood products (x.1000 cfa)**

| Production | Year   |        |        |        |
|------------|--------|--------|--------|--------|
|            | 1999   | 2000   | 2001   | 2002   |
| Gathering  | 47,075 | 50,222 | 53,577 | 57,156 |
| Wood       | 45,180 | 46,979 | 42,540 | 50,766 |

**Table 2: Distribution of PIB per sector (%)**

| Sector    | Year |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|
|           | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Primary   | 46.3 | 46.6 | 43.9 | 40.7 | 40.4 | 43.1 | 44.2 |
| Secondary | 15.5 | 15.9 | 16.1 | 18.7 | 19.8 | 18.6 | 18.0 |
| Tertiary  | 38.2 | 37.5 | 40.1 | 40.6 | 38.9 | 38.3 | 37.7 |

The projections by the DNSI show the changes in value of the PIB per sector for the period 1999-2005 (in billions of CFA):

| <b><u>SECTOR</u></b>                 | <b><u>VALUE 1999/2005</u></b> |             | <b><u>VALUE 2005/2015</u></b> |             |
|--------------------------------------|-------------------------------|-------------|-------------------------------|-------------|
| <b>Primary</b>                       | <b>505.7</b>                  | <b>100%</b> | <b>843.2</b>                  | <b>100%</b> |
| Food Production Agriculture          | 225.5                         | 44.59       | 411.9                         | 48.85       |
| Industrial Agriculture               | 118.1                         | 23.35       | 236.7                         | 28.07       |
| Livestock                            | 102.7                         | 20.31       | 116.0                         | 13.76       |
| Fishing                              | 11.1                          | 2.20        | 13.5                          | 1.60        |
| Silviculture                         | 48.3                          | 9.55        | 65.0                          | 7.72        |
| <b>Secondary</b>                     | <b>206.8</b>                  |             |                               |             |
| <b>Tertiary</b>                      | <b>325.0</b>                  |             |                               |             |
| <b>Duty and taxes on importation</b> | <b>80.2</b>                   |             |                               |             |

## **1.4 National Forestry Plan**

### *1.4.1 Components of the forestry plan:*

- National strategy on poverty reduction;
- National outline on town and country planning/National and regional development;
- Domestic energy strategy (1991);
- Review and creation of legislative and statutory texts.

The changes that took place since 1991, under the new wave of democracy, are concerned with policy plan, institutions and legislation, and management of land and communities.

### *1.4.2 Major problematic elements in the forest sector*

- Constant degradation of forest resources (including fauna and halieutic resources) due to anthropologic as well as climatic risks;
- A social crisis between the state and the communities surrounds the management of forest resources;
- A weak integration of the forest sector into the National economy, coupled with insufficient investment of the national budget into the sector;
- Unsuitable legislation and policy;
- Institutional management framework with insufficient capabilities.

The interdependence of these different handicaps has complicated further the resolution of the problem.

### *1.4.3 Major options of National Forestry Policy*

The reference date of the development of this policy is definitely 1991, which corresponds to the start of a social movement in the country.

The reference documents are the outline of the Rural Development Sector of March 1992 and the Action Plan of the Ministry of Rural Development and Environment of August 1993.

The outline defines eight major trends:

- Harmonise the different processes across the outline;
- Develop assets and remove handicaps;
- Create a more favourable economic and social environment;
- Render sustainable development;
- Make the civil society responsible;
- Provide enough and varied food for all;
- Make the rural development sector a growing sector;
- Adapt support systems for the needs of producers and operators.

The Action plan of the main outline has six priority objectives/themes, which are:

- Disengagement by the state and the taking over of responsibility by rural development promoters;
- Redefining of the ministry's role (rural development) and its facilities;
- Management of natural resources with a view to sustainable development;
- Promotion of rural credit;
- Development of networks;
- Fragile and vulnerable groups.

Taking into consideration the objectives above, the National Forest policy defined three options:

- A social option;
- An economic option;
- An ecological option.

The **social option** aims at sensitising the rural communities in a sustainable management framework of forest, fauna and halieutic resources. It recognises the rational management capabilities of the communities, their rights over these resources (laws of December 1994). It aims at delegating to the village and inter-village communities, the management of resources on areas defined by established conventions of common accord.

The **economic option** aims at encouraging and guaranteeing fundamental investment to improve productivity, which is currently limited to gathering/removal of natural formations.

The **ecological option** based on the Rio Convention framework, notably the preservation of diverse species, populations, ecosystems and the environment.

#### *1.4.4 Major strategies*

In accordance with a general option of more disengagement by the State, six major strategies were defined, taking into account promotion of the private sector. These are:

- Encourage private initiative and partnership;
- Specify the style of management of the resources at different levels;
- Improve the intervention capacities of different partners by an efficient support training advice system;
- Encourage investment at different follow up stages;
- Articulate the management of resources at different spatial and organisational levels;
- Preserve biodiversity.

## **1.5 Participation and degree of intervention of different sectors and agents in the process**

The entire process is based on major involvement by the players in the sustainable management of natural resources and the promotion of true partnership among them.

### *1.5.1 Forest, fauna and halieutic resources*

The new forest law texts based upon land tenure are motivating the communities towards sustainable management of natural resources. From now on, these form the distinction between three areas, which are:

- State area;
- Land ownership area;
- Private area.

### *1.5.2 Specific strategies for implementation of forest, fauna and halieutic resources*

They are cross-cutting and are concerned with:

- The management of natural resources: a mastery of surface extensions, an adoption of the number of livestock, development of the land planning outline;
- Forest products, halieutic and fauna resources: development of forest products;
- Management of different areas: (State, groups, individuals): planning and/or management of forests, control and forest force/police, research and training, group support, individual support.

### *1.5.3 Ten years investment plan:*

This plan defines and comprises five programmes and four accompanying measures:

#### **Natural resource and land use programme.**

It aims at maintaining agricultural productivity through rational management and comprises of the following projects:

- Planning of natural resource development;
- Strengthening the capacities of different players;
- Policy, statutory, etc., implementation;
- Promotion of true partnership among the different players.

#### **Forest, fauna and halieutic resources planning programme.**

It is aiming to at:

- Increase contribution by the sector to economic and social development in the country;
- Conservation of resources and protection of ecosystems.

#### **Nature protection, restoration of ecosystems and biodiversity conservation programme.**

It aims at the capital maintenance from natural resources and improvement of living standards by:

- Better management of biodiversity resources;
- Preservation of ecosystems;
- Fight against desertification.



### **Training programme.**

It is directed at state agents and rural producers and expects/envisages:

- To engage government forest agents in a partnership with other support services (public, private) and the communities;
- To strengthen the forest agents' capabilities;
- To strengthen the rural capabilities.

### **Network development programme.**

It aims at developing products along the whole chain:

- Production increase/growth;
- Organisation of exploitation and commercialisation;
- Improvement of the quality of products.

### **Accompanying measures.**

They are concerned with:

- Strengthening of institutions;
- Intensifying communication, animation and popularisation;
- Legislation and taxation;
- Research.

## **Summary of the investment plans**

**Table 3: Summary of the Action Plan financing (in millions of CFA francs)**

| Accompanying measure programmes   | Financing       |             |                |             |                 |             |
|---|-----------------|-------------|----------------|-------------|-----------------|-------------|
|   | Total           |             | Internal       |             | External        |             |
|   | Amount          | %           | Amount         | %           | Amount          | %           |
| <b>Programmes</b>   | <b>49,232.3</b> | <b>90.9</b> | <b>4,996.2</b> | <b>91.4</b> | <b>44,236.1</b> | <b>90.9</b> |
| Natural resources and land use  | 8,198.6         | 15.1        | 1,088.2        | 19.9        | 7,110.4         | 14.6        |
| Planning of forests, fauna and halieutic resources                        | 14,741          | 27.2        | 1,452          | 26.6        | 13,289          | 27.3        |
| Nature protection, restoration of ecosystems et biodiversity conservation | 18,392.7        | 34.0        | 1,580          | 28.9        | 16,812.7        | 34.5        |
| Training  | 1,150           | 2.1         | 138            | 2.5         | 1,012           | 2.1         |
| Network development   | 6,750           | 12.5        | 738            | 12.5        | 6,012           | 12.4        |
| <b>Accompanying measures</b>  | <b>4,907.5</b>  | <b>9.1</b>  | <b>468.2</b>   | <b>8.6</b>  | <b>4,439.3</b>  | <b>9.1</b>  |
| Strengthening of institutions   | 1,377.4         | 2.5         | 156.9          | 2.9         | 1,220.5         | 2.5         |
| Communication, animation and popularisation                               | 1,567.5         | 2.9         | 171            | 3.1         | 1,396.5         | 2.9         |
| Legislation / taxation  | 250             | 0.5         | 30             | 0.6         | 220             | 0.4         |
| Research  | 1,712.6         | 3.2         | 110.3          | 2.0         | 1,602.3         | 3.3         |
| <b>Total</b>  | <b>54,139.8</b> | <b>10.1</b> | <b>5,464.4</b> | <b>100</b>  | <b>48,675.4</b> | <b>89.9</b> |

## 1.5.4 Players in the area of forestry

### The public sector

This includes the state and its different departments, taking charge directly or indirectly of the management of natural resources and aspects related to it:

- Ministry of Equipment, Land planning, Environment and Town planning;
- Ministry of Rural Development;
- Ministry of Communication;
- Ministry of National Education.

In the public sector, the national reference structure for forest resource management is the National Management of Nature Conservation.

### Private sector

It includes the economic/commercial operators: forest exploiters, processors/transformers, sellers, resellers, different socio-professional levels, agricultural chambers, cooperatives and associations.

### Civil society

It includes the local communities, NGOs (CCA-NGO, IUCN, SECO-NGO).

### Partners in development

These are the World Bank, Interstate Committee on the fight against Drought in the Sahel region, France, the Netherlands, Switzerland, European Union, UNDP, UNEP, USAID.

### Typology of the players in forest resource management

- *Rural players*. These are agriculturalists, agro-pastoralists, pastoralists, silviculturalists, fishermen, hunters, artisans, all those who derive an income from forest, fauna and halieutic resources.
- *The operators*. These include all those who give whatever support or services to the rural players. They are economic operators, national and foreign NGOs, agricultural chambers and their permanent assembly representatives at the regional level, technical state departments benefiting from the services.
- *Decentralised land communities* (the region, circle and the community).
- *The village authorities, which* are the village or group council and village institutions (associations, groupings, etc.).

### Functions of the players in the defined typology

- *State*: definition of the national forest policy, development of legislation/regulations
- *State + decentralised land communities + rural players*: conservation and production of forest, fauna and halieutic resources.
- *Civil society and economic operators*: network management, distribution and processing/transformation.
- *State + competent private operators*: support, training, and advice from the conception of planning to the selling of the products in the market.
- *Operators + State + partners in development*: credit financing or grants for the forest, fauna and halieutic resources.

## **Partnership**

The old management practice inherited from colonial powers gave way to a dynamic partnership among the different players based on the effective participation of all in decision-making concerning the forest sector and its applications.

The contractual relationships of this partnership involve:

- Rural players (men and women, natives, agriculturalists, livestock keepers, owners, users);
- State representatives and decentralised land communities;
- Land communities;
- External partners.

### **1.6 Institutional planning and policy structure.**

The Ministry in charge is Equipment, Land Planning, Environment and Town Planning. The body responsible under this department is the Nature Conservation Management, which has representation at both local and regional levels.

## **II Present state of the biodiversity**

### **2.1 The Inventory Project of Terrestrial resources (PIRT, 1983 – 1986)**

It defined three levels of perceptions of the ecosystems. These levels are the bioclimatic zones, natural regions and agro-ecological zones. The table below gives the characteristics of the bioclimatic zones, homogeneous entities defined by a combination of traits such as humidity, temperature, soils, length of the agricultural season (rain). They succeed one to another south of the 19<sup>th</sup> parallel:

- The Sahara zone corresponds/is similar to desert ecosystems;
- Sahelian zone corresponds to semi-desert ecosystems;
- Sudan zone corresponds to savanna ecosystems;
- North Guinean zone corresponds to forest ecosystems.

There is a fifth special zone called the Central Delta of the River Niger, it is similar to fresh water ecosystems.

The rainfall pattern varies from 1,400 mm to the South of the country, to less than 100 mm towards the centre of the Sahara.

The existence of great river systems (River Niger and Senegal), a large number of lakes and seas, vast zones and the presence of mountainous massifs encourage biological activities.

Mali's flora consists of about:

- 1,739 ligneous species belonging to 687 types and 155 families;
- 640 bird species of which 15 are endemic;
- 143 fish species belonging to 67 types and 26 families;
- 70 mammal species.

The great diversity of the fauna is characterised by the reduction in strength in the course of the last four centuries.

**Table 4: Bioclimatic zones and their climatic characteristics**

| Zones                      | Bioclimatic zones | Climate Types | Average annual rainfall (Pmm) (1) | Aridity climatic indices (2) | “Dry” months + rainy months/yr (2)               |
|----------------------------|-------------------|---------------|-----------------------------------|------------------------------|--|
| Sahara                     | Sahara            | Hyper arid    | P < 150                           | IAC < 0,05                   | All the months are dry                           |
| Sahel                      | North Sahel       | Arid          | 150 to 350 mm                     | 0,05 < IAC                   | 9 to 11 months « dry »                           |
|                            | South Sahel       | Arid          | 350 mm to 600/550 mm              | < 0,25                       | 3 to 1 months « rainy »                          |
| Delta Central Nigerian (3) | Sudan-Sahel       | Arid          | 100 to 600 mm                     | 0,25 < IAC < 0,50            | 3 to 1 month « rainy »<br>9 to 11 months « dry » |
| Sudan                      | North Sudan       | Semi-arid     | 600 mm/550 to 800/750 mm          | 0,25 < IAC < 0,50            | 7 to 9 months « dry »<br>5 to 3 months « rainy » |
|                            | South Sudan       | Sub-humid     | 800/750 mm to 1100 mm             | 0,50 < IAC < 0,75            | 7 to 5 months « dry »<br>7 to 5 months « rainy » |
| Guinea                     | North Guinean     | Sub-humid     | P > 1100 mm                       |                              |  |

(1): Average rainfall

(2): Data from Le Houérou & Popov

## 2.2 Cartographic status

The terrestrial resources inventory project (1983) established a map of the country's total terrestrial resources south of the 19<sup>th</sup> parallel. The PIRL (1992) produced the map for woody resources.

## 2.3 Changes in composition and biodiversity loss

The economic damage due to flora and fauna resources degradation reached 12.6% GDP in 1996. The main causes of biodiversity degradation are:

- Over exploitation of biological resources followed by reduction of purchasing power resulting from structural adjustments of 1982;
- Sectoral management of development projects;
- The weak level of ecosystem protection (total area of protected zones is 5% against a minimum requirement of 15%);
- Proliferation of destruction tools;
- Legislation not adapted to meet conservation demands;
- Weak administrative skills within institutions managing biodiversity.

### **III Current state of the economy and biodiversity planning**

#### **3.1 Relative priority in the national policy**

Based on the criteria related to ecological, scientific, economic, socio-cultural roles on the national or international plan the following natural regions were retained and given priority because of their ecological potential.

**Central delta of the Niger**, which comprises:

- The RAMSAR sites (Lake Debo/Walado Debo, Seri Plains, and Lake Horo);
- Faguibine system;
- Fati system;
- Classified lakes and forests of Niafunke.

**Mandingue Plateau**, which comprises:

- The biosphere reserve of Boucle du Baoule;
- Fauna reserves;
- Classified forests of Mont Mandingues.

**Faleme**, which comprises:

- The classified forests of Faleme;
- The border zone.

**Haut Bani Niger**, which comprises:

- Classified forests;
- Fauna reserves;
- Sacred woods/forests.

**Gourma:**

- Elephants and their courses;
- Seas and lakes.

**Adrar de Ifoghas:**

- The Massif of lAdrar des Ifoghas;
- Tamesna Valley;
- Timetrine.

#### **3.2 Priority measures**

The priority measures are:

- Establishment of a coordination mechanism and consistent strategy;
- Reinforcement of the legislative and statutory framework;
- Assurance of sustainable strategy financing.

#### **3.3 Concrete action proposals**

These are divided into five categories:

- Protected areas reinforcement programme;

- Sustainable management of biological resources programme;
- Human capacity to conservation reinforcement programme;
- Knowledge development and traditional conservation practices programme;
- Programme for preservation of a variety of cultivated local plants and domestic animals that are threatened with extinction.

### 3.4 Institutional body for planning and policy

The department in charge is Ministry of Equipment, Land Planning, Environment and Urbanism.

The main players are the state, the decentralised territorial communities, rural organisations and associations, NGOs, private sector and partners in development.

A responsibility charter is proposed for the establishment of different strategy programmes.

Table 5: Responsibility chart in the implementation of specific programmes

| Specific programmes  | Players   |
|--|---|
| Protected zones reinforcement programme  |   |
| Reserve and plan   | DNCN, Projects  |
| Undertake and promote planning of reserve buffer zones and classified forests                  | DNCN, NGOs, Projects  |
| Create conditions for participation by all the social classes of the population                | CTD, DNCN, NGOs, Research Bureaux, Projects   |
| Create conditions for participation by all people  | DNCN, NGOs, Research Bureaux  |
| Allow for knowledge reinforcement on ecological systems and their components                   | IER, ISFRA, IPR/IFRA, MEN, DNM, Projects  |
| Allow for development of information and surveillance systems for zones of ecological interest | STP, Projects GRN, CPS, CTD   |
| Sustainable utilisation of biological resources Programme                                      |   |
| Propose encouragement measures   | IER, Offices, NGOs, Financial Services, DGRC, MDR, CTD, Projects  |
| Take measures to favour restoration and reconstitution of pastoral ecosystems                  | DNAER   |
| Undertake bio-prospecting  | IER, INRSP, Research Bureaux, FMPOS, Private sector   |
| Improve and increase scientific links and techniques   | IER, University, IPR/IFRA   |
| Human capacity to biodiversity conservation reinforcement Programme                            |   |
| Conduct a sensitisation and training programme   | Ministry of Administration and Communities, STP, DNCN, Ministry of Communication, DNAMR, NGOs, Research Bureaux |
| Utilise the education system   | MEATEU, NGOs, MEN, IPN  |

|   |   |
|---|---|
| Promote within the school programmes, in collaboration with the Ministry of education, conservation ideas   | MEATEU, MEN, DNCN                         |
| Promote fundamental and applied research  | IER, University, IPR/IFRA, DNM            |
| Knowledge development and traditional practices of biodiversity conservation Programme  |   |
| Undertake inventory of knowledge and traditional practices  | IER, IPR/IFRA, INRSP, Offices             |
| Put in place methods to link science to the knowledge possessed by different local cultures   | IER, ISH, NGOs, DNM                       |
| Recognise and protect the rights of the local people on knowledge, innovations and traditional practices on biodiversity conservation   | DGRC, Ministry of Justice, DNCN, MDR, CTD |
| Develop legal and statutory arrangements that create awareness that biological resources are a collective national heritage   | MJGS, MDR, MAETEU, DNCN                   |
| Programme for preservation of a variety of local plants and domestic animal breeds that face extinction   |   |
| Propose measures aimed at facilitating conservation utilisation of these resources  | MEATEU, Socio-professional Associations   |
| Set up seed conservation networks ( <i>ex-situ</i> collections and gene banks)  | IER, LCV, IPR/IFRA, DNCN, CTD             |
| Develop an endogenous capacity in typology, in assessment and utilisation of phylogenetic resources   | IER, LCV, IPR/IFRA                        |
| Carry out an inventory and description of breeds that are at risk, specify the nature of risks and the appropriate preservation measures  | IER, DNAMR, IPR/IFRA, OMBEVI              |
| Develop and execute an expansion and preservation programme of local breeds through rearing on the farm, collection and stocking of sperm or embryo as well as the conservation and preservation of <i>in situ</i> of zoo-genetic patrimony ... | IER, IPR/IFRA                             |
| Develop methods of handling, stocking and analysing the data and establish a rapid alert system for the animal breeds and endangered plant species  | IER, IPR/IFRA                             |
| Examine how biochnology can contribute to the preservation of varieties faced with extinction or those that have economic value   | IER, IPR/IFRA, LCV, FMPOS                 |

### 3.5 Participation in the Convention on Biodiversity by the country

The national strategy and action plan on biodiversity came about as a result of consensus and participation by all interested groups.

The stakes for the country and the communities are in order:

- *Policy*: to establish a partnership and an effective responsibility of all the players;
- *Economic*: to satisfy the national economic needs and to preserve the needs of future generations;

- *Some figures to support the policy stakes:*
  - The primary sector produces more than 75% of the country's exports. It contributed to competition of 42% PIB in 1996 (food agriculture, 36% industrial agriculture 23%, livestock 25%, fishing 3%, silviculture and gathering 13%);
  - The cereal needs will increase from 1,813,00 tonnes in 1994 to 3,100,000 tonnes in 2015 which means more land for cultivation thereby exposing forests to greater pressure;
  - Fodder plant species should be available to feed livestock which are estimated at 5,244,900 cows, 11,443,820 sheep and goats, 83,540 horses, 586,900 donkeys, 61,430 pigs, 205,000 camels, as well as 22,000,000 chickens;
  - The sale of wood and coal earned about 20 billion CFA francs in 1994.
- *Socio cultural:* Biodiversity plays a very important role in traditions, customs and religions and also in pharmacopoeia;
- *Ecology:* Biological resources play an important in maintaining the environment equilibrium for the well being of all, and this should be preserved.

Notably, Mali had already initiated policies and biodiversity management activities even before the advent of the Convention on Biodiversity, some of which are:

- Main outlines (rural development, water resources);
- Decentralisation;
- Domestic energy strategy;
- Long term plan on agricultural research;
- Natural resources management project;
- Reinforcement of protected zones (planning for forests, community forestry, natural regeneration/restoration);
- National agricultural popularisation programme, etc.

The main causes of biodiversity loss are:

- Recurrent dry spells/drought;
- Clearing to create space for cultivation;
- Archaic exploitation of wood;
- Abusive gathering/picking of forest products;
- Overgrazing;
- Forest fires;
- Poaching;
- Over fishing;
- Pollution;
- Introduction of exotic species;
- Modern commercial agriculture (mechanisation and abusive utilisation of inputs);
- Poverty;
- Commercialisation of biological resources without organised procedure.

The other aspects are rapid urbanisation, siltation, the confidence crisis between the state personnel/administrators and the rural communities.

The main issues, which sustain the interest of the whole community in biodiversity preservation, are:



- Food resources;
- Fodder resources for livestock;
- Traditional pharmacopoeia for an essentially poor population;
- Energy needs;
- Raw materials for industrial and artisan purposes;
- Sociocultural needs;
- Tourism.

### **3.6 Role of NGOs, local communities and the state**

3.6.1 Presently in Mali there are more than 1000 operational NGOs investing about 38 billion CFA francs per year in community development projects, some of which cover the forest sector.

The activities of these NGOs are essentially grassroots micro-realizations (villages, communities) and these activities are linked to the fight against poverty, desertification, biodiversity, civil society reinforcement, etc.

The NGOs revolve around grassroots communities. They take part in follow up activities and the development of different action programmes through their coordination committees.

The NGOs are the main players providing advisory support to grassroots communities that receive small grants from the Global Environment Facility that has been operating in Mali since 1993. They contribute to biological resources stock taking, sensitisation, information and training the communities, technology dissemination, etc.

#### *3.6.2 The State through its government*

- Guarantees the sovereignty of biological resources;
- Assures dissemination of strategies;
- Supports the sensitisation activities, training and information of the rural communities;
- Develops and implements the rules and regulations;
- Co-ordinates the search for funding;
- Gives its support through its bodies, techniques and skills.

#### *3.6.3 Decentralized territorial groups*

- These have benefited from a lot of power since 1995;
- They play an important role in stocktaking, allocation of resources and implementation of conservation and restoration of biological resources.

#### *3.6.4 Rural organizations and associations (women and youth included)*

- Favours the support for sustainable utilisation of resources by all members;
- Development of regional networks for access to resources and technologies;
- Disseminate technologies of rational utilisation of resources including innovation techniques.

### 3.6.5 Private sector

- Play an important role in the application of conservation measures and biological resources utilisation;
- Respect the biodiversity protection measures.

### 3.6.6 Partners in development

- Play an important role in the acquisition of necessary funding, in technical support with skills not available locally;
- Can facilitate technology transfer and access to certain resources (systems *ex-situ*)

## 3.7 National forests system, national parks and protected areas

According to findings of Woody Resources Inventory Project (PIRL) and other studies carried out by technical bodies such as l'Operation Aménagement et Productions Forestières, the following data on woody resources in Mali was advanced:

- 15.7 million hectares of agricultural vegetation formation;
  - 5.8 million hectares of cultivated and fallow land;
  - 9.9 million hectares as reserve.
- 32.3 million hectares of ligneous/woody formations contain the total ligneous formations;
- Bushy savanna in the North of the country carries less than 10m<sup>3</sup>/ha;
- Dotted forest 20-40m<sup>3</sup>/ha;
- Sudano-guinean forest zone 50-80m<sup>3</sup>/ha;
- Forests, including the forests to the West of the country, sometimes more than 100m<sup>3</sup>/ha;
- Annual growth increments of formations;
  - 0.3-0.4 m<sup>3</sup>/ha/year in Sahel zones;
  - 0.5-1 m<sup>3</sup>/ha/year in Sudan zones;
  - 1-2 m<sup>3</sup>/ha/year in Guinean zones;
  - 1.5 m<sup>3</sup>/ha/year in natural formations of Mt. Mandingue.

Apart from traditional, classic woody forest resources (wood for energy, for wood work and service), other important forest products include:

- Pharmacopoeia products;
- Herbaceous and fodder;
- Fruits and latex;
- Honey, whose importance is increasing (56,000 tonnes of wax in 1989);
- Different raw materials for artwork.

The potential production of dry almonds Karite (Shea-tree, *Vitellaria paradoxa*) is estimated at 188,000 tonnes per year, exploited at only 43%, that is 80,000 tonnes.

In 1970, the production of arabic gum was estimated at 21,000 tonnes, with an existing potential of 110,000 tonnes per year for the country.

The total number of wild animals is still not known due to inaccurate and outdated stock taking. The big animals are really threatened even with extinction in certain

areas. The protected areas presently occupy 3,511,000 ha, that is 3.3% of the land. The table below shows the situation of protected zones.

**Table 6: Situation of protected areas**

| Name                    | Protection category              | Surface (ha) | Ecological Zones |          |         |
|-------------------------|----------------------------------|--------------|------------------|----------|---------|
|                         |                                  |              | Sudanian         | Sahélian | Saharan |
| Baoulé Complex<br>OPNMM | Baoulé National Park             | 187,782      |                  |          |         |
|                         | Fina game reserve                | 108,668      | X                |          |         |
|                         | Koungossanbouougou game reserve  | 76,858       |                  |          |         |
|                         | Badinko game reserve             | 137,772      |                  |          |         |
|                         | Total                            | 511,060      |                  |          |         |
| Kénié Baoulé            | Game Reserve (OPNBB)             | 67,000       | X                |          |         |
| Bafing – Makana         | Game Reserve                     | 169,000      | X                |          |         |
| Bafing – Baoulé         | Game Reserve                     | 13,000       | X                |          |         |
| Niénedougou             | Classified Forest                | 40,600       | X                |          |         |
| Soussan                 | Game Reserve                     | 34,000       | X                |          |         |
| Douentza                | Special game reserve (Elephants) | 1,200,000    |                  | X        |         |
| Ansongo – Ménaka        | Special game reserves (Giraffes) | 1,750,000    |                  | X        |         |
| Walado Débo             | RAMSAR site                      | 103,100      |                  | X        |         |
| Lac Horo                | RAMSAR site                      | 189,000      |                  | X        |         |
| Plaine de Seri          | RAMSAR site                      | 40,000       |                  | X        |         |

In addition to the game protected areas, Mali has a classified forest system. The total classified forest zone covers 5,157,076 ha, that is, 5% of national forest area which is 100 million ha.

General situation of classified forests is given in the following table:

**Table 7: Situation of the State's classified area**

| Region             | Classified forests |           | Wildlife protected zones |           | Total areas of the State's classified areas in ha |
|--------------------|--------------------|-----------|--------------------------|-----------|---|
|                    | Nr. of forests     | Area ha   | Nr. of areas             | Area ha   |   |
| Kayes              | 20                 | 372,826   | 5                        | 826,900   | 1,199,726   |
| Koulikoro          | 18                 | 266,747   | 2                        | 101,500   | 370,257   |
| Sikasso            | 27                 | 388,126   | 1                        | 13,000    | 401,126   |
| Ségou              | 17                 | 95,410    | 0                        | 0         | 95,410  |
| Mopti              | 9                  | 81,838    | 1                        | 1,200,000 | 1,281,838   |
| Tombouctou         | 22                 | 54,459    | 0                        | 0         | 54,359  |
| Gao                | 4                  | 4,260     | 1                        | 1,750,000 | 1,754,260   |
| District of Bamako | 1                  | 2,010     | 0                        | 0         | 2,010   |
| Total              | 118                | 1,265,676 | 10                       | 3,891,400 | 5,158,986   |

Source: DNEF, 1994 (PIRL)

Innovative projects are in the process of being implemented to include participatory management of natural forests.

The total number of forest service personnel in Mali in 1994/95 was 722 agents while the number of agents needed was 1,632:

- 190 engineers (estimated need 287);
- 323 technicians (estimated need 607);
- 209 technical agents (estimated need 738).

#### **IV Overall view of the economy and planning of biodiversity**

The Forest Policy is fairly recent and dates 1996, and the last revision of law texts related to management of natural resources was in 1995. They are therefore earlier than/prior to before the forest policy project. The National strategy and Action Plan on Biodiversity came into being in May 2001 (Adopted by the government).

Before then the forest action in Mali was characterized by:

- The absence of a formal policy on the subject and instead, pure and simple application/use of the forest law texts on protection of forest resources
- The state had taken over natural resource management
- Inexperienced technical cadre of the state which was dominated by repression
- An absence of forest plans
- Insufficient effective personnel/cadre
- Local communities too demotivated to manage their natural resources
- Action programmes of a large scope/scale designed in a unilateral way even though they are significant

However it can be emphasized that the positive changes had already been foreseen in the 80's and 90's. This period was characterized by a real will by the state to adopt a participative approach, after all the difficulties encountered in the 60's & 70's. These changes were definitely sealed by the event at the beginning of the 90's (notably March 1991).

The important factors, bearing hope for the national forest systems are:

- Genuine will by the state to closely associate the communities in the management of natural resources (including forests)
- Improvement of natural resources tenure by definition of the different areas (the state, communities and private)
- Improvement of expertise among national personnel/cadre on resources development plans, research on silviculture of local species, and the surrounding country
- The necessity for investment in forest resources management
- The genuine perception by the communities of the urgency to save guard/protect the resources

In spite of this hope for forestry in Mali, certain situations could be sources of problems. Among them:

- The character of recent forest policy document issued on an experimental basis and which itself should be experimented/tried/tested
- The still inadequate organization of economic network of forest products, yet the communities place such importance on these products

- The need to re-establish/rebuild sufficient confidence, which experienced through by the totalitarian management of natural resources among the partners (notably the state and communities)
- Knowledge of ecosystems, species, and their functions
- Poverty among the people (more than 70% below the poverty line)
- Unforeseen climatic hazards
- The equilibrium between the needs of an ever growing population and the productivity of biodiversity (notably forests)
- Instability of institutional forest management personnel
- Rural Urban migration

## **V Proposed strategies and solutions**

### **5.1 Example of failure**

The most concrete failure story in Mali forestry concerns the activities of Bosquets villageois (forest community). These initiatives which involved the overall national territory was a reaction of the state to the drought in the 70's which led to serious worries concerning the fight against desertification. They consisted of creating reforestation perimeters under the leadership of Service Technique (at the time called Service des Eaux et Forests).

The rural communities had no decision-making powers whatsoever, and the problems of forest tenure were not clear. The Service Tech chose the species. On a limited scale of exotic species of which the ultimate use of the final produces was not always clear. The forests were supposed to belong to the whole community and as such belonged to no one/individual.

Due to the fact these groves/copses were practically imposed by State Services, they were generally installed on the worst land (as per the suggestion of the farmers, peasants) in the villages. They were not only installed on the land, but were also abandoned with neither care/maintenance, nor protection.

What followed is well known - a total fiasco of projects at the beginning of the 70's. It is at this point that community participation in the rural forestry initiatives, in the initiation and the coming of projects started to get some consideration.

### **5.2. Example of success**

The Reforestation project in the Mopti financed by USAID and the Fight Against Siltation Programme in the Tombouctou Region financed by European Development Fund can be cited.

These two projects almost of the same generation carried out by the water and forests service, currently called National Management of Nature Conservation, geographically different, different sponsors, but they both succeeded in community forestry activities.

The first had its global objective to initiate forestry and agro forestry activities and conservation of waters and soils in the regions that had very degraded soils with a view to improve production. The second aimed at stopping the movement of sand dunes, which threatened the locality.

In these two cases, success, which was not evident at the beginning, was present and was characterized by:

- The integrated character of activities carried out (food producing and forestry);
- Motivation and effective participation of people in the localities where projects were carried out;
- Clarification of the question of ownership and the products of the projects;
- Appropriation of initiatives by the beneficiaries;
- Outcome, result, success of private forest exploitation in the rural area;
- Concerted efforts of partners (sponsors, technical service of the state and the rural community).

Another experience, which deserves a lot of attention, is the initiative of classified forests community management around Bamako. Initially it was under the exclusive management of water and forests.

## **VI Conclusion**

The forest sector in Mali has been through the last four decades an exceptional experience due to colonization, novelty of the cadre services and to climatic hazards. This era registered errors that are purely technical (knowledge of techniques and species) social (partnership with the communities). Equally it registered a fairly important progress i.e.: better knowledge of local species, better knowledge of what the communities perceive as priorities, understood better the real issues/problems in natural resource management.

The experience, even though it will still be confronted by new types of difficulties such as ever rising poverty, climatic problems, international management stakes and utilization of natural resources, can all the same be considered a precious fund/capital for the attainment of the national objective of sustainable management of resources.

## ACRONYMS

|           |  |
|-----------|--|
| ABN       | Autorité du Bassin du Niger  |
| ADRAO     | Association pour le Développement de la Riziculture en Afrique de l'Ouest        |
| AFVP      | Association Française des Volontaires du Progrès                                 |
| AL-RS     | Assemblée Législative / République Soudanaise                                    |
| AN-RM     | Assemblée Nationale / République du Mali   |
| BAD       | Banque Africaine de Développement  |
| BM        | Banque Mondiale  |
| CCA – ONG | Comité de Coordination des Actions des ONG                                       |
| CDB       | Convention sur la Diversité Biologique   |
| CES       | Conservation des Eaux et du Sol  |
| CILSS     | Comité Inter Etat de Lutte Contre la Sécheresse au Sahel                         |
| CIRAD     | Centre International en Recherche Agronomique pour le Développement              |
| CITES     | Convention in International Trade of Endangered Species                          |
| CMDT      | Compagnie Malienne de Développement des Textiles                                 |
| CMLN      | Comité Militaire de Libération Nationale   |
| CNRST     | Centre National de Recherche Scientifique et Technique                           |
| CPS/MEN   | Cellule de Planification et de Statistique du Ministère de l'Education Nationale |
| CT        | Collectivités Territoriales  |
| CVGRN     | Comité Villageois de Gestion des Ressources Naturelles                           |
| DNA       | Direction Nationale de l'Agriculture   |
| DNAMR     | Direction Nationale de l'Appui au Monde Rural                                    |
| DNAER     | Direction Nationale de l'Aménagement et de l'Équipement Rural                    |
| DNCN      | Direction Nationale de la Conservation de la Nature                              |
| DNEF      | Direction Nationale de Eaux et Forêts  |
| DNH       | Direction Nationale de l'Hydraulique   |
| DNHE      | Direction Nationale de l'Hydraulique et de l'Énergie                             |
| DNI       | Direction Nationale des Industries   |
| DNM       | Direction Nationale de la Météorologie   |
| DNSI      | Direction Nationale de la Statistique et de l'Informatique                       |
| DRS       | Défense et Restauration des Sols   |
| FAO       | Food and Agriculture Organization  |
| FENU      | Fonds d'Équipement des Nations Unies   |
| GDRN      | Gestion Durable des Ressources Naturelles  |
| ICRISAT   | International Crop Research Institute in the Semi-Arid Tropics                   |
| IER       | Institut d'Économie Rurale   |
| IERD      | Institut de Recherche en Développement (ex ORSTOM)                               |
| IFRA      | Institut de Formation et de Recherches Appliquées                                |
| IITA      | International Institut on Tropical Agricultural                                  |
| INRSP     | Institut National de Recherche en Santé Publique                                 |
| IPR       | Institut Polytechnique Rural (Katibougou)  |
| M.S       | Matière Sèche  |
| NEF       | Near East Foundation   |
| ODEM      | Opération de Développement de l'Élevage Mopti                                    |
| OHVN      | Office de la Haute Vallée du Niger   |
| OMBEVI    | Office Malien du Bétail et de la Viande  |
| OMVS      | Organisation pour la Mise en Valeur du Fleuve Sénégal                            |
| ONDY      | Opération N'Dama Yanfolila   |
| ONG       | Organisation Non Gouvernementale   |
| OPNBB     | Opération du Parc National de la Boucle du Baoulé                                |
| ORSTOM    | Office de Recherche Scientifique et Technique d'Outre Mer                        |

|            |   |
|------------|---|
| ORTM       | Office de Radiodiffusion et Télévision du Mali                          |
| PEMNE      | Projet Elevage Mali Nord – Est  |
| PFIE       | Programme de Formation – Information Environnementales                  |
| PGRN       | Projet de Gestion des Ressources Naturelles                             |
| PGTV       | Projet de Gestion des Terroirs Villageois                               |
| PIB        | Produit Intérieur Brut  |
| PIRL       | Projet Inventaire des Ressources Ligneuses                              |
| PIRT       | Projet Inventaire des Ressources Terrestres                             |
| PNAE       | Plan National d'Action Environnemental                                  |
| PNLCD      | Plan National de Lutte Contre la Désertification                        |
| PNUD       | Programme des Nations Unies pour le Développement                       |
| PNUE       | Programme des Nations Unies pour l'Environnement                        |
| PPS        | Projet Production Primaire au Sahel                                     |
| PRM        | Présidence République du Mali   |
| PRODESO    | Projet de développement de l'Elevage au Sahel Occidental                |
| RGPH       | Recensement Général de la Population et de l'Habitat                    |
| ROSELT     | Réseau d'Observation et de Suivi Environnement à Long Terme             |
| SECO – ONG | Secrétariat de Coordination des Organisations Non Gouvernementales      |
| SED        | Stratégie Energie Domestique  |
| SIE        | Système d'information sur l'Environnement                               |
| SDDR       | Schéma Directeur du Développement Rural                                 |
| SNPA – DB  | Stratégie Nationale et Plan d'Action en matière de Diversité Biologique |
| UGF        | Unité de Gestion Forestière   |
| UICN       | Union Mondiale pour la Nature   |
| UNSO       | United Nations Sahel Office   |
| USAID      | United States Agency for International Development                      |

## **BIBLIOGRAPHY**

- Comite de Coordination des Actions de ONGs. 2000. Synergie des Conventions de Rio.
- Ministere du Developpement Rural et de l'Environnement. 1995. La Politique Forestiere Nationale.
- Ministere de l'Equipement, de l'Amenagement du Territoire, de l'Environnement et de l'Urbanisme. 2000. Strategie Nationale et Plan d'Action en matiere de Diversite Biologique, Tome 1 et 2.
- Direction Nationale des Ressources Forestieres Fauniques et Halieutiques. 1995. La Politique Forestiere Nationale
- Direction Nationale des Eaux et forets. 1982. Politique Nationale des Eaux et Forets.
- Ministere de l'Equipement, de l'Amenagement du Territoire, de l'Environnement et de l'Urbanisme. 2000. Etude prospective du Secteur forestier en Afrique, Document National du Mali/



## **ANNEX: Text of the presentation**

### **SESSION I: INFORMATION ON THE STRUCTURE AND STATUS THE COUNTRY**

#### **Geographic position**

Continental Country (without coasts) in West Africa  
Between 10° and 25° North Latitude  
Between 4° East Longitude and 12° West Longitude

#### **Size**

1 241 138 km<sup>2</sup>

#### **Population**

- 9,790,492 inhabitants (DNSI, 1998)
- Men: 3,775,906 (in 1987), approximately 49 % of the population
- Women: 3,952,105 (in 1987), approximately 51 % of the population
- 90 % of the population is living on only 30 % of the total area of the country
- Annual rate of increasing: 2.2 % from 1987 to 1998

#### **Economy**

- Based essentially on primary sector ("secteur primaire"): 44.6% of national income (PIB)
- Secondary sector ("Secteur secondaire"): 16.7 % of the national income
- Third sector ("Secteur tertiaire"): 38.7 % of the national income
- Poverty: 71.6 % of the population
- The poverty has increase of 28 % from 1989 to 1998 (from 40.8 % to 71.6 %)
- The rate of poverty is 78.3 % in rural zone and 40 % in urban zone
- The annual rate of economy increasing since 1994 is more then 3 %
- In 1998 the rate of economy increasing was only 4.5 % while the budget and trade deficit was more then 7 billions of Fcfa (1 US\$ is more then 700 Fcfa now)
- The national income per inhabitant in 1994 was 120,874 Fcfa (from 85,322 Fcfa in rural zone to 274,624 Fcfa in urban zone), it was in year 2000 the amount of 182,507 Fcfa
- Education: 50 % scholarship for child ("taux de scolarisation"), 60 % for boys and 40 % for girls
- Health: living hope ("espérance de vie") of only 58 years
- Water supply: 52 % of the population (composed of 49 % in rural zone and 51 % in urban zone)
- It is important to notice that the percentage of the primary sector contribution in the national income will decrease from 44.6 % to 27.5 % in the year 2025.

## **Amount of forests**

The "Projet Inventaire des Ressources Ligneuses" (PIRL 1995- 1991) stated that:

- the national forests area estimated to 100 millions Ha (less than 26% of the total area of the country) not including the pastoral areas
- 1.3 million Ha of protected forests (public domain for the State)
- 3.9 millions Ha for fauna reserves
- 15.7 millions Ha for agricultural areas
- the amount of living wood is more than 520 millions m<sup>3</sup>
- the annual mean of productivity of the forests is 0.86 m<sup>3</sup>/ha/an, varying from 1 to 1.5 m<sup>3</sup>/ha/year in the soudano-guinéenne zone to 0.3 and 0.05m<sup>3</sup>/ha/year in Sahara and Sahel

## **More than 100 000 Ha of forests disappear each year**

The need for fuel wood and charcoal is estimated to 5 millions tonnes, it will attend or be more than 7 millions tones in the year 2010.

The natural forests with management plans

- "Forêts classées": 118 "forêts classées" covering 1million Ha, 20 of them with 259,200 Ha are provided with sustainable management plans
- "Parcs et Réserves de Faunes" (Boucle du Baoulé and Parc Biologique de Bamako) covering 521,090 Ha are provided with participatory management plan
- "Massifs forestiers du domaine protégé": 200,000 Ha of them are provided with participatory management plan

Reforested area: the total amount of area planted in Mali from years 30 to 1999 are estimated to 60,296.23 Ha (G. Konaté et M. Gakou)

Trees plantation out of the natural forests are is also important and concern about 15.7 millions of Ha (DNRFFH 1995), composed of agroforestry, water and soil conservation, fallows

## **Forests uses**

- Food, butter, gums,
- Forages for livestock
- Energy: 90 % of the needs from fuel wood and charcoal (100 % in rural zone)
- Sawn wood ("Bois de sciage")
- Logs wood ("Bois de service") evaluated to more than 90,000 tonnes per year
- Traditional medicine uses
- Social and cultural uses
- Industries
- Arts
- The national forests system provide 25 % of the exports, contribute about 4.9 % in the national income, the different products from the forests system are estimated to 70 billions per year which is very important
- The wood energy sector provide 400,000 jobs permanent of temporary
- All the uses can be classified in four functions: regulation (climate), production (human and animal needs), spirituals (traditional religions), economy and food security

## **Stakeholders**

The State and his institutional structures  
The local communities ("Collectivités Territoriales")  
The Civil Society  
The Partners for the Development

## **Institutional Structures**

Fives Ministries: Environment, Rural Development, Education, Collectivités Territoriales

Assemblée nationale

Conseil Economique Social et Culturel

Haut Conseil des Collectivités

Technical structures and organisations:

- Direction nationale de la Conservation de la Nature
- Secrétariat Technique Permanent du Cadre Institutionnel de Gestion des Questions Environnementales
- Institut d'Economie Rurale
- Institut Supérieur de Formation et de Recherche Appliquées/Institut Polytechnique Rural de Katibougou
- Organes des collectivités territoriales
- Organisations de la Société Civile (ONGs, Bureaux d'études, Groupements d'Intérêt Economique, Entreprises, Artisans, Personnes physiques ou morales etc.)
- Organisations paysannes de production et de commercialisation

## **Situation in 1993**

Inappropriated laws for the national forests system  
Lack of national global strategy for biodiversity  
Lack of National Forests Policy  
Ecosystems, Forests and Species in degradation  
No appropriate identification of the roles of the stakeholders  
Lack of clear tenure issues for the national forest system

## **Progress since 1993**

National Biodiversity Strategy and Action Plan adopted  
National Forests Policy prepared  
Revised National Forestry Laws  
Program for Environmental Education  
New Research Program based on farmers' needs  
Tenure issues best defined with the State domain, the "collectivités territoriales" domain, and the particulars (private) domain

## SESSION II: NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

### Information on the NBSAP

The republic of Mali has ratified the Convention on Biological diversity on the 29 March 1995

The country got funds from GEF through UNDP for a project to elaborate a National Biodiversity Strategy and Action Plan, which has been adopted by the Government in May 2001

The NBSAP process allowed the actors to make the diagnosis of the status of the biodiversity at the national level, to analyze the existing potentiality and the constraints, and then to make suggestion for follow up actions

The diagnosis distinguished five (5) ecosystems:

- Deserts ecosystems ("écosystèmes désertiques", Sahara)
- Prone deserts ecosystems ("écosystèmes pré-désertiques", Sahel)
- Inlands waters ecosystems ("écosystèmes d'eaux douces", Delta Central du Niger)
- Savannah ecosystems ("écosystèmes des savanes", Zone soudanienne)
- Forests ecosystems ("écosystèmes forestiers", Zone guinéenne Nord)

Those ecosystems contain fourteen natural regions of which the most important for biodiversity are:

- the Plateau Mandingue
- the Haut Bani Niger
- the Delta Central du Niger
- the Gourma
- the Adrar des Ifoghas

The available information on the status (inventory needs to be update) of the biodiversity gives:

- 1 700 species of trees (of which 8 are endemic)
- 640 species of birds (of which 15 are rare)
- 136 species of animals (of which 70 are big mammals)
- 143 species of fishes (of which 24 are endemic)
- Hundreds of cultivated species and varieties, and domestic animals of which we have: rice, sorghum, millet, niébé, bambara groundnut, sweet potatoes, yams, cows, goats, camels, sheets etc.

The biodiversity is endanger of extinction for many species and varieties, and for animals, because of human pressure, habitats degradation etc. Some of them, mainly the fauna are:

- *Damaliscus korrigum*
- *Taurotragus derbianus*
- *Giraffa camelopardalis reticulata*
- *Trichechus senegalensis*, etc.

Some of the medicinal plants used traditionally are also endangered

The biodiversity plays a role in food supply, traditional medicine, social, cultural, esthetic, ethics, money incomes etc

Since the droughts of the years 1972-1973 and 1984-1985 public awareness has increased and many programs and activities have been initiated at national, regional and local levels for:

- Sustainable use of forests resources by the populations
- Reforestation
- Land management, agroforestry and soil and water conservations
- Wildlife management, etc.

The NBSAP process revealed a lack of good integration of the programmes and activities implemented in the natural resources domain.

The NBSAP recommended for a sustainable use of biodiversity a national strategy with the following key components:

- Capacity building and appropriate information system
- Improvement of the conservation tools
- Best use of the resources and benefit sharing
- Promote biotechnology and biosafety

The strategy will be implemented through five (5) programs which are:

- Improve the protected areas
- Sustainable management and use of biodiversity
- Capacity building
- Improve the traditional knowledges and their use
- Protection of local varieties, species and animals

### **Specific examples of successful and unsuccessful**

The unsuccessful example concerns the early so called participatory reforestations' projects came after the drought of the years 1972-1973, in many places in the country

The successful example concerns two (2) projects:

- Village Reforestation Project in Mopti (5<sup>th</sup> region of the country)
- Programme de Lutte contre l'Ensamblent de Tombouctou (8<sup>th</sup> region of the country)

Another very interesting exercise which is going on, even it is yet too early to conclude, is the participatory management of existing forests with the local communities living in or near the forests.