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Appendix I : Investments planning

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FACT SHEET

◆ SURFACE AREA

Total surface area of Cameroon	475,440 km ²
Total land area.....	465,412 km ²
Sudano-Sahelian Zone	102,068 km ²
Savannah Zone.....	171,992 km ²
Coastal and Maritime Zone.....	9,670 km ²
Tropical Forest Zone.....	181,682 km ²
Arable land.....	68,125 km ²
Land under cultivation	19,668 km ²
Pastures and Savannahs	142,890 km ²
Forests	210,717 km ²
Protected areas	43,681 km ²
Deforestation (1980-1989).....	190,000 ha/yr
Timber production bois in 1993.....	3,000,000 m ³

◆ POPULATION











Total population (1995)	13,180,491
Population growth rate (1993-2000).....	2.9%
Urban population (1995).....	5,974,647
Urban population growth rate (1976-1987)	5.6%
Year of the doubling of the population	2,017
Adults literacy rate (1993)	61%
Access to potable water (% 1990-1995)	50%
Number of poor people (1987).....	3,500,000 inhabitants
	= 37.6% of the total population

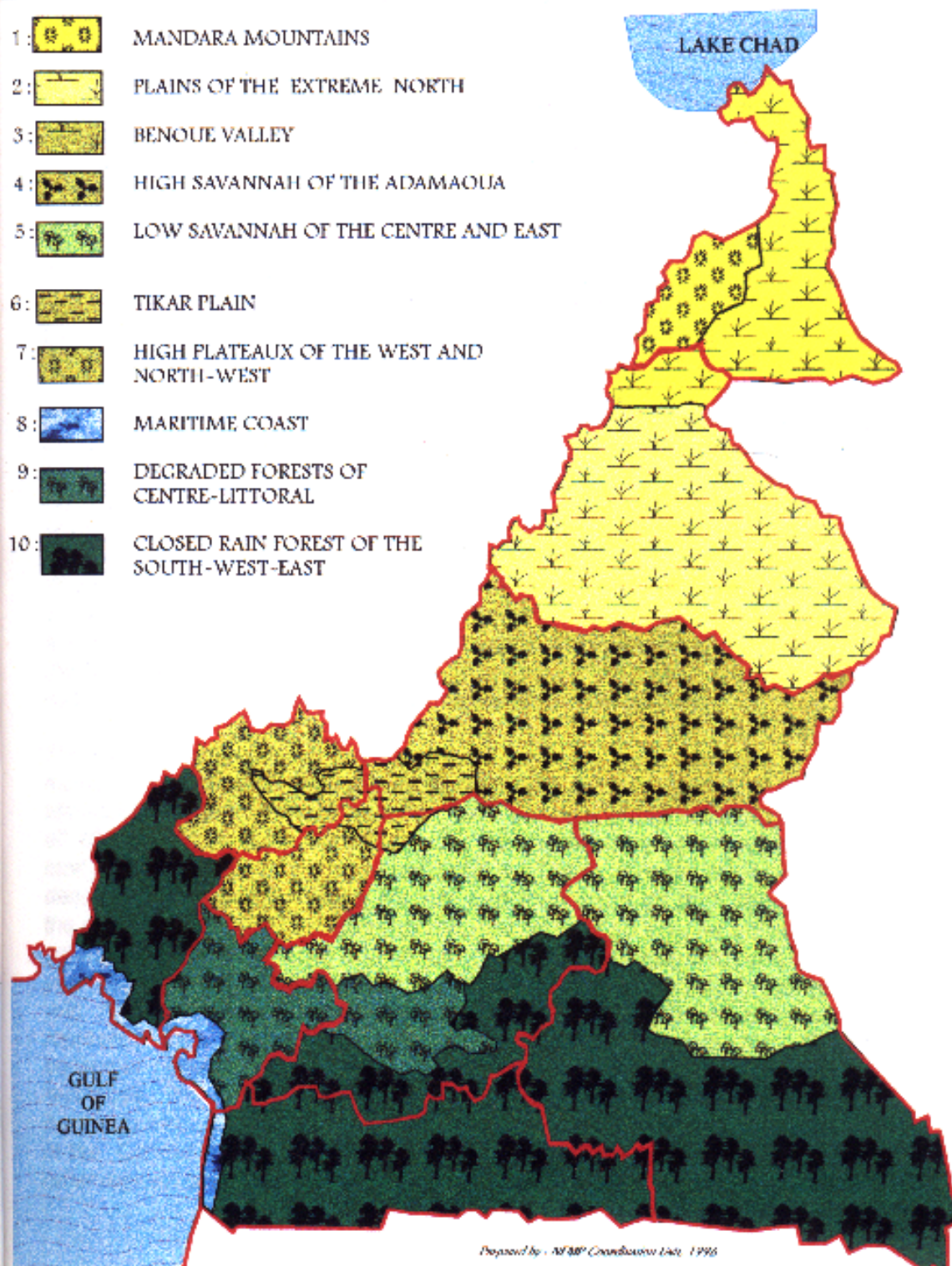
◆ MACRO-ECONOMIC INDICATORS

INDICATORS	1970/71	1977/78	1985/86	1990/91	1993/94	1994/95
GDP trends at current prices in thousands million CFA Francs	340	987	4,099	3,256	3,001	4,427
GDP growth rate	3.7	14.6	6.5	-5.8	-4.06	1.47
Per capita GDP in 10 ³ CFA Francs	51	171	395	301	266	336
GDP structure						
Primary	32.0	34.0	22.0	28.0	33.0	33.4
Secondary	20.0	21.0	34.0	31.0	25.0	21.1
Tertiary - Services sector	48.0	45.0	44.0	41.0	42.0	45.5
Debt in 10 ⁶ CFA Francs				1,890,633	5,263,896	5,763,757
Debt servicing in 10 ⁶ CFA Francs				172,788	348,530	347,776

MAP OF CAMEROON'S MAJOR ECOLOGICAL REGIONS

KEY

- 1:  MANDARA MOUNTAINS
- 2:  PLAINS OF THE EXTREME NORTH
- 3:  BENOUE VALLEY
- 4:  HIGH SAVANNAH OF THE ADAMAOUA
- 5:  LOW SAVANNAH OF THE CENTRE AND EAST
- 6:  TIKAR PLAIN
- 7:  HIGH PLATEAUX OF THE WEST AND NORTH-WEST
- 8:  MARITIME COAST
- 9:  DEGRADED FORESTS OF CENTRE-LITTORAL
- 10:  CLOSED RAIN FOREST OF THE SOUTH-WEST-EAST



Prepared by: AIBP Coordinators Unit, 1996

FOREWORD

For all countries of the world, environmental stakes have today become a source of major concern which demands manifold commitments and specific actions at the level of the global society. No country or institution can be indifferent to such problems any more. Thus, confronted with the clearly universal character of environmental perils, States are increasingly opening up to the world, by willingly sacrificing a fraction of their oft-asserted sovereignty.

Cameroon, on her part, has made environmental management a national cause : she has been spared neither by the effects of drought and desertification in the Sudano-Sahelian region nor by deforestation, bushfires, the degradation of the rain forest, the destruction of coastal and marine ecosystems, and even less by the many forms of pollution in urban centres and around industries. Indeed, Cameroon has enshrined environmental issues in the preamble of her Constitution and, during the last Parliamentary session in June 1996, adopted a Framework-Law on environmental management, an innovatory act which advisedly fills one of the legal voids which had hitherto been most acutely felt in the national development struggle.

What is more, by overcoming the torments of the economic crisis which has been plaguing her for some ten years, Cameroon resolutely settled down, over a three-year period, to draw up a National Environmental Management Plan (NEMP), based on a participatory and pragmatic approach which has today earned her the admiration and encouragement of her partners.

The threats that overhang the national environment were identified during this exercise. They include : the degradation and wanton exploitation of resources ; atmospheric, water and soil pollution; and wastage of the ecological potential, all of which are likely to undermine the equilibriums of ecosystems and mortgage the fate of coming generations. These threats have a common denominator - poverty - which fits into a vicious cycle as both the cause and the effect of environmental degradation, and which can only be gotten rid of by solving the economic crisis and reducing the debt burden. Projections for the year 2020 show that the population will have reached 25.5 million inhabitants with 70% concentrated in towns, as against 13.5 million at present. This represents a staggering increase in "ecological demand" related to multifarious consumer needs and, hence, extraordinarily high pressure levels on natural resources. The critical situation shown by this case is not at all isolated ; it hooks up with other no less dramatic situations which are becoming apparent in the Central African Sub-region, all over the African Continent and in many other regions of our planet.

To address the demands of common destiny at the international level, the political will of the Cameroon Government has several times been manifested by the signing and/or ratifying of most legal environment-centred instruments with a universal scope such as agreements, conventions, protocols or treaties. Compliance with and implementation of these instruments at the domestic level have also become subjects of abiding concern for Cameroon's public authorities.

This document gives an overview of the policies, strategies and actions evolved within this extensive project - the Cameroon National Environmental Management Plan. It humbly subjects the realization of this Plan to the more tangible commitments of all Cameroon's internal and external partners, be they of the private sector or the public sector, NGO circles or professional associations, cooperation agencies or international funding bodies. Eloquent proof of this commitment was given both during the various consultation meetings and planning seminars organized during the entire NEMP formulation process, and through the enthusiasm shown by parliamentarians of all political leanings during debates on the draft framework-law in the National Assembly.

Given the level attained in the internalization of the process, it is hoped that the participatory momentum of Cameroonians will be maintained during the implementation of projects and programmes selected within this Plan. There is absolutely no doubt that, on the other side too, the decisive support of international Donors who have to date been supporting it financially and technically will be continued. The people and Government of Cameroon are very grateful for this assistance. They also hope that the international community will remain by their side during this new advance leading to the efficient realization of the Plan, which will begin shortly after the Round-Table.

2.

MANAGING THE ENVIRONMENT WITH A VIEW TO GUARANTEEING SUSTAINABLE DEVELOPMENT IN CAMEROON

By the Minister of the Environment and Forests

Since the Rio de Janeiro conference in June 1992, environmental concerns and planning have become important themes both in industrialized and developing countries . With regard to developing countries, especially Sub-saharan African countries in general, and Cameroon in particular, the African Common Position of Agenda 21 stipulates that the problem of poverty is a major, if not the leading cause of environmental degradation. Furthermore, population growth at national level and the world-wide economic crisis have significantly curbed the possibility of African Governments to efficiently address environmental problems so as to ensure sustainable development for their populations. Cameroon has not been spared from this situation.

The National Environmental Management Plan (NEMP) characterises the demographic situation as ‘rapidly growing and unevenly distributed’. Indeed, current population estimates stand at about 13 million inhabitants, 45% of which live in urban centres. Prospects for the year 2000 situate the population at about 25.5 million, 70% of which will be concentrated in towns if nothing is done to arrest the phenomenon. To a large extent, this urban population growth is responsible for the global environmental degradation, especially air, water and soil pollution, and for the irrational exploitation of natural resources.

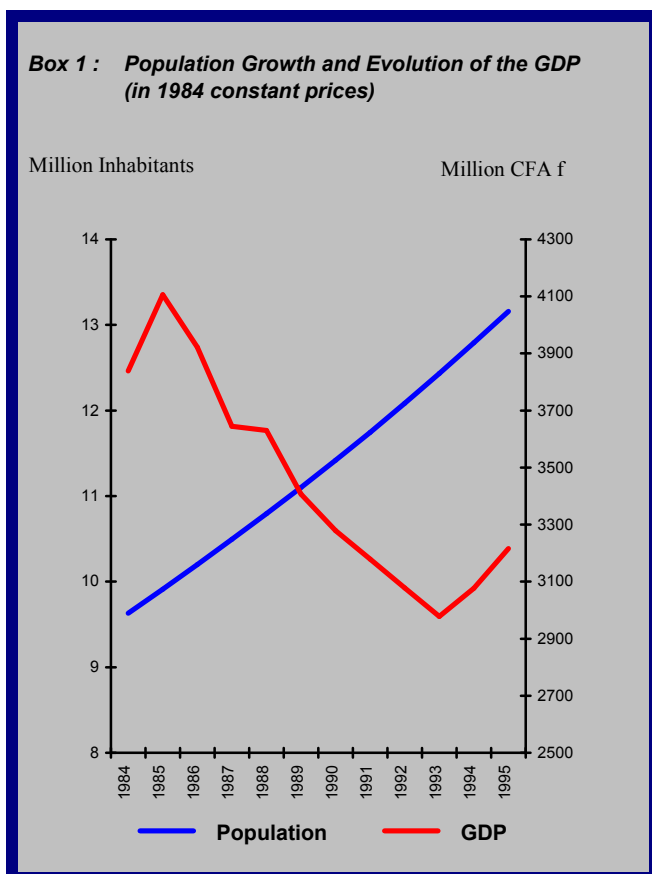
The 1996 world environment day was devoted to the urban sector thus reflecting an international resolve to check the degradation of the human environment and the expansion of towns. Cameroon also shares this concern.

On account of the economic crisis, the urban environment degraded rapidly, leading to poor solid and liquid waste management, and shortcomings in potable water distribution systems ; disregard for regulations relating to construction and land occupancy gave rise to inhygienic squats which constitute a source of health hazard.

With regard to the uneven population distribution in the rural sector, it is observed, on the one hand, that some regions are densely populated for historical reasons, but also because of the prevalence of rich soils and agricultural potential (the West, North West, and Far North Provinces, as well as the Maritime Coastal Zones, are examples). On the other hand, there are sparsely populated zones with a development potential that is currently under-utilised. These zones may be considered as reception zones that enable a diversification of agricultural activities and a better population distribution in keeping with the resources to be developed (for example, the Benoue plains, the Adamaoua Savannah). NEMP policy aims at developing potential in sparsely populated zones in order to reduce pressure on resources in the densely populated ones.

Besides, the rational development of potential in very sparsely populated savannah zones and plains will prevent populations in search of land from progressively occupying the closed rain

forest. Indeed, fragile ecosystems like those of the closed rain forest will be better protected through the development of other potentials than through measures of simple statutory protection (protected areas, classified forests, etc.) which in the final analysis, are not respected by the people.



The economic crisis which is characterised by a drop in purchasing power and by public debts, contributed significantly to environmental degradation. Indeed, from all planning seminars organized both regionally and nationally to prepare the NEMP, it stood out clearly that poverty is at the root of serious environmental degradation. This is due to the fact that, on the one hand, the populations are forced to ensure their livelihood through a usually chaotic exploitation of resources and on the other hand, the State does not have the means to rationally manage the environment and therefore often has to tolerate an overexploitation of resources to cope with its obligations (foreign debt, functioning of the State, etc.).

Since the Earth Summit in Rio de Janeiro in June 1992, Cameroon, in concert with the international community, has embarked on strengthening mechanisms and actions to effectively protect the environment and rationally manage resources to ensure sustainable development.

In this context, the Ministry of the Environment and Forests was created in April 1992, thus constituting the institutional framework for environmental planning and management. Thereafter, coordination mechanisms like interministerial consultation, regional and sectorial environmental planning commissions were put in place to enable popular participation of all those concerned both from the private and public sectors in the preparation of NEMP and the formulation of environmental policies.

Through the methodological approach adopted under participatory planning (on the whole, more than 4,000 Cameroonians were directly involved in this process as consultants and resource persons, members of sectorial and regional committees and participants in consultation and planning seminars, etc.), regional concerns and sectorial priorities were taken into account in the preparation of policies, strategies and actions.

Under the decentralized approach, specific policies, strategies and actions were identified for

the major ecosystems of Cameroon, namely :

- the Sudano-sahelian zone affected by drought, especially in the Far-North, but which also comprises agro-pastoral development zones in the Benoue Valley. Considering the environmental stakes in this northern zone of the country, Cameroon participated in negotiations and signed the convention on the fight against desertification in 1995 ;
- Savannah zones with fragile regions in the West and North-West Provinces needing conservation measures and soil protection, but comprising significant agro-sylvo-pastoral potential in the Adamaoua Province and in the plains ;
- the coastal and maritime zone, confronted by various forms of tellurian and marine pollution, is the focus of several international conventions on maritime law and protection of fragile ecosystems (mangroves) ;
- tropical forests zones, with special attention to the protection of biodiversity (Cameroon signed the convention on Biological Diversity in 1992) and the rational development of forestry resources through the application of the new forestry law and policy.

Within the first analytical phase of the general planning, specific policies and strategies which help to improve socio-economic conditions were identified. These include :

- the mastery of population growth and spatial distribution ;
- the improvement of the economic situation and living conditions with a view to guaranteeing sustainable human development ;
- the updating of the legal framework and the establishment of a suitable and operational institutional framework.

Specific policies and strategies with a direct incidence on environmental protection and resource development were also identified. These are :

- the rational management of agro-sylvo-pastoral land, ecosystems and natural resources which constitute the most serious environmental protection and sustainable development challenge ;
- the valorization of primary products through industrial and infrastructural development, while incorporating environmental protection measures ;
- the improvement of living conditions in urban areas which is a priority, with the knowledge that by the year 2020, nearly 70% of Cameroon's population will be living in urban centres ;
- the building of human and institutional capacities which is a prerequisite for a new environmental culture and a stronger resolve towards sustainable resource management.

The policies and strategies of the National Environmental Management Plan are thus based on the synergy between sustainable economic development on the one hand, and environmental protection and rational natural resource management on the other. To achieve this, Cameroon has adopted an integrated approach which aims at improving framework

conditions and at the same time takes account of the relationships between national economic and social imperatives and the necessity of co-operation at sub-regional and international levels.

Only a global approach can resolve environmental management problems which are multi-sectorial because they affect all sectors of the national economy. This demands the co-operation of the entire civil society - ministries, the private sector, trade associations and NGOs.

The principle of democratic participation was recognized in Rio, particularly in Agenda 21, as one of the main recommendations of the Governments within the framework of sustainable development policies. In this context and to ensure participation in environmental management in Cameroon, the Government empowers local populations and communities within the framework of recent laws such as the framework-law on environmental management and the new law on forestry. This should deepen their adherence to the principles of sustainable environmental management and rational utilization of resources.

Meanwhile, experience with NEMP has shown that environmental management is not only a national responsibility, but also involves neighbouring countries and, at a higher level, the international community.

In the planning process, cross-border conflicts were identified particularly in the following areas : the management of shared resources like coastal and marine ecosystems, river and lake water resources ; the management of transhumance corridors for livestock, and the management of forests and protected areas. The resolution of these environmental conflicts and the rational management of these resources can only be achieved when operational mechanisms for sub-regional co-operation are set up.

With regard to international obligations, Cameroon is a party to some thirty regional and sub-regional international multilateral conventions on the protection of nature and natural resources, the pollution and preservation of the marine environment, atmospheric protection and on chemical and nuclear safety. However, like many other developing countries, Cameroon has not been able to fulfil the obligations arising from international conventions. There are three reasons for this, namely, the scope and conditions of receptivity of international norms at the domestic level, the adverse economic conditions and an imperfect legal and institutional framework.

This is why the international community, and industrialized countries in particular, are invited to increase their support to the efforts of the Government and people of Cameroon towards protecting the environment and managing natural resources in the national and global interest.

In conclusion, it must be borne in mind that the participation and sustainable management of the environment and natural resources is an obligation for all - the civil society, Government, the competent services of the public and private sectors, neighbouring countries as far as shared resources are concerned, and the international community with regard to the harmful effects of pollution and the wanton exploitation of natural resources at the global level.

The Round Table on the Environment in Cameroon aims at winning the support which the international community is duty-bound to give so as to enable the country fulfil its obligations within the framework of a national and global approach to environmental management.

Yaounde, 30 July 1996

The Minister of the Environment and Forests

3.

EXECUTIVE SUMMARY

Following the Rio de Janeiro Conference of June 1992, the Cameroon Government embarked on a series of activities geared towards the formulation of a national policy for environmental protection and sustainable resource management. An in-depth analysis of the situation was carried out taking into account the environmental considerations set out in international conventions, while special emphasis was laid on the ecosystems and resources threatened with degradation and damage: the Sudano-sahelian region facing desertification; the closed rain forest threatened with degradation and the loss of its biodiversity; maritime and coastal regions, particularly the mangroves, subjected to pollution and damage; the soils of agricultural areas facing erosion and loss of fertility; and the human environment which is prey to pollution and insalubrity, among others.

Within this context, the problems of environmental management and the potentialities of the resources to be conserved were analyzed by ecological zone and sector of intervention so as to design coherent policies, strategies and actions for the conservation of the environment and the rational exploitation of resources.

The analysis also covered the socio-economic framework conditions which are prerequisites for the implementation of NEMP policies, strategies and actions. An analysis of the situation of public finances showed a steady rise in public debt over the past ten years from 957,700 million CFA francs in 1985/86 to 5,763.8 million in 1994/95. Debt-servicing currently represents about 110% of GDP, and constitutes an excessive burden on public finances. Given the prevailing public sector crisis and the recession at the level of households, the State and its citizens are compelled to exploit resources and bring in revenues in the short term regardless of the adverse effects of poor environmental management and the uncontrolled exploitation of resources.

Since 1994/95, there has been an incipient economic revival of both the public and private sectors. State revenues, which had been dropping significantly since 1987/88, were up in 1994/95 by 534,000 million CFA francs and in 1995, by 658,000 million CFA francs. Over the same period, GDP, after about eight years of dropping, is showing a growth of 3% owing mainly to the performance of the primary sector and a recovery of industrial and service activities. The implementation of the adjustment and reforms programme adopted in September 1995 made it possible to re-establish macro-economic equilibriums. With a view to consolidate the economic situation of the State and households, and to guarantee sustainable development, environmental management and the rational development of resources have become major preoccupations of the Government.

Based on an attempt to determine the ecological value of natural resources which, so far, are not incorporated into the national economic figures, results of about 6,473,900 million CFAF have been obtained, distributed as follows:

– closed rain forest :	5,850,000 million CFAF
– conservation areas :	146,400 million CFAF
– croplands :	375,000 million CFAF
– rangelands :	72,500 million CFAF
– fishery resources :	30,000 million CFAF.

These high ecological values, despite being only partial, point to the necessity of conservation measures for the national and global interests. Compared to these ecological indicators, the funding needs of NEMP, estimated at 232,300 million CFAF, of which 139,000 million is yet to be secured, appear to be quite modest.

Cameroon is currently endowed with a policy framework as well as the necessary mechanisms and instruments

for the efficient management of the environment :

- the National Environmental Management Plan (NEMP) was drawn up using a participatory approach and takes into account regional peculiarities (major ecological regions) and sectorial considerations. The plan was endorsed by the National Environment Forum in March 1996 ;
- the Framework Law on the Environment, adopted by the National Assembly in June 1996, stipulates the involvement of the public in environmental management, names NEMP as the instrument of the national policy, sets up the legal framework and financing mechanisms, defines the environmental management mechanisms and the conduct of impact studies, and gives priority to incentive measures aimed at reinforcing environmental protection activities ;
- a legal framework that is being progressively instituted and which concerns : the inter-ministerial environment committee at the level of the Prime Minister's Office, the National Advisory Commission on the Environment and Sustainable Development responsible for securing more broadbased participation, the Permanent Environment Secretariat designed as a flexible and streamlined structure in charge of implementing the national NEMP policy, defining and controlling environmental management norms and standards, and carrying out impact studies ;
- the ratification and application of international conventions relative to the protection of nature and natural resources (convention on biodiversity), the protection of the Sudano-Sahelian region (convention on desertification), pollution and the preservation of the marine environment, the protection of the atmosphere (Montreal Protocol and the convention on climate change), and chemical and nuclear safety.

In addition to these environmental management mechanisms, the Government, in spite of the prevailing economic crisis, allocated 3,400 million CFA francs in the Public Investment Budget (PIB) for projects geared towards environmental protection, which represents 8.8% of the total investment budget. The Priority Investment Programme (PIP) provides for an annual contribution of 2,000 million CFA francs towards NEMP projects.

The participation of the populations in NEMP projects identified at the regional level stands at 4,700 million CFA francs (or about 5% of investments in regional projects), of which 1,700 million is for on-going projects, while 3,400 million is for planned NEMP projects.

The contributions of the private sector from mobilization programmes in industrialized countries (Joint Implementation Programme), as well as the penalties incurred under the provisions of the framework law, are estimated at 11,650 million, or 8.3% of the investments needed for the implementation of NEMP. With regard to the participation of donors and international co-operation agencies, their support to on-going projects stands at about 85,440 million CFA francs, and they are expected to provide a further 95,000 million for the realization of new NEMP projects, which represents 67.9% of the total financing sought.

The objective of the Donor's Conference is to mobilize 95,000 million CFA francs, or 190 million \$ US, from the international community.

The contribution of the international community to the realization of NEMP projects and programmes which should complement the commitment of the State, is quite justifiable given the difficult situation of public finances on the one hand, and the global stakes of the environment as a function of ecological values, on the other.

4.

NATIONAL POLICY GUIDELINES FOR SUSTAINABLE ENVIRONMENTAL MANAGEMENT

4.1. ENVIRONMENTAL MANAGEMENT PRINCIPLES

4.1.1. NEMP and the legal Framework as the Basis for the Environment Policy

The Ministry of the Environment and Forests was created in April 1992 and entrusted with the mission of formulating, executing and coordinating the national environmental policy. The aim of this measure is to put an end to the multiplicity, dispersion and functional distortions that characterized the legal framework of the environment in Cameroon. However, MINEF, the main department responsible for the management and coordination of environmental actions, still shares responsibility in quite a few areas with other technical ministries. To enable it carry out its duties while ensuring the harmonious integration of all environmental considerations, MINEF currently has two important tools at its disposal :

- a policy guideline for the protection of the environment and the rational management of natural resources defined by sector of intervention and by major ecological region in NEMP and approved by the National Forum of March 1996 ;
- a legal framework instituted by the new framework law on environmental management which was voted by the National Assembly in June 1996.

Hence, Cameroon is one of the first countries of the Central African sub-region to have a National Plan prepared in close collaboration with all the parties concerned, and to adopt an innovative framework Law, especially as regards the provisions relating to NEMP as the Government's environment policy tool, the coordination and financing structures, the realisation of impact studies and the principles of participation and free access to information.

The political commitment of the Government to include the environment in the list of national priorities will be reflected in the political and regulatory measures and institutional mechanisms to be adopted.

4.1.2. Underlying Principles of the Environment Policy

As stipulated in the new framework Law, the environment is a common heritage of the Nation and constitutes an integral part of the universal heritage. It is in the general interest to ensure its protection and the rational management of resources, with particular emphasis on the protection of geosphere (the soils), the hydrosphere (water) and the atmosphere (air), as well as the social and cultural aspects thereof.

Through the application of this framework Law, the Government guarantees :

- the right of each individual to a healthy environment and a harmonious balance of the ecosystems, and between urban and rural areas ;
- information and sensitisation of all citizens on environmental problems by all public and private sector institutions ;
- the possibility for grassroot communities and approved associations to exercise recognised rights relating to the infringement of environmental Laws and regulations.

With regard to the fundamental principles of environmental and resource management, the following have been adopted :

- **the "polluter pays" principle**, according to which the expenses incurred for the prevention and curbing of pollution are borne by the polluter ;
- **the principle of participation** according to which it is imperative to guarantee access to information, the duty to safeguard the environment, and the necessity to coalesce with the sectors and groups of activity concerned ;
- **the principle of preventive action and correction** of environmental damage at source according to a scale of priority ;
- **the principle of subsidiarity** whereby the customary norm which is most effective in environmental protection is applied.

With regard to the protection of natural resources, a special place was given to the protection of mangrove

ecosystems which play an important role in conserving marine biodiversity, in maintaining coastal ecological equilibriums and in protecting the genetic resources which today are of special environmental significance.

4.1.3. Formulation of the National Policy

The Government is responsible for drawing up the environmental policy and coordinating its implementation. In this context, it will :

- set quality standards for water, air and soil in order to protect human health and the environment ;
- draw up reports on pollution, biodiversity conservation and on the state of the environment in general ;
- initiate research into the quality of the environment ;
- initiate and coordinate actions in the event of an environmental emergency ;
- publish and disseminate information on environmental protection and management.

4.1.4. Institutional Framework

The new framework law makes provision, in particular, for two institutions responsible for coordinating environmental policies, strategies and actions. These are :

- **the Interministerial Committee on the Environment** which is responsible for defining the broad outline of, and formulating national policy. It also ensures the collaboration and incorporation of all ministries towards the management of the environment and natural resources ;
- **at a wider participation level, the National Advisory Commission on the Environment and Sustainable Development (CNEDD)**, set up by Prime Ministerial decree in May 1994 ensures the participation of all parties concerned, including the private sector, NGOs and trade associations, in the formulation and implementation of environmental policies and strategies.

A draft administrative reform envisages the setting up of a **Permanent Secretariat for the Environment** which will be a flexible and streamlined structure attached to the Ministry of the Environment (MINEF). It shall coordinate the effective implementation and monitoring of the National Environmental Management Plan (NEMP) and lay down and enforce the standards governing environmental protection and natural resource management.

4.1.5. Funding Mechanisms

As regards funding mechanisms for the carrying out of NEMP, the Framework law envisages the institution of a "National Environment and Sustainable Development Fund" (FONEDD) which will :

- support projects aimed at safeguarding the environment and at sustainable development ;
- support environmental research and education programmes ;
- support programmes that promote clean technologies (Ecologically - Sustainable Industrial Development) ;
- encourage local and grassroots initiatives as far as the conservation of the environment and sustainable development are concerned ;
- support associations which undertake significant environmental protection actions ;
- support the environmental management actions of the various ministries ;
- contribute to the financing of the environmental audit.

The fund's resources will essentially be made up of State grants and contributions from donors. Additionally, funding is also expected to come from private sector donations, pollution fines and sums collected for the rehabilitation of sites, among others.

4.1.6. Management Mechanisms

Environmental management is based on the National Environmental Management Plan (NEMP) which was approved during the National Forum held in March 1996. The Plan is open to review every five years. The Government should in particular ensure :

- the incorporation of environmental considerations in all economic, energy, real estate and other plans and programmes ;
- the application of international conventions and their incorporation in legislation, regulations and the relevant national policy.

As a transverse and integrated activity, environmental management should be based, among other things, on :

- the carrying out of environmental impact studies ;
- the protection of all components of the environment, including the atmosphere, continental waters, flood plains, coasts, sea water, the soil and sub-soil ;
- the management of human settlements (including the conservation of the cultural and architectural heritage), compliance with town planning maps

- (spontaneous housing), waste management and control of installations classified as unhygienic and inadequate ;
- the fight against pollution and other nuisances such as garbage, toxic and hazardous chemical substances, and noise pollution ;
- natural resource management and biodiversity conservation ;
- risk and natural disaster management.

All these activities must be consistently in line with the quality and control standards for pollution and other nuisances.

4.1.7. Participation Principle

The participation of the population in environmental management and their actually taking over such management are fundamental principles of the environmental policy. Just as in the drawing up of NEMP, the population and communities should participate in carrying out and monitoring programmes and projects aimed at environmental protection and natural resource management. The participation principle is essentially based on :

- free access to environmental information ;
- participation in consultative organs which are in charge of planning and execution ;
- sensitisation , training and continuing education of target groups (including women and children).

These people participation principles in environmental management should lead progressively to the evolvement of a real environmental culture in Cameroon.

4.1.8. Incentive measures

To ensure the effectiveness of environmental protection in Cameroon, the Government places

Box 2 : The participatory approach strengthens capacity-building for better environmental management

The participatory principle is today no longer a question of social values, but a pragmatic consideration which aims to strengthen the capacity of the populations, who are the ones responsible for managing the environment.

The effective participation of all concerned in the planning and execution phases has positive effects on the democratisation and governance process. The declaration of the World Summit on Social Development held in Copenhagen in 1995 highlights the importance of governance and a participatory, transparent, and responsible administration towards ensuring sustainable development based on the requirements of the civil society.

Participation in environmental planning and management are also clearly set out in Agenda 21 of the Rio Conference which stipulates that decisions must be taken at the level of the people who will be affected by the proposed measures. This means that the participation principle is founded on ethical, legal and pragmatic bases, as well as on good governance.

The positive results of NEMP are due to both the participatory approach and the objective-based planning method, which indeed do build human capacities. Thus, within the framework of consultation meetings and planning-by-objective seminars on regional surveys and sectorial analyses, over 4,000 Cameroonian men and women actively took part in drawing up NEMP. The results of this broadbased planning process were adopted during the National Forum in March 1996 which brought together 400 environmental experts from all over the country and from all social backgrounds; from the Prime Minister, Head of Government to the village traditional doctor : each, in his own sphere, upheld his interest in biodiversity conservation, and all reiterated their commitment to environmental protection.

special emphasis on incentive measures in order to reinforce the empowerment and commitment of the people and economic operators in environmental protection actions. Thus, the framework-Law provides for :

- FONEDD support to any activity geared towards soil conservation, the fight against desertification, and reforestation, particularly in savannah regions and in the northern part of the country ;
- FONEDD support to any operation contributing to the promotion of the rational use of renewable resources ;
- a reduction of customs duties for enterprises which import equipment for eliminating greenhouse gases particularly carbon dioxide and chlorofluorocarbons, and for curbing any other form of pollution ;
- a tax-deductible status for any environmental development action.

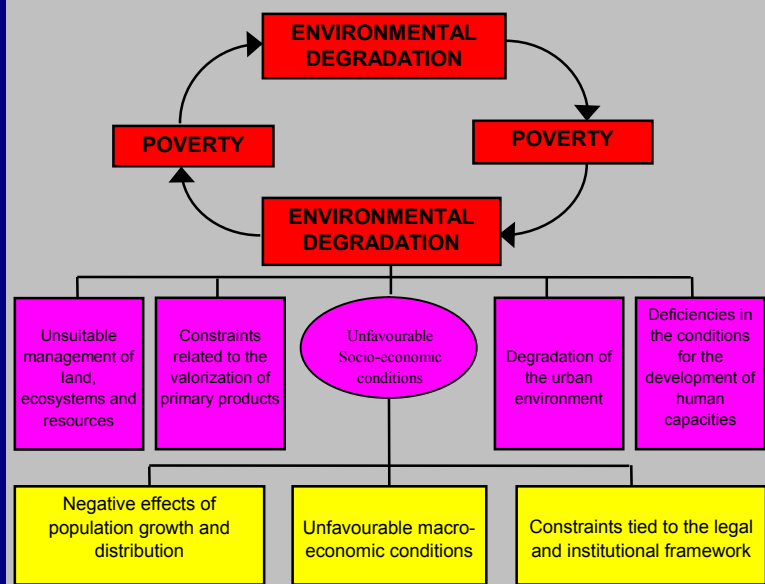
If it turns out that these incentive measures are inadequate, the framework law and other legal instruments provide for severe punitive sanctions in the event of environmental pollution and damage.

4.2. OBJECTIVES OF NEMP FOR SUSTAINABLE ENVIRONMENTAL MANAGEMENT

The main objective of NEMP is to ensure environmental protection and the rational development of resources, which are prerequisites for sustainable development in Cameroon.

BOX 3 : Poverty and environmental degradation

Poverty has been identified as the nexus and principal cause of environmental degradation. The situation thus created appears as a vicious circle wherein poverty is both the cause and effect of environmental degradation.



In the first phase of analysis of NEMP, special attention was paid to the study of socio-economic conditions, which are determined both by external, uncontrollable factors (the global economy) and by internal factors which can only be controlled in the medium and long term (population growth). However, these factors are important for the achieving of sustainable development. Consequently, they should guide environmental protection policies and strategies and the rational development of natural resources.

Thus, a number of objectives have been identified which aim at improving conditions of the socio-economic milieu. These are :

- **the mastery of population growth and distribution** which targets a population growth that is commensurate with the economic growth measured in GDP, and a better spatial distribution of the population according to residence sector and resource base ;

- **the nationwide improvement of the economic context** through implementation of sustainable human development programmes, national capacity-building in environmental management, resource mobilization, foreign debt rescheduling and trade reforms ;
- **the adapting of the legal framework and the establishing of an operational and efficient institutional framework** through a reform of land laws for the rural/urban sector, the organization of space, and resource management with the participation of the populations concerned. And at the international level, through adherence to international conventions in order to benefit from the advantages and rights which bind Cameroon to the international community.

Given the identified potentials and constraints, in phase two of the analysis, specific objectives were identified which act directly on the environment and, above all, concern the building of human and institutional capacities necessary for :

- **the rational management of agro-sylvo-pastoral land, ecosystems and natural resources** through an improvement of the exploitation systems, efficient land management, the management of grazing lands and the rational exploitation of forestry, wildlife and fishery resources ;
- **the optimal valorization of primary products** through ecologically sustainable industrial development which aims to enhance added value, to meet domestic demand through import substitutes and to improve the balance of payments through exportation of finished products ;

- **the improvement of living conditions in urban and rural areas with special attention to space occupancy**, solutions to land problems, creation of developed building lots, sanitation of the urban environment, drinking water supply, and pollution control.

In the detailed NEMP analysis, it comes to light that the above-mentioned immediate objectives relate to 19 sectors of the national economy which have a direct bearing on the environment and natural resource management.

4.3. POLICIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION AND THE RATIONAL DEVELOPMENT OF NATURAL RESOURCES

4.3.1. Specific policies of the Major Ecological Regions (MERs)

The Major Ecological Regions are stretches of land with common features including climate, topography, vegetation and land use. Ten Major Ecological Regions were thus identified (cf. map on page 2). Subsequently, and taking into account environmental stakes related to the traits of the ecosystems, they were brought together into four bigger ecological entities: the Sudano-Sahelian Zone, the Savannah Zone, the Tropical Forest Zone and the Coastal and Maritime Zone (for details cf. appendix 1).

The Sudano-Sahelian Zone

The fragile ecology of this zone, subjected to the effects of drought and pressure on land in densely populated areas, demands that appropriate resource management and soil conservation strategies be implemented.

By incorporating the guidelines of the Convention on Desertification, these strategies provide for measures to ensure rational resource management, the restoration of the plant cover, the optimum exploitation of clean water resources, the rehabilitation of flood plains («yaeres»), soil protection and restoration, optimum management of protected areas with the participation of the populations concerned, and the rational exploitation of fishery resources.

The Savannah Zone

The savannahs of the West and North-West, subjected to intensive farming, necessitate land protection and resource conservation measures.

BOX 4 : *Though an African problem, desertification is a world responsibility*

The Convention on Desertification was adopted by Cameroon's Parliament during its June 1995 session. It aims at providing solutions to desertification which is a transverse and, hence, global problem. The search for a worldwide consensus on the environment/development problem, particularly through the commitment of industrialized countries even though they are generally not affected by the desertification phenomenon, should enable the mobilization of additional resources.

This convention raises an African priority to a worldwide problem originally based on a national and sub-regional programming of actions to combat desertification. However, not being able to draw from an international Fund, African countries hit by drought are forced to spearhead this fight themselves at a time when they are confronted by poverty and a near-endemic economic crisis which absorbs all their resources and imposes a constant adjusting of their economies under the strict supervision of international financial institutions. The commitment of international co-operation in financing the identified NEMP programmes and projects for the Sudano-Sahelian region should provide a solution and back the efforts of the respective countries towards combating desertification.

Consequently, strategies aim at resource conservation and restoration, in a bid to preserve or re-establish ecological balances, optimize management of land resources through the implementation of suitable environmentally friendly agro-pastoral techniques, restore the plant cover, and optimally manage forestry resources, protected areas and fishery resources.

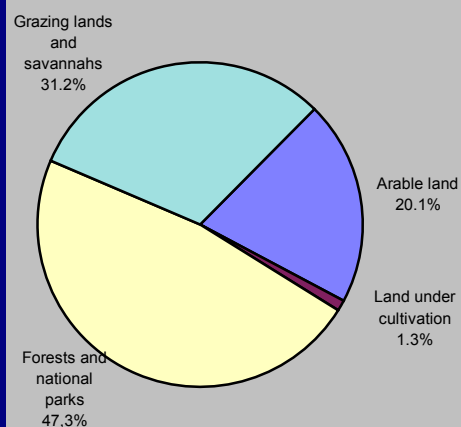
On the other hand, the low-lying savannahs of the Centre and East as well as the savannahs of the Adamaoua High Plateau require measures for the rational development of potentials through agro-sylvo-pastoral development activities. The development of this zone adjacent to the tropical forest should alleviate the pressure on the forest zones.

BOX 5 : *Can pressure on the tropical forest be lessened through developing the Adamaoua ?*

Developing zones with a high development potential enables the slackening of the ascendancy over those areas where the pressure on resources is high. The Yabassi-Nkam operation meant to reduce the population pressure in Moungo Division, and the North-East Benoue Project intended to host the people of the Mandara mountains are examples of this. However, they all had limited success.

This strategy, which requires the displacement and resettlement of people, must be subject to prior impact studies which would enable the taking of necessary measures to guarantee its success. In this light, NEMP is based on consultation among all parties involved and on the preparation of a framework for co-ordinated actions which take account of the prior assessment of the resources base and which advocates a zonal distribution of activities incorporating biophysical, socio-cultural and economic aspects.

The development of yet unexploited expanses of the Adamaoua Plateau could alleviate the pressure on neighbouring ecosystems particularly on the tropical forest which has been degraded, among other causes, by the steady encroachment of farming activities.



BOX 6 : *WACAF and GEF-Gulf of Guinea Projects: examples of Sub-regional co-operation*

The convention relating to co-operation in the protection and development of the coastal environment and zones of the West and Central African region and its protocol came into force in Cameroon in 1984. Within this framework, Cameroon has since 1992, been benefiting from the WACAF1 and WACAF2 projects respectively concerned with assistance in the event of maritime accidents and tellurian pollution control.

In the face of a lack of funding for the WACAF project, hopes are presently turning to the GEF-Gulf of Guinea Project which is supporting efforts to protect the marine environment in a regional approach. Cameroon should be able to benefit from a strengthening of institutional, human and material capacities with regard to the management of coastal and marine ecosystems and fishery resources.

The Coastal and Maritime Zone

Through agricultural, industrial, shipping, petroleum and fishing activities, Cameroon's coasts and territorial waters are exposed to sundry pollution and coastal erosion risks. Within this context, proposed strategies aim at the judicious application of regulations and the principles of international conventions to ensure the effective protection of coastal and marine ecosystems.

The proposed strategies and actions target a rational exploitation of resources, the protection of the maritime State property, the control of coastal erosion, the control of toxic waste dumping and the building of institutional capacities as far as the management of coastal and marine ecosystems is concerned.

The Tropical Forest Zone

The degradation of forests is essentially a consequence of the growth of forestry exploitation which has led to losses in biodiversity, and of extensive farming techniques which are increasingly gaining ground in the tropical forest.

The strategies aim at curbing if not reversing the degradation process and, through the implementation of the new forestry law, ensure the sustainable management of forests and protected areas by involving the populations concerned.

Particularly, measures will be taken to ensure the optimal management of our forestry heritage, the sustainable exploitation of ligneous resources, the optimal management of protected areas and the implementation of the policy to reconstitute ligneous and wildlife resources.

4.3.2. Sectorial policies

The strategies needed to ensure environmental protection and the rational development of resources towards sustainable development, concern 19 sectors of the national economy which have been classified into 7 groups according to their functional ties (for details, cf. appendix 1).

1. Conditions for Building Human Capacities

Environmental protection depends on the quality of human capacities to rationally manage resources in line with economic constraints and the need to preserve such resources. Apart from measures aimed at training and educating target groups, an equilibrium has to be maintained between population growth and economic growth, while safeguarding the well-being and quality of life of the people in a healthy environment.

Thus, strategic measures aim at :

- training and educating target groups including the youth ;
- increasing the knowledge of women and empowering them in all sectors of environmental management ;
- improving health and public hygiene conditions ;
- reinforcing the Responsible Parenthood Education (RPE) programme while making allowances for the refractory socio-cultural context.

2. **Management of the Agro-sylvo-pastoral space**

The optimal management of space and resources is a major concern in the face of a growing demand for foodstuffs (cereals, vegetables, meat), firewood and timber, among others. Thus, agro-sylvo-pastoral space management policies and strategies focus on integrated management plans for resource valorisation and suitable for each ecological zone or region. Development strategies take account of the potentials of the milieu, the needs of the various users, the conservation and processing of products and the markets for their sale in such a way that brings into play the synergetic linkages between many uses. These strategies are :

- the reinforcement of scientific research and the development of coherent systems for agro-sylvo-pastoral exploitation ;
- the putting in place of a programme to assist the people in adopting and applying suitable exploitation systems and methods ;
- the integration of agro-sylvo-pastoral activities and the applying of soil protection and restoration measures ;
- the strengthening of the protection of floral and synergetic resources with a view to preserving biodiversity ;
- the participation of the local population in the conservation and management of forests and protected areas ;
- the valorisation of products and agro-sylvo-pastoral activities with a view to increasing their contribution to the national economy ;
- the enforcement of the statutory instruments and customary norms of land law with a view to ensuring adequate environmental protection.

BOX 7 :

Biological diversity for future generations

The Convention on Biodiversity adopted in Nairobi in May 1992 was ratified by Cameroon in October 1994. It aims at ensuring « the conservation of biological diversity, the sustainable use of its components and the just and equitable sharing of the benefits derived from the exploitation of genetic resources... » while setting the fundamental principle that « States have the sovereign right to exploit their own resources according to their environmental policy ». Thus, while the Convention asserts the sovereignty of the various States over their biogenetic resources, it also proposes a management chart such as the right to valorise local knowledge thereby offering the local population a share of the benefits derived from their exploitation particularly wild plants (such as medicinal plants). More broadly, the Convention envisages, through the implementation of the legal instruments it recommends, the carrying out of exploitation in a way that caters for the future, that is, taking the rights of future generations into consideration.

These principles are not always compatible with the macro-economic demands of countries under structural adjustment like Cameroon, which are forced to over-exploit their natural resources to meet the State's running costs and debt servicing. The redressing of the State's economic situation could, in this connection, be a significant precondition to the implementation of the principles of the convention on biodiversity.

BOX 8 :

Recent United Nations Conferences related to human development

- In 1992, the Rio World Summit on the Environment and Development outlined the principle that development must be sustainable, must incorporate the environment and must be carried out with the active participation of all parties concerned.
- In 1993, the world conference on Human Rights held in Vienna reaffirmed that development is an inalienable human right and that it forms an integral part of man's fundamental freedoms.
- In 1994, the World Conference on Population and Development held in Cairo reiterated the relationship between human rights and development spelt out in Vienna.
- In 1995, the Copenhagen Conference on Social Development focused on the fact that economic development, social development and protection are interdependent and contribute as one whole to sustainable development.
- In 1995, the Beijing Conference underscored the fact that development, as far as women were concerned, must comply with the principles, norms and standards set by previous U.N. Conferences.
- In 1996, the « Habitat II » World Conference held in Istanbul highlighted the importance of the urban environment while also reckoning that by the year 2000, half of mankind will be living and working in towns.

BOX 9 : *The forestry law : people participation in resource management*

Reflections for the formulation of Cameroon's present law on forestry were launched as part of the drawing up of the Tropical Forest Plan of Action (TFPA) approved by the Government in 1988. They continued after the Rio Conference so as to incorporate the spirit of this conference. Thus, the forestry policy is a reflection of the concerns of the Cameroonian society and takes account of the new concepts established world-wide with regard to environmental development and protection.

The philosophy underlying the new forestry law is « to perpetuate and develop the economic, social and ecological functions of forests within the framework of an integrated and participative management which ensures the sustainable conservation and use of forestry resources and ecosystems ». It revolves around five major guidelines :

ensure the protection of the forestry heritage and participate to safeguard the environment and preserve biodiversity ;
enhance people participation in forestry resource conservation and management in order that these resources can contribute in raising their standard of living ;
develop forestry resources so as to increase the share of forestry output in the national economy while also conserving the productive potential ;
ensure resource renewal through regeneration and reforestation with a view to perpetuating the resource potential ;
dynamize the forestry sector by establishing an effective institutional system and by bringing in all parties to participate in the management of the forestry and environment sector.

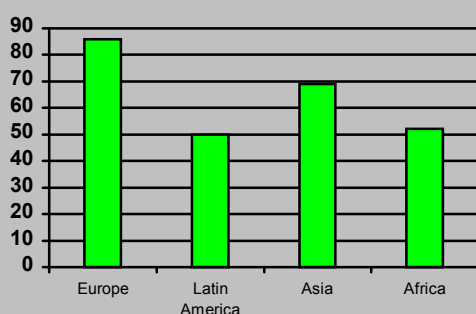
3. *Management of the Maritime Coast and Fishery Resources*

Maritime coasts are characterized by a high population density and the existence of industrial, shipping and petroleum activities which indeed make the risk of degradation hang over them.

BOX 10 : *The maritime coast : a fragile ecosystem threatened by severe degradation*

Among the richest reservoirs of marine biodiversity, coastal ecosystems are today under the permanent threat of degradation. On the average, 60% of the world's population live within a distance of 100 km along the coast from where they get the essentials of the necessary resources for their food, transport and entertainment and where they dump their refuse. Over 50% of the world's coastal ecosystems are vulnerable to severe degradation. With 86% of its coasts exposed to a high or average risk of degradation, Europe and even Asia, with 69%, are the regions which are the most affected by this phenomenon. Virtually three quarters of all protected areas, located within a distance of 100 km along the coasts or on main islands, are presently threatened by degradation.

Judging from the analysis of the NEMP, the ecosystems of the Gulf of Guinea and particularly Cameroon's maritime coast and her mangrove forests, have not escaped this phenomenon which has been brought about not only by shipping and petroleum activities, but also by the wanton exploitation of fishery resources.



Comparison of maritime coasts threatened by degradation

Maritime coasts are a reservoir of biodiversity, harbouring many exploitable resources like fish, oil and natural gas reserves, and are zones for agro-industrial and touristic development.

Consequently, the adequate development and management of coastal and marine ecosystems, and of fluvial and lakeside lands are a major environmental stake in the process of sustainable resource development and management in Cameroon.

This calls on the following broad strategic outlines :

- control of coastal erosion with special attention to the conservation and protection of mangroves ;
- control and reduction of various land-based types of pollution particularly from industries, urban centres and agro-industrial plantations ;
- reduction and control of the pollution of maritime waters originating from oil exploration, maritime transport and shipping activities ;
- evolving of strategies for a rational management of fishery resources - in the sea, rivers and lakes ;
- intensification of the search, exploitation and development of new resources as well as the development of processing and conservation industries ;
- strengthening of legislation and institutional capacities to ensure the efficient control of pollution and the exploitation of resources.

Furthermore, the enforcement of international legal instruments, conventions and acts on maritime law, navigation and co-operation regarding the protection and development of the marine environment on the one hand, and the strengthening of sub-regional co-operation on the other hand, are indispensable measures to ensure a real protection of coastal and marine ecosystems and a sustainable exploitation of fishery resources.

4. *Management of Natural Resources*

and Hazards

Cameroon has a vast potential in terms of surface and underground water, mineral deposits, and renewable and non renewable energy resources like hydrocarbons. At another level, the volcanicity of « Cameroon's line of fault arising from Mount Cameroon » is a perpetual threat in terms of natural hazards. Strategies focus on the rational and sustainable exploitation of natural resources and an efficient management of natural hazards.

Strategies for a rational management of water resources relate to :

- integral protection of water resources against the dangers of pollution ;
- the realisation and rational use of water supply facilities in order to optimize coverage of water needs while at the same ensuring the checking of the environmental implications of such projects ;
- the establishing of a framework for the joint management of water resources while taking account of the needs of the various users .

The major guidelines for a rational management of energy resources are :

- the rational use of biomass, particularly by the economising of fuel wood ;
- the promotion of alternative energy sources which will make it possible to slacken the energy pressure on biomass ;
- the optimum use of hydroelectricity in a way that benefits its « ecologically clean » character ;
- the judicious use of hydrocarbons while taking into consideration the risks of pollution, fire outbreaks and explosions, and the non-renewable nature of this form of energy.

The rational exploitation of mineral resources depends on :

- the qualitative and quantitative evaluation of the mineral resource potential ;
- the laying down of a strategy and legislation relating to the mining industry, which incorporate its impact on the environment ;
- the optimization of the mining sector particularly through the application of appropriate regulations which encourage private sector participation ;
- the adoption of adequate exploitation techniques through the sensitization, training and further training of miners.

BOX 11 : *A participatory and transparent management of mineral exploitation*

During the 90s, a series of conferences on human development held under the aegis of the United Nations, laid down the meaning of development. These conferences established three fundamental principles: development must be sustainable, participative and the private sector must play a major role in it. With regard to industrialization in general and to the mining industry in particular, the World Summit on Human Development held in Copenhagen in 1995 recommended the setting up of a partnership between governments, non-governmental organizations, the private sector and local communities.

Consequently, a satisfactory answer should be provided to the technical, financial and social difficulties which communities in mining zones must address, with particular regard to the right to landed property, their evicting, resettlement and rehabilitation as well as the management of the post-exploitation situation. For Cameroon which abounds in mineral resources, it would be necessary to ensure that mining projects are carried out in a participative and transparent manner, and that the managers are answerable to the community. This will help to resolve the problem of socio-economic spinoffs from the exploitation of mines and to better manage its effects at the biophysical and cultural levels.

The efficient management of natural hazards involves :

- forecasting natural hazards particularly by setting up reliable observation stations ;
- improving the behaviour of people in relation to natural hazards through a sensitization and information programme ;
- planning out intervention strategies in a way as to guarantee the co-ordination of actions among various national and/or international actors in the event of a disaster ;
- establishing a suitable legal and institutional framework based particularly on a situational analysis of risks.

5. Valorization of Primary Products

The valorization of primary products is largely conditioned by the existence of a processing industrial network that can meet the needs of the domestic market as well as the exportation of finished products to enhance added value. Furthermore, industrial and resource development must be upheld by a network of infrastructure which take account of the exigencies related to environmental protection.

A process of change

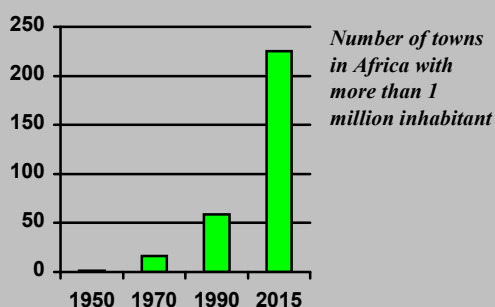
Sustainable development is a process of change by which the exploitation of resources, the flow of investments, and technical and institutional changes are in harmony and reinforce the potential to satisfy man's present and future needs. (Brundtland).

BOX 12 : Urban population growth outpaces carrying capacity and economic opportunities

The urban population growth rate in Africa, which stands at 4.2%, is currently the highest in the world (Latin America - 3.8%, and Asia - 3.2%). Cameroon's urban growth rate, at 5.6%, is even higher than the average for the African continent.

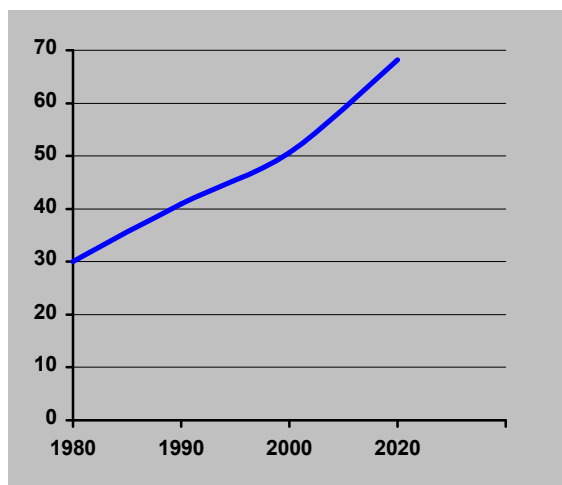
Urban population growth is attributable to the concentration of economic opportunities in towns and the tendency to give up agricultural activities in favour of job-seeking in the industrial and service sectors. Nevertheless, the influx of people has outstripped the carrying capacity of towns and economic possibilities. It has also contributed to the alarming degradation of the urban environment and the socio-economic conditions of its inhabitants. Poverty, which initially was a phenomenon characteristic of the rural world, has now, as a result of rural exodus, also become an urban phenomenon

The human environment in urban areas can only be improved through sanitation measures, land reform and the provision of potable water. Job-creation should not be limited to the industrial and service sectors, but should also take into account the numerous opportunities available in the urban environment sector (recycling, sanitation, public health, etc.).



The worsening of environmental problems in urban areas prompted the United Nations to organize a world conference on cities, Habitat II, in Istanbul in June 1996, with the aim of raising urbanization to a national priority, promoting new urban management policies and strategies, seeking solutions to urban environment problems, and identifying investment opportunities.

In fact, the priorities and strategies of NEMP are in line with the preoccupations of Habitat II.



Graph 4.1 : Urban population as a percentage of

total population in Cameroon

The strategic axes for the valorization of raw materials concern, among others :

- the development of an ecologically sustainable industrial policy that reconciles economic and social development with nature conservation ;
- the strengthening of the national economy through the creation of new jobs, especially in the urban sector ;
- the development of domestic technologies and the mastery of industrial pollution ;
- the conduct of impact studies in accordance with the procedures and norms that govern all industrial and infrastructural projects.

6. The urban environment

Urban population growth, which has outpaced the carrying capacity of urban centres, leads to urban insalubrity, the consumption of unsafe water, industrial and small-scale pollution and various other nuisances. In the face of this situation, several strategies have been advocated with a view to improving the human environment in urban areas.

They relate to, among others :

- the improvement of housing conditions and the development of social housing zones ;
- the sanitation of the urban environment and the reinforcement of hygienic and health measures ;
- the improvement of drinking water supplies ;
- the curbing of pollution and other nuisances ;
- the involvement of the general public in urban environmental protection.

7. Research, Information, Sensitization

Research will have to produce reliable data in order to facilitate the analysis of the phenomena and the implementation of policies. The results can only be effectively used if the public is informed and sensitized. Within the context of NEMP, the strategies relating to research, information and sensitization are centred on :

- gearing research programmes towards the requirements of environmental protection and the development of resources ;
- introducing and reinforcing environmental education in school programmes ;
- sensitizing decision-makers, the general public, and especially opinion leaders ;
- capacity building in rural inhabitants towards the mastery of their environment and a better knowledge of the resources and their potentialities.

4.4. ENVIRONMENTAL MANAGEMENT AND THE IMPLEMENTATION OF NEMP : MECHANISMS AND STRUCTURES

4.4.1. Review of the structures used for the development of NEMP

During the preparation of NEMP, several co-ordination structures were set up by a MINEF decision of 28 October 1993 with the aim of ensuring broadbased concertation and the participation of the various ministries on the one hand, and the private sector represented by syndicates, development agencies, companies and NGOs on the other. The structures are :

- an international commission headed by the Prime Minister, Head of Government, so as to ensure the involvement and collaboration of all the ministries participating in the preparation of NEMP ;
- a co-ordination committee responsible for the direction and follow-up of NEMP activities, and for bringing together the ministries directly concerned, donors and the private sector (syndicates, NGOs, etc.) ;
- technical committees set up at the regional and central levels, with the participation of the public and private sectors bodies concerned, and responsible for the regional and sectorial studies of NEMP, as well as the sensitization activities ;
- the co-ordination unit, which is the nerve centre of NEMP, set up in the Cabinet of MINEF, and responsible for the conception,

organization and execution of all activities related to the preparation of NEMP.

With the completion of NEMP, these structures had accomplished their mission and thus, in principle, ceased to exist. However, some of those which were particularly efficient could be reconsidered and maintained during the implementation phase of NEMP.

4.4.2. Environmental management and the execution of NEMP programmes and projects : mechanisms and structures

As part of NEMP studies, several scenarios were analyzed with a view to defining the optimal solution for environmental management in Cameroon. In the end, the following three specialized structures were adopted :

- 1) **the Inter-ministerial Environment Committee (for inter-ministerial concertation)**, responsible for defining the major guidelines and designing the national policy, and which must secure the collaboration of all the ministries in the implementation of the environmental and natural resource management policy ;

BOX 13 : The co-ordination structures of environmental action in Africa

The legal framework governs the functional relationship between the public sector at the central and regional levels on the one hand, and the civil society represented by NGOs, traditional structures, the private sector and education agencies on the other. How can these elements be organized in such a way as to prepare and implement strategies, programmes and actions for sustainable environmental and natural resource management ?

One of the generally accepted principles is that of the involvement of all those concerned in the process of policy planning and formulation, and in the implementation of the strategies and actions adopted. Such an approach requires an effective and flexible legal framework which is capable of fulfilling the expectations of the people concerned, the private sector and the donors and co-operation agencies called upon to participate in the financing of environmental protection programmes and projects.

Throughout the African continent, there is a search for ideas for the setting up of adequate legal frameworks. In this regard, and in response to the recommendations of their respective national plans, Madagascar, Seychelles, Gambia, Benin, Uganda, Ghana and Guinea Bissau, have radically modified their government structures.

These modifications involve the creation of autonomous environmental agencies, environmental boards, inter-ministerial committees in charge of co-ordination, environment ministries and sectorial units responsible for the follow-up of environmental protection programmes and projects.

A trial-and-error approach could be adopted which, in the long run, will make it possible to design the structure that is best adapted to each context.

Source : Institutional structures for environmentally sustainable development, by Albert Greve. The World Bank (AFTES), February 1995.

Commission (NESDAC), created by Prime Ministerial Decree N° 94/259 of 31 May 1994, which replaces the NEMP Co-ordination Committee and is responsible for ensuring the participation of all concerned, including the private sector, NGOs, trade associations, etc. in the implementation of NEMP policies and strategies, and in the realization of environmental programmes and projects.

3) A Permanent Environment Secretariat attached to the Ministry of the Environment and Forests, which is intended to be a flexible and streamlined structure with a certain degree of autonomy so as to ensure effective follow-up of the execution of NEMP. It shall mainly be responsible for :

- the formulation of the national environment policy ;
- the co-ordination and follow-up of the execution of NEMP programmes and projects ;
- the management of the National Environment and Sustainable Development Fund ;
- international and sub-regional co-operation in environmental matters ;
- the fixing and control of the application of environmental protection norms and standards ;
- the conduct of impact studies ;
- environmental education and sensitization ;
- the management of an information system on the environment.

At the central level, the responsibilities will be shared by four administrative units :

- a division in charge of environmental policy and the implementation of NEMP ;
- a division in charge of the normative framework and impact studies ;
- a unit in charge of environmental education and sensitization ;
- a unit in charge of environmental information.

At the regional level, environment inspectors will be responsible for the co-ordination and supervision of the execution of the normative framework.

(i) The division of environmental policy and the implementation of NEMP shall be responsible for :

- formulating and following up the national environment policy and implementing the legal framework ;
- ensuring the application of environmental policies and strategies in all the programmes and projects executed by the various ministries and the private sector ;

- coordinating the realization of NEMP projects and programmes executed by the ministries concerned, as well as by the competent bodies of the private sector (NGOs, communities, etc.) ;
- monitoring the execution of the National Plan and of the projects and programmes, and producing periodic progress reports on the various activities ;
- preparing situation reports with a view to adapting the strategies and actions to the environmental conditions specific to Cameroon ;
- (within the framework of NESDF) pooling investments, supervising budgetary expenditures and preparing financial reports on the disbursement of government funds and on financial contributions from donors ;
- maintaining permanent contact with similar structures in neighbouring countries in order to foster sub-regional cooperation and develop common concepts and actions for environmental protection and the sustainable management of ecosystems and joint resources.

(ii) The division in charge of the normative framework and impact studies will be responsible for the formulation of standards and the application and implementation of management mechanisms, which include :

- the implementation of international conventions and their incorporation into laws, rules and regulations, and the national policy ;
- the definition of indicators and the conduct of environmental impact studies ;
- the coordination of measures aimed at establishing norms and setting up control mechanisms relating to :
 - environmental protection (water, air, soil and subsoil) ;
 - human settlement management, waste management and the control of insalubrious or inadequate installations ;
 - pollution and nuisance control, specifically garbage, toxic or hazardous chemical substances, noise or acoustic pollution, etc ;
 - natural resource management, the protection of ecosystems and the conservation of biodiversity ;
 - the fixing of norms and the setting-up of mechanisms for risk and natural disaster management.

(iii) **The support structures for the implementation of NEMP** will be responsible for the dissemination of environmental information, as well as the sensitization and education of the public and decision-makers so as to ensure participatory and sustainable environmental management. Their terms of reference will be apportioned as follows :

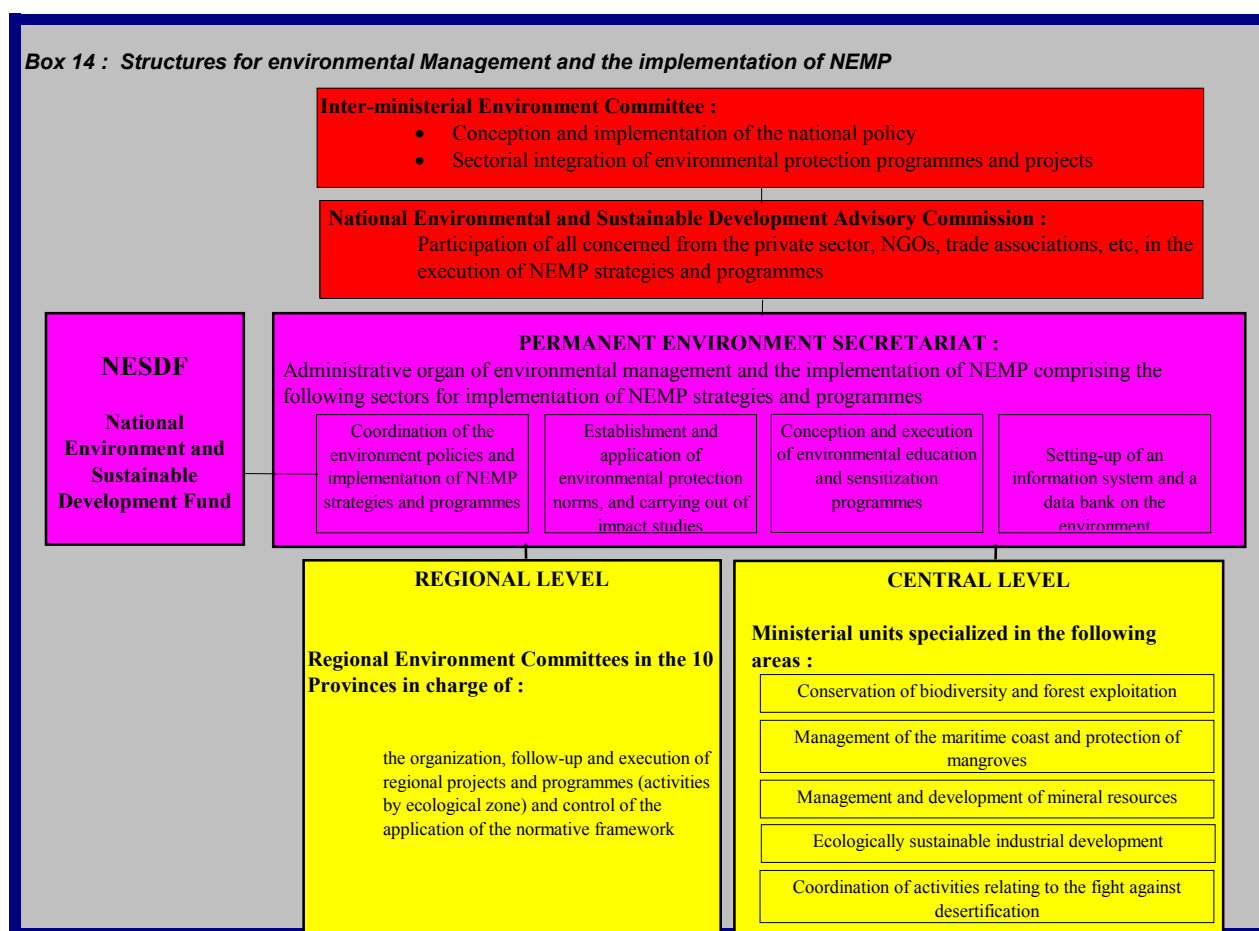
- **The environmental education and sensitization unit** will ensure the execution of education and sensitization programmes. A sensitization programme has been operational since mid-1995 to support the activities for the preparation of NEMP. The continuation of this programme will be crucial to the success of the implementation of NEMP programmes and projects. It will be aimed at introducing a new environmental culture and mentality into the lives of people of all walks of life. This would require interministerial collaboration at the central level by way of a Technical Committee and, at the regional level, in both the rural and urban areas, the participation of Regional Committees, which would play the role of coordination and steering structures.
- **The environmental information unit** will have to set up a data bank and disseminate information in order to reinforce planning

activities and the follow-up of the projects and programmes for sustainable environmental management. This structure should collaborate closely with other information structures, especially the Regional Environmental Management and Information Project (REMIP) initiated by the World Bank, and the Sustainable Development Network (SDN) set up by UNDP.

4.4.3. Mechanisms and structures for the financing of NEMP programmes and projects

The National Environment and Sustainable Development Fund (NESDF) will be responsible for pooling the financial contributions from the Cameroon Government, bilateral donors and international bodies for the execution of projects and programmes identified in NEMP by sector of intervention and ecological region.

The structure in charge of the implementation and follow-up of NEMP (Environment Secretariat), will be responsible for managing NESDF, participating in the collection of funds, and running an efficient and transparent system of accounts.



4.4.4. Revival of regional committees and creation of specialized structures

Some of the structures created within the framework of the preparation of NEMP proved to be very effective and should be maintained or revived. Notable among these are :

- **the Regional Environment Committees** which bring together, at the level of the 10 provinces, all the partners involved, particularly the technical services of the Administration, representatives of the private sector, local NGOs, communities, development agencies, projects, etc. These committees which will be managed by environment inspectors, will be in charge of the organisation, follow-up and execution of projects and programmes at regional level (particularly activities by ecological zone), as well as of ensuring the participation of all those concerned in the implementation of NEMP and the respect of the fixed norms and standards ;
- **maintenance or creation of specialized structures at the central level** based on the sectorial Technical Committees of NEMP, and which will be attached to the technical ministries involved in the following areas :
 - **The conservation of biodiversity and sustainable forest exploitation** : the bulk of assistance from international and bilateral sources is channeled towards nature conservation and protection, particularly the tropical forest. A significant part of assistance programmes focus on the mobilization of the public within the framework of communal management of forests and protected areas. A specialized structure of MINEF should co-ordinate all activities in this area so as to improve the efficiency of utilization of the available resources.
 - **The management of the maritime coast and the protection of mangroves.** GEF, through its Gulf of Guinea programme (UNIDO), supports efforts to protect the marine environment based on a regional approach. Other initiatives, particularly those under the WACAF (UNED/FAO) programme are pursuing the same objectives. A structure attached to the specialized or decentralized services (CRHO or the MINEF Delegation in Douala) should be set up to ensure effective coordination between the various programmes, and a rational utilization of the available means.
 - **Mineral and petroleum resource management.** In order to improve on this area, special emphasis should be placed on the legal and institutional mechanisms for the management of mineral resources, hydrocarbons and natural hazards. A specific component of the programme concerns the reinforcement of the legal framework with a view to promoting the mining sector in Cameroon.
 - **Industrial development and the processing of raw materials :** An Ecologically Sustainable Industrial Development programme (ESID) is already being put in place with the assistance of UNIDO. An appropriate legal framework should be set up to promote domestic industries in Cameroon.
 - **Coordination of activities in the fight against desertification.** Mindful of the Convention on Desertification and the NEMP projects identified for the Sudano-Sahelian region, a special structure should be set up for the implementation and follow-up of the strategies and actions against desertification.

NEMP INVESTMENTS AND COMMITMENT OF THE GOVERNMENT

5.1. ECOLOGICAL EVALUATION OF NATURAL RESOURCES

At the present time, there are no reliable methods of incorporating ecological values in national accounts. The calculation of GDP (production minus intermediate consumption) is based in reality, on the increase in the value of natural resources as a result of the intervention of man, but does not actually measure the ecological value of resources and ecosystems. Thus water, air, the forest, rangelands and even croplands are not taken into account even though there are certain mechanisms to assess their values through the fees and taxes collected for the exploitation or development of these resources. The taxes are assessed in a more or less arbitrary manner based on the economic possibilities of the users, and are imposed mainly on mineral, fish and forest resources, among others, which are exploited on an industrial scale.

This document should be viewed as a contribution towards the evaluation of the ecological values of natural resources and the agro-sylvo-pastoral zones, with the aim of determining the value of the environment of Cameroon. It does not, however, presume to be accurate, let alone perfect. The methodological approach provides, first of all, for the evaluation of production taking into account economic indicators (prices) and the factors of production. It is assumed that the net profits from production represent the depreciation of the developed or exploited resource. This depreciation is considered to be the ecological value of the resource and is applied to all the potentialities of the sector being analyzed.

1. The closed rain forest

The closed rain forest is estimated to amount to 18 million hectares of exploitable forest area. Eight million hectares are currently open to exploitation, of which between 300,000 and 350,000 are effectively exploited annually, producing about 3 million cubic metres of wood with a market value of 390,000 million CFA francs. Hence, the theoretical value of the total 18 million hectares can be estimated at 23,400,000 million CFA francs to be realized annually. With a net profit on the enhancement of the resource fixed at about 25%, the ecological value of the forest can be said to stand at 5,850,000 million CFA francs. This figure does not take into account the wildlife resources, non-wood

products or the unknown resources present in the biodiversity of the exploitable areas.

The conservation of resources and biodiversity

Cameroon has a long history in the area of the creation of reserves, the earliest ones of which date back to 1934 (Waza Park). Current policy is geared towards the integral protection of 3 million hectares of closed rain forest, bringing the total size of reserves and protected areas to 5.4 million hectares, or 21% of the country's forest area. However, the protection of resources and conservation of biodiversity is not limited to reserves and protected areas. In order to guarantee sustainable development in the portions open to exploitation, the principle of « concession-development-exploitation » presents a precautionary approach in exploited areas which are subject to a sustained and sustainable development system with a view to ensuring the protection of timber.

A different approach is required for biodiversity conservation areas, estimated at 3 million hectares, which enjoy full-scale protection. These reserves contain plant and animal species which according to forestry exploitation criteria, are worth 146.4 thousand million CFAF, to be wholly considered as ecological assets.

2. Agriculture

About 1,967,000 hectares are currently exploited out of a potential of 6,812,500 hectares of arable land. Production, subsistence and export potential stands at 722 thousand million CFAF. In terms of exploitation potential, revenue from production could reach 2,500.6 thousand million CFAF annually.

Example : Sharecropping

Considering traditional sharecropping methods, especially in the North of the country, 10% of the harvest is paid as life tenancy tax. This tax can be considered as a profit made on the use of land as a resource.

As is the case for dense rainforest, the net profit derived from the use of land as a resource stands at 15%. Thus, the ecological value of arable land can be estimated at 375.0 thousand million CFAF. Hence, soil conservation and protection measures are justified to ensure the long-term exploitation of land.

3. Pastures

Pastureland is estimated at 14,300,000 hectares. Current bovine, ovine and caprine population is estimated at 5,000,000 TLUs (Tropical Livestock Units), i.e. 0.35 TLU per hectare. However, with better management of pastureland, the land's holding capacity could increase to 0.8 TLU/hectare, which means a possible increase to 11,440,000 TLUs.

Current production is estimated at 126.8 thousand million CFAF and could increase to 289.8 thousand million with a 0.8 TLU/hectare capacity. Possible net profit on the use of pastures is estimated at 25%, that is, an ecological value of 72.5 thousand million CFAF. This justifies the NEMP's efforts to improve and ensure the rational management of pastures.

4. Fisheries

Current exploitation of both inland and marine fisheries stands at about 100,000 tonnes, valued at 50 thousand million CFAF. Considering an estimate of fisheries potential of 200,000 tonnes per year, the theoretical value of the fishery sector could be estimated to 100 million CFA F.

Considering an estimated 30% net profit to be made from the exploitation of fishing resources, ecological value stands at 30 thousand million CFAF, and places this sector high on the list of priorities as far as its ecological value and measures for its protection and rational management are concerned.

To summarise, the ecological value of the green environment can be estimated at 6,473.9 thousand million CFAF, representing the natural resources which, up until now, have not been included in national economic production.

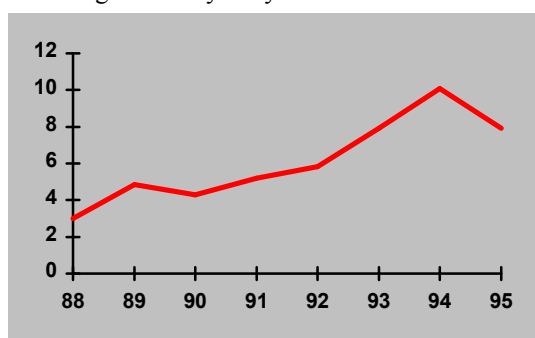
It must however be emphasized that this study is incomplete and needs to be supplemented at the levels of methodology and sectors of analysis.

The aim of this exercise was to highlight the importance of ecological resources which need to be conserved both in national and global interests. Compared to these ecological indicators, the NEMP's financing requirements, estimated at 232.3 thousand million CFAF of which 139.9 thousand million are still to be found, are more than modest.

5.2. SITUATION OF STATE FINANCES

5.2.1. Debt servicing

Due to a financial crisis following the economic crisis and the devaluation of the CFA franc, the public debt burden, both domestic and external, has been increasing for nearly ten years.



Graph 5.1 : Debt servicing owed compared to GDP (%)

The debt burden went from 957.7 thousand million in 1985/86 to 5 763,8 in 1994/95 representing an

increase of 83.4% of GDP exerts excessive pressure on the State's finances and is its main burden.

Revenue from exports, which should finance development projects, is devoted to paying debts incurred and thus hampers any application of development policy. The ratio of debt servicing to total exports increased from 32.4% in 1985/86 to 57.7% in 1993/94.

Faced with overwhelming debt, the government's financial resources are reducing ; worse still, it is forced to overexploit natural resources, especially ecological resources, in order to obtain the funds necessary to finance environmental protection and ensure sustainable development.

It is therefore important that a rescheduling of the external debt be carried out by the international community to halt the overexploitation of ecological resources and thus ensure sustainable development. The following may be included in debt relief operations :

- cancelling all of the public debt ;

- granting a grace period of at least ten years for the debt burden ;
- freezing interest rates on debts ;
- reducing, by at least 50%, the foreign private debt burden ;
- converting part of the external debt.

5.2.2. The balance of payments

Over a period of six years stretching from 1989/90, balance of payment figures show a deficit. The deficit went from 201.9 thousand million CFAF in 1989/90 to 363.7 thousand million in 1991/92. From 1992/93, the situation improved. This trend continued in 1994/95, the balance of payments deficit standing at 176.5 thousand million CFAF.

The factors which contribute to the trade deficit are :

- exchange of goods and services ;
- transactions in the postal and banking sector.

On the whole, balance of payments figures reflect the considerable debt weighing on the country's economy and which encumbers not only the State Treasury, but also hampers the financing of development projects.

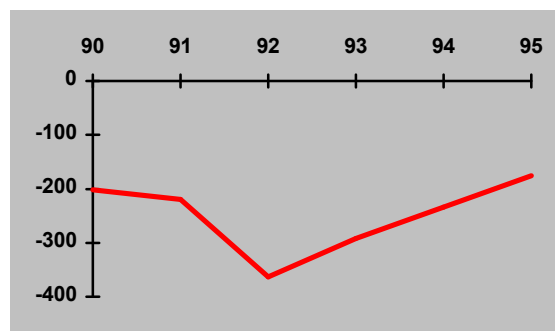
5.2.3. External trade and revival of investments

As for foreign trade, a general surplus of 185.8 thousand million CFAF was recorded for the first nine months of the 1995/96 financial year. This trade surplus comes from 569 thousand million CFAF of exports and 383 thousand million CFAF of imports. Compared to 1994/95, exports stagnated while imports increased by 15.5%, largely due to a considerable increase in the import of intermediary consumer goods and equipment. Structural changes and the revival of imports confirm the increasingly noticeable revival of investments and production in the private sector.

5.2.4. Changes in GDP

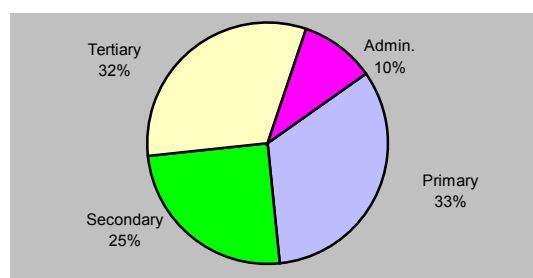
Gross Domestic Product has been clearly falling since 1985/86, when it stood at 4,106.2 thousand million CFAF at current prices. It fell to :

- 3,921.9 thousand million in 1986/87, and
- 3,125.5 thousand million in 1992/93.



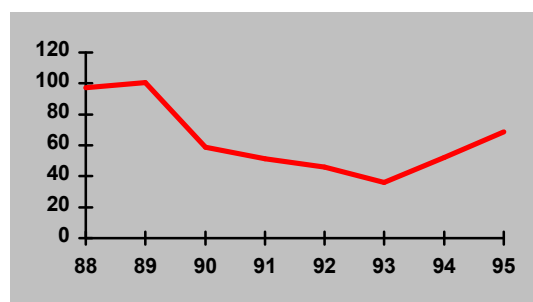
Graph 5.2 : General BOP trend

There is, however, a slight (3.3%) increase in volume from the 1993/94 GDP (2,977.6 thousand million) and the 1994/95 GDP (3,076.9 thousand million) expressed in 1984/85 prices. For fiscal 1996/97 a real growth rate of 5% is expected in GDP, in order to attain the objectives of the new adjustment programme and reforms adopted in September 1995.



Graph 5.3 : Sectoral distribution of GDP (1993/94)

The primary sector (essentially the exploitation of natural resources, in which the NEMP is particularly interested) accounts for about 25% of GDP. This shows the importance of the primary sector in the national economy. The sustainable management of natural resources is therefore a major concern of the Government.



**Graph 5.4 : Taxes on the primary sector
(in thousand million CFAF)**

The taxes that the public treasury levies on activities in this sector represent an average of 10% of the State's total revenue. Figure 5.4. shows the zig-zag trend of these taxes and reveals two distinct periods :

- a period of reduction in revenue from taxes, a reduction following the slowdown of the level of economic activity especially in the agricultural sector (fall in production of export goods due to the fall in prices) ;
- a period of increase in revenue from taxes, which shows a revival of activities especially the export of agricultural products due to the increase in prices of coffee, cocoa and cotton after the devaluation of the CFA francs.

As for the levels of production of goods and services recorded since the beginning of the 1995/96 financial year, they are generally better than figures for the previous two years. The most interesting developments are those experienced by industries catering for the local market, which shows greater competitiveness of the country's products on the one hand and the revival of purchasing power in some sections of the population, especially rural dwellers, on the other.

The rebirth of activity in the industrial sector also includes timber processing industries. Exports of worked and semi-worked wood are increasing significantly reflecting the nation's will to gradually reduce the export of unworked timber.

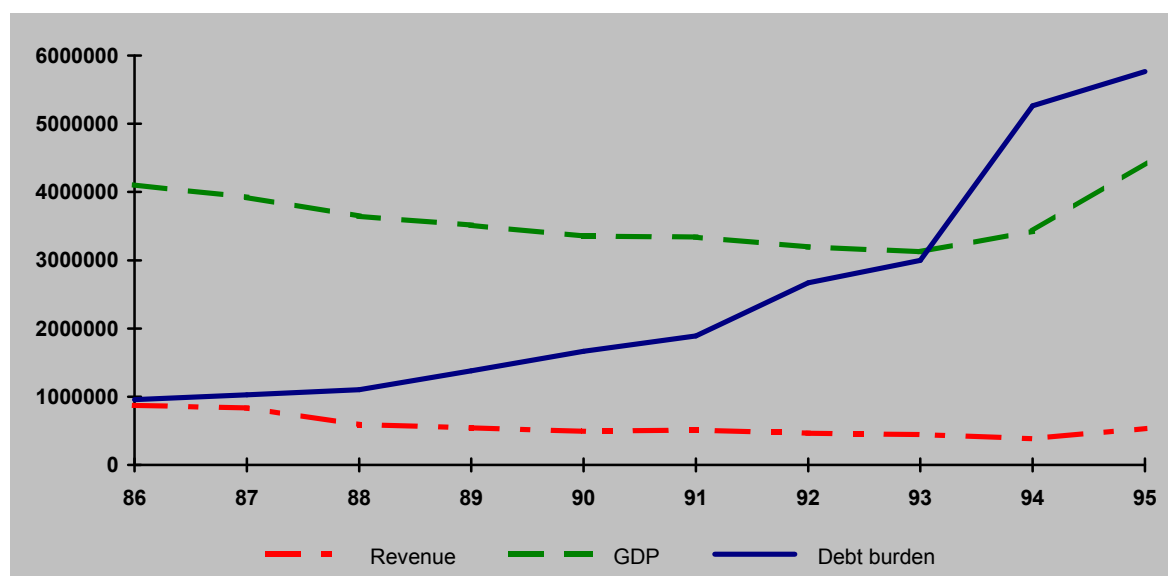
State Revenue

After falling steadily from 1987/88, revenue increased slightly in 1994/95. Estimated at 534 thousand million CFAF, it shows a positive budgetary balance of 34 thousand million. In 1995/96 budgetary earnings are estimated at 658 thousand million, a 23.2% increase from the previous financial year. This is the fruit of the austerity policy adopted by the Government from the first signs of the economic crisis.

5.2.5. Public finances

The state of public finances improved slightly in 1994/95. Budgetary savings, which were negative since 1989/90, became positive (34 thousand million CFAF) in 1994/95. The carrying out of State financial operations for 1995/96 was especially characterized, at the end of April 1996, by domestic budgetary earnings of 528 thousand million CFAF, of which 63 thousand million CFAF were oil royalties paid by the National Hydrocarbons Corporation (SNH). Thus, domestic budgetary earnings are estimated at 658 thousand million CFAF on June 30, 1996. At the same time, 98 thousand million CFAF of foreign resources have been mobilized as part of projected aid, thanks to International Monetary Fund, World Bank, European Union and French support.

This improvement results from the policy of reducing State spending, especially through cutting expenses and disengagement from the production sector undertaken since 1989/90 within the framework of the application of the Structural Adjustment Plan. If this State of affairs prevails, the Government should liberate resources to contribute to the preservation of natural resources. This readiness was seen in the resource allocations of the 1996/97 financial year : public investment spending to the tune of 147 thousand million CFAF is included in the State budget, of which 114 thousand million CFAF are earmarked for development projects only ; domestic financing (40 thousand million) and foreign financing (74 thousand million). Activities which affect environmental protection were allocated 3.5 thousand million CFAF, being 8.8% of allocations to domestic resource investment. These resources will be augmented by foreign contributions, evaluated at 12.2 thousand million CFAF.



Graph 5.5 : Trends in economic aggregates

5.3. NEMP INVESTMENTS

During the creation of the NEMP, a series of projects, which have been planned to cover a 10-15 year period, was identified and evaluated within the framework of regional and sectorial studies.

The total investment, which was evaluated at 232.3 thousand million CFAF, is divided into 5 categories :

- projects under way: 92.4 thousand million CFAF;
- priority projects : 6.9 thousand million CFAF;
- new projects : 75.3 thousand million CFAF;
- scheduled projects :57.7 thousand million CFAF;
- projects to be created : amount still to be set.

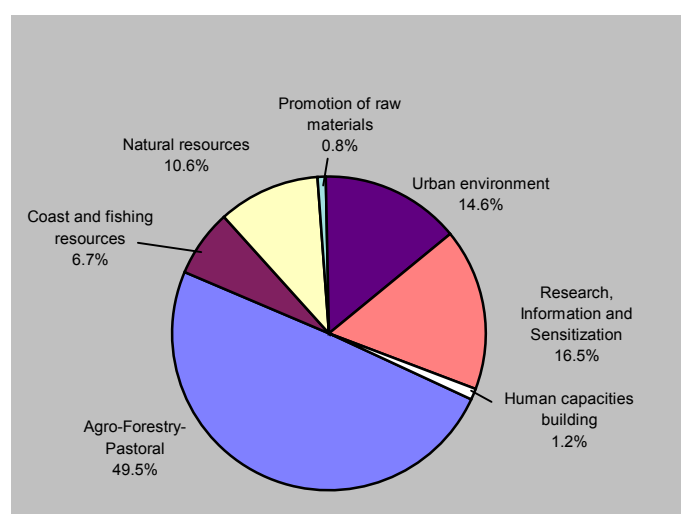
Financing the NEMP

The rational management of resources can and should generate the funds necessary for financing the NEMP programme. Right now, only 9.3% of revenue from activities in the primary sector are allocated to the management of natural resources.

The following tables and diagram give the distribution of resources according to sectors of activity.

Table 5.1 : Total financing of the NEMP

Sector	On going Projects	Projects envisaged	TOTAL
1 Agro-Forestry-Pastoral	67,698.7	69,271.5	136,970.2
2 Coasts and fisheries	3,140.6	9,426.3	12,566.9
3 Natural resources	4,499.5	14,811.4	19,310.9
4 Promotion of raw materials	3,533.5	1,160.0	4,693.5
5 Urban environment	1,755.7	20,465.9	22,221.6
6 Research, Information and Sensitization	11,520.6	23,100.0	34,620.6
7 Human capacity building	248.0	1,660.5	1,908.5
TOTAL in million of CFA	92,396.6	139,895.6	232,292.2
TOTAL in million of Dollars	184.8	279.8	464.6



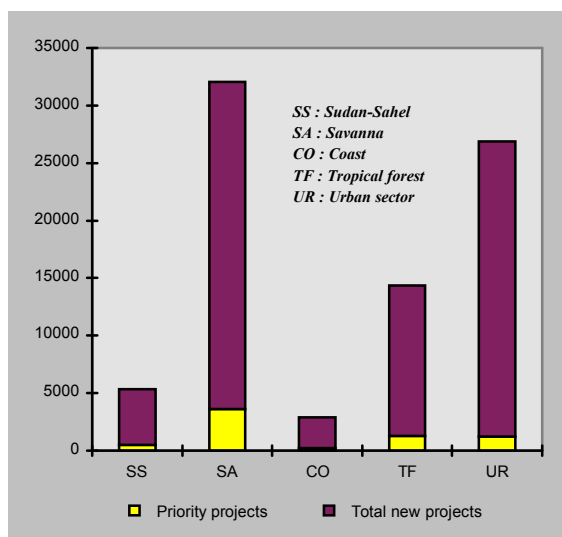
Graph 5.6 : Distribution of financing by sector of projects envisaged : 139.9 thousand million CFAF

Table 5.2: Financing according to sector

SECTOR	Regional Projects			Sectorial Projects		
	On going	Envisaged	Total	On going	Envisaged	Total
1 Agro-Forestry-Pastoral	7,984.1	26,592.5	34,576.6	59,714.6	42,679.0	102,393.6
2 Coasts and fisheries	64.6	8,218.3	8,282.9	3,076.0	1,208.0	4,284.0
3 Natural resources	3,764.0	10,600.9	14,364.9	735.5	4,210.5	4,946.0
4 Promotion of raw materials	0.0	0.0	0.0	3,533.5	1,160.0	4,693.5
5 Urban environment	1,755.7	19,595.5	21,351.3	0.0	870.3	870.3
6 Research,- Information and Sensitization	6,469.6	9,667.7	16,137.3	5,051.0	13,432.3	18,483.3
7 Human capacity building	0.0	0.0	0.0	248.0	1,660.5	1,908.5
TOTAL in million of CFA	20,038.0	74,674.9	94,712.9	72,358.6	65,220.7	137,579.3
TOTAL in million of dollars	40.1	149.3	189.4	144.7	130.4	275.2

From the analysis of the distribution of the required financing of 139.9 thousand million CFAF for the carrying out of the projects envisaged by the NEMP according to sector of activity, it is obvious that :

- The rational management of agro-forestry-pastoral resources is the biggest challenge to environmental protection and sustainable development, hence a considerable part (49.5%) to this sector. These investments will facilitate the improvement of agricultural exploitation systems, the efficient management of land, the management of pastures and a rational exploitation of forestry and fauna resources, etc.
- Particular attention has been paid to the fight against desertification in the North of Cameroon. This densely populated region requires specific conservation and soil protection measures, reconstitution of plant cover and management of water resources. The corresponding investments are included in regional projects for the Sudano-Sahel region. These investments account for 6.5% of the total funds for regional projects.
- Concerning the management of coastal and marine ecosystems and fishing resources, 6.7% of the required funds will be used in this sector for the rational management of maritime areas and resources, the promotion of products, support for fishermen, control of marine pollution, etc .
- In this context, specific attention has been paid to the conservation and management of State-owned maritime resources with specific projects identified within the framework of regional planning for the South, Littoral and South-West provinces (see also chapter 5.3.2.).



Graph 5.7 : New and priority projects

- Natural resource development projects take up to 10.6% of NEMP financing. These funds will facilitate a better evaluation of water resources,

promotion of alternative energy sources and the rational use of biomass in order to limit human pressure on forestry resources (fuel wood).

- The improvement of living conditions in urban areas is an important factor in environmental protection. Activities to be carried out in urban areas will take up an estimated 14.6% of NEMP funds. These activities will aim at managing occupation of urban areas, cleaning up urban areas, supplying drinkable water for urban population, etc.
- In the sector of research, information and sensitization as concerns environmental protection, 16.5% of NEMP funds will facilitate the acquisition of knowledge and skills in environmental management, the orientation of research findings towards environmental protection and resource promotion.
- The promotion of raw materials, that is the increase of the added value of raw materials while taking environmental protection as well as the taking of studies on the effect of infrastructure on the environment into consideration, takes up 0.8% of total NEMP financing.
- Lastly, projects aimed at human capacity building account for 1.2% of total costs. These funds will ensure the integration of women in environmental programmes and the increase of institutional capacities.

5.3.1. Projects under way

Such projects, which aim at protecting the environment, cover all the sectors defined in the NEMP. They cost 92.4 thousand million CFAF and over 90% of them are in the following three sectors :

- agro-forestry-pastoral resources (73.3%) ;
- research, information and sensitization (12.5%) ;
- natural resource management (4.9%).

Several countries such as France, the Netherlands, Canada, the Federal Republic of Germany, the United States of America, Great Britain, Belgium, China and international bodies such as the World Bank, UNDP, UNESCO, WFP, the European Union, contribute 85.4 thousand million CFAF, being 92.4% of the total funds for the carrying out of on going projects.

5.3.2. Regional projects

During the creation of the NEMP in which large sections of the population participated, 180 regional projects were identified and evaluated at 94.7 thousand million CFAF. This sum was distributed as follows :

- 20 thousand million CFAF for projects under way ;
- 74.7 thousand million CFAF for new projects.

Among these new projects and considering environmental protection requirements in each region, **44 projects, for a total investment of 6.9 thousand million CFAF were identified as priority projects** by the Regional Technical Commissions, i.e. 3 to 6 projects per province.

In order to solve the environmental problems which exist in every region, priority projects must be completed within the first three years of the NEMP.

The distribution of the regional projects between the major ecological regions is as follows :

- Considering that desertification is the crux of the environmental problem in the Sudano-Sahelian region, a budget of 4,800 million has been earmarked for projects in this area, of which 502,800 million, or 10.4% of the total, is for priority projects ;
- With investments of up to 28,44 million, including 3,600 million for priority projects, the actions to be carried out in the Savannah region are centred on the improvement of land management ;

- The projects to be executed on the Maritime Coast require funding valued at 2,700 million, of which 222 million is for priority projects ;
- The Tropical Forest is the source of multiple products and subject to multiple uses. Consequently, for it to be managed in a rational and sustainable manner, a total of 13,200 million is required, of which 1,300 million will go to finance priority projects ;
- In Urban Centres, the objective is the improvement of the human environment and the sanitation of the urban areas. To that end, the projects identified require a financial package of 25,700 million. Priority projects in the urban centres will cost 1,200 million.

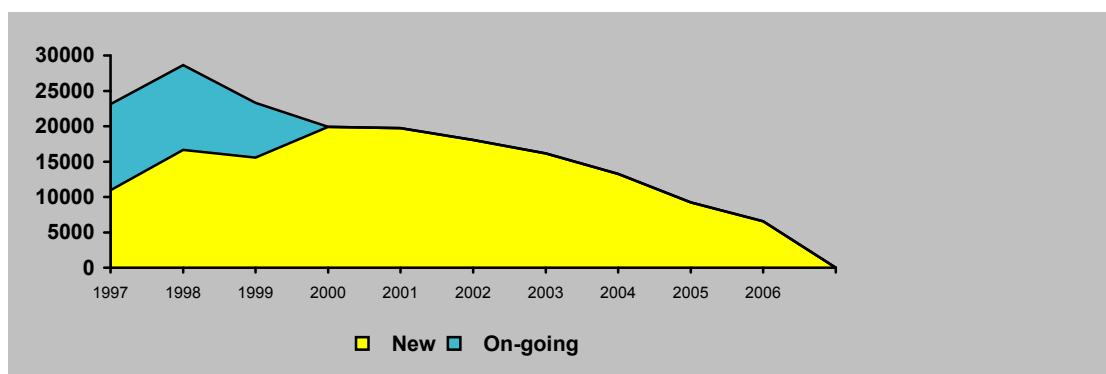
5.3.3. Sectorial projects

Sectorial projects within the environmental protection programme require funding amounting to 137,600 million CFAF distributed as follows :

- 72,400 million CFAF for on-going projects ;
- 57,700 million CFAF for planned projects ;
- 7,600 million CFAF for newly identified projects.

5.3.4. Projects to be developed

Out of the 314 identified projects, 32 are yet to be developed and will, as a result, have to be evaluated during the first phase of the implementation of NEMP.



Graph 5.8 : Breakdown of investments over time

Table 5.3 : Breakdown of Investments over time (On-going and New projects)

Sector	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Beyond 2006	TOTAL
Agro-Forestry-Pastoral	8,588.8	13,824.0	11,620.4	10,948.4	8,833.7	9,495.6	8,293.3	5,839.1	4,060.2	3,564.0	1,016.3	86,083.8
Maritime coast and fishery resources	1,168.0	781.5	781.5	873.7	793.7	820.2	633.8	720.8	107.3	60.4		6,740.9
Natural resources	2,776.0	4,101.3	3,319.3	2,705.2	2,643.9	1,482.6	1,653.8	957.6	61.9	61.9	335.0	20,098.5
Valorization of raw materials	1,610.8	1,400.3	504.5									3,515.6
Urban environment	4,184.6	4,242.1	3,586.2	2,321.6	4,175.1	2,958.8	2,407.4	2,396.1	1,828.5			28,100.4
Research, Information and Sensitization	4,730.7	4,192.2	3,428.8	2,813.3	3,000.8	3,011.4	2,899.8	3,182.4	2,990.9	2,854.7		33,105.0
Human capacity building	83.8	83.8	83.8	267.0	267.0	267.0	247.7	174.8	174.8	10.9		1,660.6
TOTAL	23,142.7	28,625.2	23,324.5	19,929.5	19,714.2	18,035.6	16,135.8	13,270.8	9,223.6	6,542.9	1,351.3	179,296.1
In \$ US	46.3	57.3	46.6	39.9	39.4	36.1	32.3	26.5	18.4	13.1	2.7	358.6

5.3.5. Breakdown of investments over time

The graph and table above show the distribution of investments over time. The distribution was done taking into account the absorptive capacity of the economy and the execution time of each project.

During the first three years of the implementation of NEMP, the financial resources to be mobilized for project execution amount to 75,100 million, including 39,100 million (or 42.5%) for on-going

projects. These resources will cover scheduled investments by sector as follows :

- Agro-sylvo-pastoral : 34,000 million CFAF
- Maritime Coast : 2,700 million CFAF
- Natural resources : 10,200 million CFAF
- Valorization of raw materials : 3,500 million CFAF
- Urban environment : 12,000 million CFAF
- Research, information and Sensitization : 12,400 million CFAF
- Capacity-building : 300 million CFAF.

5.4. FUNDING SOURCES

The funding requirement of NEMP stand at 232,300 million CFAF, including 92,400 million for on-going projects and 139,900 million for new projects. NEMP can therefore be executed only if the financing is progressively secured :

- the State
- contributions from the populations
- donors and cooperation agencies
- the private sector

The table below shows the breakdown of the financing required by NEMP by source and type of project.

Table 5.4 : Indicative breakdown of NEMP financing

	On-going projects	New projects	TOTAL	%
State	5,695.6	29,900.0	35,595.6	15.3 %
Populations	1,314.2	3,414.1	4,728.3	2 %
Donors	85,386.8	94,966.9	180,353.7	77.6 %
Private sector	-	11,614.6	11,614.6	5 %
TOTAL in million of CFAF	92,396.6	139,895.6	232,292.2	100 %
TOTAL in million of dollars US ^(*)	184.8	279.8	464.6	100%

(*) Exchange rate : 1\$ US=500 CFAF.

Table 5.5: Contribution of the populations to the financing of regional projects

SECTOR	Projects (on-going)	Contribution of the public		Projects (planned)	Contribution of the public	
		Value	%		Value	%
1 Agro-Forestry-Pastoral	7,984.1	1,187.7	14.9%	19,394.4	1,383.5	7.0%
2 Maritime coast and fishery resources	64.6	10.5	16.3%	5,242.3	362.9	6.9%
3 Natural resources	3,764.0	92.0	2.4%	12,036.2	404.1	3.4%
4 Valorization of raw materials	0.0	0.0	-	0.0	0.0	-
5 Urban environment	1,755.7	17.7	1.0%	25,474.6	463.6	1.8%
6 Research, Information and Sensitization	6,469.6	6.3	0.1%	12,527.4	799.9	6.4%
7 Human capacity building	0.0	0.0	-	0.0	0.0	-
TOTAL in million CFAF	20,038.0	1,314.2	6.6%	74,674.9	3,414.1	4.6%
TOTAL in million dollars	40.1	2.6	6.6%	149.3	6.8	4.5%

5.4.1. State Commitment

The commitment of the State has been translated into reality by the inclusion, within the Priority Investment Programme (PIP), of a budgetary allocation of at least 6,000 million CFAF for the first three years, or 2,000 million CFAF per year in the Public Investment Budget (PIB). For the current year, the sum of 3,500 million CFAF was allocated for the execution of projects aimed at environmental protection, which is testimony to the importance Government attaches to environmental protection and the preservation of natural resources.

5.4.2. Contribution of the populations

Considering that the general public was deeply involved in the formulation of NEMP, they have understood the merits of sustainable resource management which guarantees the survival of the current inhabitants while safeguarding that of the future generations. Given their stake in the realization of NEMP projects, the populations are presently contributing 1,300 million CFAF towards the realization of on-going projects, and have also, within the planning process, pledged 3,400 million CFAF, which represents 4.6% of the total financing for NEMP regional projects.

5.4.3. Contribution of external funding bodies

In pursuant to international conventions on multilateral and bilateral co-operation, contributions will be solicited from donors in order to cover the financing needs of NEMP projects and support those which comprise elements of regional environmental protection projects such as GEF,

PRGIE, and WACAF, among others. Apart from the financing of on-going projects, donors will be invited to contribute up to about 95,000 million CFAF, or close to 190 million dollars.

The table below illustrates the efforts previously made by the donors towards the execution of on-going projects.

Table 5.6: Contributions from funding bodies to on-going projects by sector in millions CFAF

	Agro-Forestry-Pastoral	Maritime coast and fishery resources	Natural resources	Valorization of raw materials	Urban environment	Research, Information and Sensitization	Human capacity building	TOTAL	in %
Germany	12,083.9	200.5				250.0		12,534.4	14.8
Belgium	3,031.5	2,501.5				534.0		6,067.0	7.1
Canada	5,498.0					50.0		5,548.0	6.5
China	757.5							757.5	0.9
United States	1,886.7	172.0				250.9		2,309.6	2.7
France	4,721.7				138.0	5,837.4		10,697.1	12.5
Great Britain	8,939.2					766.5		9,705.7	11.4
The Netherlands	9,852.7	202.5	4,076.0			908.1		15,039.3	17.6
IBRD	12,770.0					1,331.0		14,101.0	16.5
WFP	2,012.0							2,012.0	2.3
UNDP						1,063.5	248.0	1,311.5	1.5
UNESCO						1,131.1	81.6	1,212.7	1.4
EEC	557.5			3,533.5				4,091.0	4.8
TOTAL	62,110.7	3,076.5	4,076.0	3,533.5	138.0	12,122.5	329.2	85,386.8	100

5.4.4. Contribution of the private sector

The private sector of industrialized countries should equally play an important role in the implementation of NEMP. Indeed, investments in compensation for pollution in industrialized countries, mobilized under the « Joint

Implementation Programme » of the Convention on climate change, could support the financing and will be supplemented by proceeds from penalties incurred by physical persons and corporate bodies pursuant to the provisions of the new law on environmental management.

5.5. IMPACT OF NEMP PROJECTS ON THE BIO-PHYSICAL ENVIRONMENT AND THE NATIONAL ECONOMY

The execution of projects for environmental protection and natural resource preservation within the framework of NEMP contributes towards the attainment of the higher objective of sustainable development. In this regard, the analysis will be carried out at two levels : on the biophysical environment so as to measure the impact by sector of intervention :

1) In the agro-sylvo-pastoral sector :

a) *on the biophysical environment through*

- the increase in the number of farmers who use environmentally favourable agricultural techniques ;
- the rise in the number of stock breeders who apply

techniques for the improvement of rangeland management ;

- the maintenance of the potential of forestry resources ;
- the re-emergence of rare or endangered species even as local Government authorities are recording higher proceeds from wildlife exploitation.

b) *on the socio-economic environment through*

- the optimization of the yields and revenues of farmers thanks to adequate training ;
- the increase in the additional revenues of the riparian populations ;
- the diversification of forest products with high added values, leading to an increase in the

contribution to the Gross Domestic product.

2) In the maritime Coast and fisheries resources sector :

a) *on the biophysical environment through*

- the increase in fish production while maintaining the resource balance ;
- the conservation of resources, and the protection of parent stocks and spawning grounds.

b) *on the socio-economic environment through*

- the improvement in the health of the populations due to sufficient consumption of quality proteins ;
- the increase in the contribution of the valorization of fishery products to the national economy.

3) In the natural resource sector :

a) *on the biophysical environment through*

- the rationalization of biomass use ;
- the increase in the rate of electricity coverage, especially in rural areas ;
- the increase in the contribution of the sector to the national economy ;
- easy access of the populations to drinking water.

4) In the valorization of raw materials

a) *on the biophysical environment through*

- conformity of the rate of pollutants with the norms ;
- exploitation of resources for industry while taking into account the environment code.

b) *on the socio-economic environment through*

- the improvement in the health of the populations as a result of the curbing of water and air pollution.

5) In the urban environment sector :

a) *on the biophysical environment through*

- controlled occupation of urban areas and the restructuring and development of the neighbourhoods ;
- the steady increase in the equipment of urban infrastructures and services in order to meet the needs of the inhabitants.

b) *on the socio-economic environment through*

- the reduction in the prevalence rate of waterborne diseases by providing drinking water to the populations ;
- the curbing of industrial and small-scale pollution.

6) In the research, information and sensitization sector through :

- the improvement of national expertise in all the domains of the environment ;
- the provision of reliable research data to decision-

makers and users.

7) In capacity building

- the increase of women's incomes while respecting environmental protection requirements ;
- the improvement of revenues in rural areas ;
- the reinforcement of RPE in primary and secondary schools and other institutions.

Generally speaking, the impact of NEMP environmental projects on the socio-economic situation can be measured through :

- the sustainability of natural resources to the extent that they are managed in a rational manner : this management will lead to an increase in agricultural, pastoral and forestry production and, by extension, an increase in the revenues of farmers, stockbreeders and foresters.
- The improvement in socio-economic conditions in both rural and urban areas as a result of higher incomes. Sustainable environmental management and the enhancement of resources will provide new opportunities for economic operators to meet the growing needs in goods and services. Hence the creation of new jobs in both the urban and rural areas will contribute to the curbing of unemployment and rural exodus : two phenomena characteristic of the current state of poverty ;
- the improvement of the human environment will also lead to the reduction in the prevalence rate of mainly waterborne diseases, and contribute to the improvement of the socio-economic situation of the people and the State.

There is absolutely no doubt that the execution of NEMP environmental projects will, in a very short time, help boost the national economy while taking the conservation of resources into account with a view to guarantee sustainable development.

APPENDIX I

INVESTMENTS PLANNING

Explanatory statement on planning

The planning chart has taken into consideration connections between all the projects and the duration of their implementation. The implementation of on-going projects and priority projects in the sight of environmental problems we are faced to, has been scheduled for the first three years of the NEMP.

The programme will be assessed every five years so as to enable decision makers to give new guidelines in accordance with programme objectives.

Explanation of the planning chart columns.

First column : Number of the project file as recorded in the data base. This number can give access to all information on the project concerned.

Column two : Project title ; as regards regional projects identified during regional meetings the title is preceded by an identifying number which enable one to know the Major Ecological Region in which the project is located, the expected result and the activity related to the project.

Column three : The priority order of projects as defined by the various Regional Technical Committees. It is worth noting that all projects in a given domain have the same priority so as to respect the requirements of the people.

Column four : Information on the state of projects : these are :

- on-going projects ;
- priority projects as stated in the third column with no funds available ;
- scheduled projects with an identified financing source and available funds ;
- « new » projects identified during the preparation of the NEMP, with no funds available ;
- projects to be developed during the implementation of the NEMP.

Column five : The project cost as defined for on-going and scheduled projects and as estimated for identified projects.

Column six : Funds already invested in on-going projects ; if the project is to be completed during the first year (1997) of the implementation of the NEMP, it is no longer taken into consideration.

Columns seven to nine : Implementation of priority projects.

Columns ten to thirteen : Funds to be invested in the implementation of projects each year.

APPENDIX II

SUMMARY OF REGIONAL AND SECTORIAL STRATEGIES

2.1. REGIONAL POLICIES

Major Ecological Regions (MER) are entities that share common characteristics, notably climate, topography, vegetation, and most important of all, land use marked by an integrated management of the environment taking into account population explosion. Ten major ecological regions have been identified. In its regional approach, NEMP drew up specific policies and strategies for the Major Ecological Regions.

Taking into account ecological considerations MERs, were reclassified into four broader entities : the Sudano-sahelian Zone, the Savannah Zone, the Tropical Forests Zone and the Coastal and Maritime Zone.

THE SUDANO-SAHELIAN ZONE

The Sudano-Sahelian Zone, which comprises the Major Ecological Regions of the Mandara Mountains, and the Far-North province and benoue Plains, is faced with the permanent threat of desertification due to climatic constraints and man-induced erosion. It is necessary to implement measures to fight against desertification if this fragile ecosystem zone has to preserved.

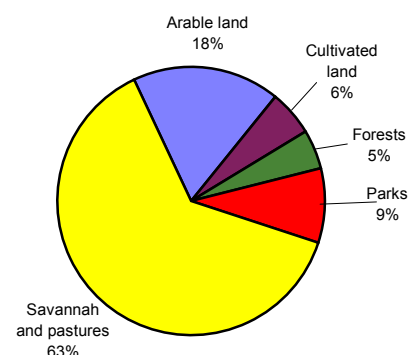
Strategies consistent with the principles of the convention on desertification involve the rational management of the land's resources, vegetation cover and soil restoration, the rehabilitation of flood plains, the rational exploitation of water resources, the exploitation of fishery resources, and the optimum management of protected areas.

The optimal management of the land's resources requires instituting a technical and legal framework that is indispensable to the effective management of community property. In this respect, particular attention should be paid to the sensitization and organisation of the populations. Provisions should equally be made for working out plans for occupying space that take into account the carrying capacity of the area and customary land rights. Measures to check population explosion shall be implemented both through the promotion of education towards responsible parenthood (ERP) and migrations from overpopulated areas, while taking into account the environmental implications of such measures. A programme of assistance towards the community management of resources envisages the setting-up of management committees so as to encourage community initiatives, especially, an adapted peasant credit system.

Fishing constitutes the major activity for a good part of the population of this zone for whom it provides a source of animal protein and income. ***In addition, the strategic measures adopted aim at a rational exploitation of fishery resources for the preservation of species and the sustainability of production.***

In this context, there are provisions to make an inventory of, and assess the fishery resources potential in order to work out adapted plans for exploitation. Adopting appropriate fishing methods shall be the subject of information and training programmes.

Measures to fight desertification take into account the guidelines of the international convention on desertification



Occupation of land in the Sudano-Sahelian Zone

Riparian communities should fully participate in the optimal management of protected areas

NAME	SURFACE AREA (ha)
Waza National Park	180,000
Kalamaloue National Park	4,500
Mozogo National Park	1,400
Benoue National Park	180,000
Faro National Park	330,000
Bouba-Ndjida National Park	220,000

Source : MINEF

Protected areas of the Sudano-Sahelian Zone

Measures for the protection and reclamation of the soil, the conservation of vegetation cover, the sustainable exploitation of forests and the rational management of water resources are the major objectives in the fight against desertification

These measures shall be complemented with the sensitization of the population to respect the statutory framework, and the reinforcement of the fishing controls.

The necessity to preserve the diversity of animal and plant life has led to the installation of several protected areas. The institution of a rational and efficient management system for these protected areas is a major environmental requirement. Such a system necessitates the active participation of riparian communities.

Consequently, there are provisions to draw up and implement development and management plans for parks, based mainly on their resource potential, their clear demarcation and their equipment. Promoting development activities in protected areas to enhance ecotourism, for instance, should be incorporated into these management plans. Sensitizing the population on the importance of parks, developing a system of management which involves the populations in developing their resources while guaranteeing them the socio-economic benefits, can ensure their involvement in the management of parks. However, the intervention capacities of forest wardens will be reinforced by recruiting, training, equipping and motivating the staff.

Vegetation cover and soils are the most threatened by erosion in this region. The fact that their reclamation is determinant in maintaining the fragile ecological balance of the Sudano-sahelian zone calls for urgent measures.

Besides, there is the need to promote measures aimed at a rational exploitation of our wood resources by popularising improved homes and alternative sources of energy to fuelwood. Concurrently, adapted agro-pastoral methods that make ample allowance for soil preservation and reclamation shall be implemented. Consequently, erosion control techniques such as adapted agro-forestry practices and the development and management of pastures shall be promoted and reinforced. More specifically, given the hydrology of the region, the soil's water balance will equally be attained.

The optimal exploitation of water resources is of particular importance to this region where water constitutes a vital resource. It is consequently necessary to pursue exhaustive studies of existing water potentialities, both surface and underground. New installations will be constructed and the already existing non-functional ones rehabilitated, always taking into account their effects on the environment. Training the populations to manage water resources should be achieved by setting up of management committees responsible for implementing adapted and previously defined operating regulations.

The construction of the dam at Maga and of the dike along the Logone have created hydrological disturbances in the flood plains of the Waza-Logone region. Their rehabilitation is consequently in response to serious damage to the environment due to a poor mastery of water management. Water is currently at the centre of the project for protecting and developing the Waza-Logone region, and efforts are geared towards creating a framework for the participatory management of water resources, and attaining development levels that enhance the optimal exploitation of water resources.

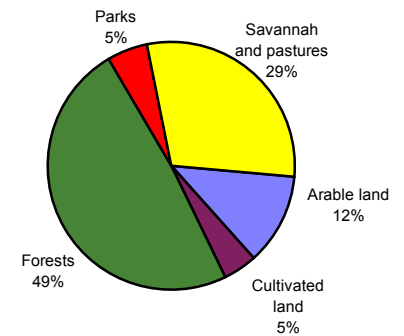
SAVANNAH ZONE

The Savannah zone, comprising the following Major Ecological Regions: High-Altitude Savannah of the Adamaoua, Low-lying Savannah of the Centre and East, High Plateaux of the West and North-West, and the Tikar Plain, covers regions with a high population density such as the High Plateaux of the West and North-West, and sparsely populated regions such as the Adamaoua and the East. In this context, strategies aimed at sustainable management of resources should take into account the development of high potentiality zones and the conservation of resources in highly attractive zones. Globally, these strategies centre around the optimal management of land, the implementation of appropriate agro-pastoral methods, the optimal management of fishery resources, the rational management of forest resources, the optimal management of protected areas, the restoration of biodiversity and the rationalization of methods for exploiting mineral resources.

The optimal management of land which of necessity should take into account the reinforcement of institutional capacities in this domain should be based on an appropriate technical and institutional framework. Generally, the occupation of land will be organized depending on its potentialities by integrating socio-cultural and economic aspects, and the populations concerned will be assisted in the implementation of the necessary measures especially by informing and training them, organizing them to manage community property, and facilitating their access to loans and other material and financial inputs. This could require reinforcing the technical and logistical intervention capacities of the personnel responsible for training in this sector. The specific domains include implementing measures for protecting the environment and creating a consultation forum for water resources management that takes into account the preoccupations of all users. The presence of a volcanic zone in this region requires the implementation of specific regulations to ensure the rational management of hazards arising mainly from crater takes.

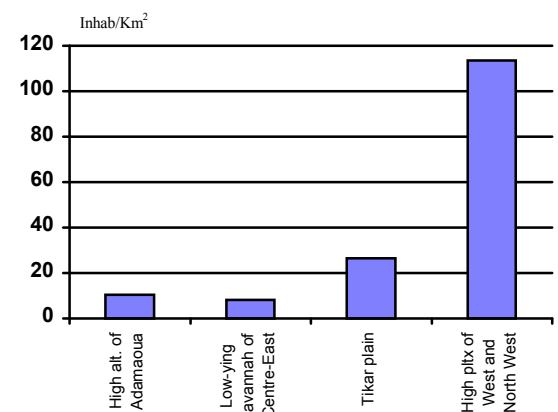
The adoption of sustainable agro-pastoral practices and methods requires the training of animal breeders and farmers, the introducing of appropriate agro-pastoral methods, the diversification of crops and animal products and the promotion of optimal farmer-breeder integration. It should also enhance the protection and restoration of the soil. The optimal management of pastures, including their restoration, the fight to eradicate the tsetse fly and the promotion of adapted agro-pastoral tools and equipment are particularly targeted.

The optimal exploitation of fishery resources requires the adoption of adequate exploitation methods. Consequently, the strategies envisaged include, among others, popularizing appropriate fishing methods, promoting adapted fishing tools, reinforcing the training of fishermen, and developing inland fishing. However, in order to lighten the pressure on traditional fishing grounds, there are plans to develop other forms of fish farming. Measures to reinforce fishing controls are equally provided for with the aim of ensuring compliance with the instruments in force, especially the ban on the use of toxic products.



Occupation of land in the Savannah Zone

The optimal management of land and the adoption of sustainable agro-pastoral practices and methods ensure better development of resources in the Savannah zone.



Population density in the Savannah Zone

The rational exploitation of forest resources and the preservation of forest galleries are necessary in maintaining the balance of ecosystems of the Savannah zone while optimizing the socio-economic benefits.

The rational exploitation of resources should contribute in preserving the forest galleries that are indispensable for the balance of the Savannah Zone. To achieve this, the strategic measures adopted should integrate agroforestry promotion adapted to multiple uses, the exploitation of medicinal plants and other non-wood products should be regulated, the exploitation of timber should be rationalized, and measures should be taken to fight bush fires. Concurrently, provisions should be made to forestall poaching and overfishing.

The optimal management of restricted areas ensures the conservation of the animal and plant diversity which it contains. Actions to be undertaken for its achievement shall aim at involving the population in the management of protected areas, notably their improvement ; and this entails sensitizing the population, the participatory management of action for the development of various forms of ecological tourism, and the effective distribution of the proceeds from such development. In the same perspective, measures to reinforce the protection of protected areas that conform to regulations in force shall be enforced.

Restoring biodiversity is one of the expected results of implementing sustainable land-exploitation methods, especially as concerns the rational exploitation of wood, the promotion of adapted forestry and agro-forestry, the implementation of measures for regenerating and protecting species, especially the endangered ones, the optimal management of restricted areas, and the fight against overfishing and poaching.

The necessity to develop the existing mineral potential for the benefit of all calls for its rational exploitation. In this wise, the activities retained consist in generally ensuring the efficient management of the mineral sector with emphasis on creating favourable conditions for improving mining activities and promoting the adoption of adequate exploitation methods.

The strategic importance of tropical forests both at the economic and ecological and the national and global levels, raises the conservation of our forest heritage to a priority objective

TROPICAL FOREST ZONE

The Tropical Forest Zone comprises the following Major Ecological Regions : the Exploited Forests of the Centre-Littoral and the Closed Rain Forest of the South-West and East. The strategic importance of tropical forests, both at the economic and ecological, and the national and global levels, makes the conservation of our forest heritage a priority objective. The measures envisaged to achieve it take into account the provisions of the forestry Law of 20 January 1994, and of the relevant international conventions, especially those on biodiversity and climate change. These measures aim at ensuring the respect for the requirements of the rational management of resources in general, and of our forest heritage in particular, the exploitation of wood and non-wood products, the implementation of a precautionary management policy for wildlife resources, and optimal management of restricted areas.

Respecting the requirements relating to the rational management of resources in general, and our forest heritage in particular, necessitates the implementation of a framework of favourable conditions, amongst which institutional capacities enjoy pride of place. It is equally projected, to ensure the implementation of instruments governing the protection of the environment, to take all the necessary steps towards involving the population in the management of natural resources and to work out and implement a plan for the occupation of land such as to ensure the integrated harmony of agro-silvicultural activities.

Besides, in the forestry domain, the following shall be ensured : better collaboration between the various operators, a better distribution of exploitation licences, initiation of forestry research, implementation of adapted regulations in the management and exploitation of forests, and the optimization of the output of the administrative staff.

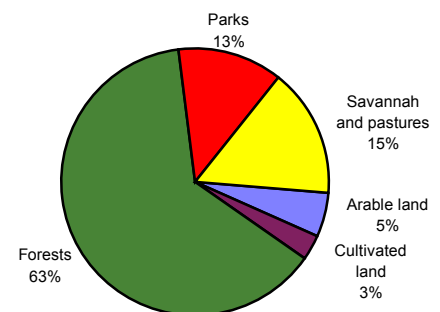
The rational exploitation of wood and non-wood resources should aim at regenerating these resources in zones where forest degradation has occurred. To this end, the action to be implemented entails the introduction of methods to discourage the excessive exploitation of wood in general, and the elimination of skimming in particular, the promotion and use of adapted forest equipment, the promotion of measures to reduce agro-pastoral pressure on forest resources, especially by the implementation of adapted agro-pastoral practices and the diversification of activities in rural areas. Measures more directly geared towards regenerating agro-silvicultural resources are equally envisaged.

Implementing a precautionary management policy for wildlife resources should enable them to constitute an important base for development in rural areas. This can be achieved through the elimination of poaching and overfishing, the introduction of appropriate fishing methods, and the development of fish farming and alternative sources of protein supply with the view, where necessary, to rationally restore the land and aquatic animal resources.

The need to preserve the ecological diversity of tropical forests calls for the implementation of optimal management measures for protected areas where they are mostly found. In this light, the action to be undertaken should conform to the implementation of instruments governing protected areas, especially when it comes to implementing adapted management plans that ensure the development of these resources and the involvement of the riparian populations in their management, while ensuring that they judiciously benefit from the proceeds from this development.

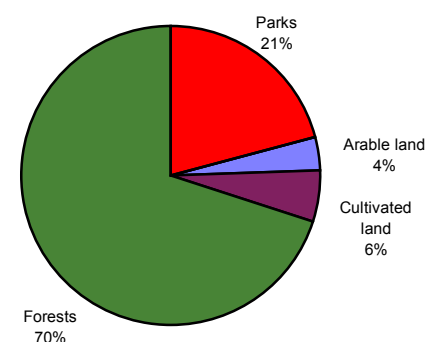
THE COASTAL AND MARITIME ZONE

The Coastal and Maritime Zone comprises Major Ecological Regions of the Maritime Coast. The conservation of coastal and marine ecosystems is in reaction to the risk of diverse forms of pollution and erosion to which they are exposed owing to the nature of the activities undertaken there. The strategies to be developed include the rational exploitation of the resources of the maritime coast, the checking of coastal erosion, a reduction in the illegal dumping of harmful wastes and the reinforcement of institutional capacities in the management of marine and coastal ecosystems.



Occupation of land in Forest Zones

The exploitation of non-wood products and the preservation of biodiversity ensures the betterment of the socio-economic situation of the people in forest zones



Occupation of land in the coastal and maritime zone

Particular attention should be given to the protection of mangroves, spawning grounds for the regeneration of fishery resources

The conservation and development of the coastal and maritime zone warrants : the rational exploitation of its resources , the checking of erosion, the checking of the illegal dumping of harmful wastes, the reinforcement of the population capacity to manage marine and coastal ecosystems, and the taking into account of the legal options provided by international conventions

The rational exploitation of resources of the coastal and maritime zone will contribute to their conservation and create favourable conditions for their development.

This requires the optimal exploitation of fish resources while adjusting production to the real supply capacities, ensuring the conservation and marketing of the products, training the fishermen, and implementing measures for the control of fishing. Given the nature and peculiar role of mangroves, special measures shall be taken to protect them.

Checking coastal erosion and fighting against the encroachment of the sea on the continent contribute to the stabilization of coastal and marine ecosystems. In order to effectively check such erosion, it is necessary to control the occupation of the shores, and to involve the populations in the monitoring of the respect of maritime instruments, rationally exploit sand and gravel quarries, promote the planting of cocoa trees along the coast and protect mangrove species especially by fighting against the uncontrolled occupation of these particularly fragile ecosystems.

The pollution of the coastal and marine ecosystems affects marine biodiversity and poses a threat to human beings who consume it, as a result of the contamination of fish products. ***Checking the illegal dumping of harmful waste is therefore imperative for human health and the conservation of marine and coastal ecosystems.*** Such checks are achieved by implementing measures aimed at fighting the various forms of pollution from urban centres, industries, harbour installations, oil exploitation, etc. Particularly, the rational use of fertilisers and pesticides in agro-industrial plantations of the maritime coast should be enhanced.

Concurrently, the implementation of laws pertaining to the fight against harmful dumping, especially the institution of a system of repression against polluters should accompany the sensitization efforts and the appeals for the collaboration of the main actors.

The reinforcement of institutional capacities in managing marine and coastal ecosystems should be based on the legal framework provided by international conventions to which Cameroon is a signatory. These conventions call for the adaptation of coastal and maritime legislation in such a manner as to render it operational and clear in terms of the rules of conduct during production, bans and their implementation, especially by involving the concerned parties who should be previously trained and sensitized for that purpose.

In this context, the proficiency of the agents responsible for implementing the law shall be attained through continuing training courses. They should also be provided with the necessary logistics before they can be able to perform their functions effectively.

2.2. SECTOR-BASED POLICIES

Strategic policies for environmental protection actions and the development of resources concern 19 sectors of intervention of the national economy. These sectors have been grouped, according to the functional relationships they share, into 7 broader domains of intervention :

1. Conditions for Human Capacity Building.
2. The Management of Agricultural, Silvicultural and pastoral Land.
3. Sustainable management of the Maritime Coast and Fishery resources.
4. Resource Management.
5. Valorization of primary products.
6. The Urban Environment.
7. Research, Information, Sensitization.

CONDITIONS FOR HUMAN CAPACITY - BUILDING

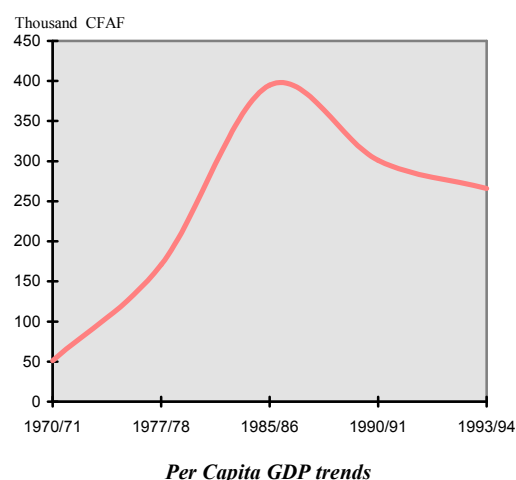
**Conditions for human capacity building cover the following sectors of activity :
Women in Environmental Programmes, Family Planning and Public Health.**

The protection of the environment depends on the quality of human resources. It is indispensable to dispose of human capacities capable of rationally managing resources in a manner consistent with the imperatives of development and the need to preserve the environment. Given the relatively high growth rate of the population, it is necessary to strike a balance between economic growth on the one hand, and population growth on the other, while guaranteeing the quality and well-being of the human environment.

According to the 1987 population census data, the total population was estimated at about 13.5 million inhabitants in 1995 for an annual growth rate of 2.9%. It is projected that this figure will rise to 20 million and 25.4 million inhabitants by the years 2010 and 2020 respectively. ***Considering these figures, and in spite of the unequal distribution of this population, the human capacity-building necessitates harmony between population growth and the Gross Domestic Product.*** Such an option would mean an increase in the income of rural inhabitants, which will be a guarantee of the stabilization of the peasant classes and the slowing down of urban growth resulting from rural exodus. A policy that promotes new sources of income should be mapped out for the rural world.

Education for responsible parent hood (E.R.P.) requires sufficient sensitization at all levels. The intensification of the E.R.P. programme implies the teaching of E.R.P. in primary, secondary and informal educational institutions. A special programme will be designed for rural areas. This option for the intensification of the E.R.P. programme will imply the availability of specialists in all SMI/IPF structures and an actual follow-up of E.R.P. programmes. Moreover, for people to be fully involved their awareness must be raised vis-à-vis E.R.P. and action must be taken to accelerate the breakdown of socio-cultural barriers to the use of modern contraceptive methods. A drop in the fertility rate from 5.6 to 5 children per woman by the year 2000 would be welcome.

The development of human capacities should ensure harmony between population trends and economic growth



Promoting the knowledge and responsibilities of women in all sectors of environmental management is essential to NEMP

JOB CATEGORY	WOMEN
Scientific, technical, liberal and allied professions	2.4
Members of legislative organs and senior government officials	0.2
Administrative and related personnel	2.2
Commercial staff and sales people	5.6
Skilled personnel in hotels and other service industries	2.1
Farmers, stock breeders, foresters, fishers and hunters	84.2
Non-agricultural workers and labourers, machine operators	2.6
Others occupations	-
Total	100

Source : RGPH 87

Percentage of the working female population
(6 years and above) by job category

The improvement of training is fundamental to human capacity building. ***Such improvement goes hand in hand with the integration of environmental concerns in school curricula.*** This integration should be as optimal as possible, and as compatible as possible with National Education Programmes. It is therefore necessary to improve the knowledge of trainers in environmental matters within school circles as well as in parental education.

Integrating women in environmental programmes is an indispensable option to the development of human capacities. It implies the existence of a policy for the integration of women in development, and their awareness of the need to preserve the environment. Cameroon should adopt general guidelines for the integration of women in development, through the strengthening of institutional capacities, and the initiation of a multisectorial consultative platform that will enable the concerned parties to be involved in planning, following-up and evaluating environmental programmes. Besides, it will be necessary to work towards the coordination of actions aimed at women and their involvement in the taking of decisions on problems occurring within their ecological zones. It will, furthermore, be necessary to improve their knowledge in matters relating to environmental protection in all sectors of activity. The involvement of women could ensure the preservation of the environment through the stabilization of agricultural production ; this involvement would be more efficient if appropriate agricultural methods are popularized amongst women. In the same vein, women should be encouraged to participate in water management committees , in the popularization of improved homes and in the promotion of alternative sources of energy. This would mean reducing the level of illiteracy, as well as relieving the traditional pressures. Making it easier for women to own landed property would act as a spur to raising their environmental awareness since, as real estate owners, they would be more involved.

Improving the health conditions of the population is an essential condition for human capacity building. It will be advisable to improve health policies in matters relating to environmental protection, by clearly defining institutional prerogatives and effectively evaluating activities. This implies above all, the respect of public health requirements, thanks mainly to proper garbage disposal, the existence of a parasite control programme, an efficient drainage system and an effective sanitation network. Moreover, elementary rules of hygiene should be observed through the improvement of nutritional hygiene and the sensitization of people on the dangers of insalubrity. Cameroon should strive to limit waterborne diseases by guaranteeing the use of potable water in both urban and rural areas : it is recommended that there be some improvement in the coverage of the vital needs in potable water.

Investments

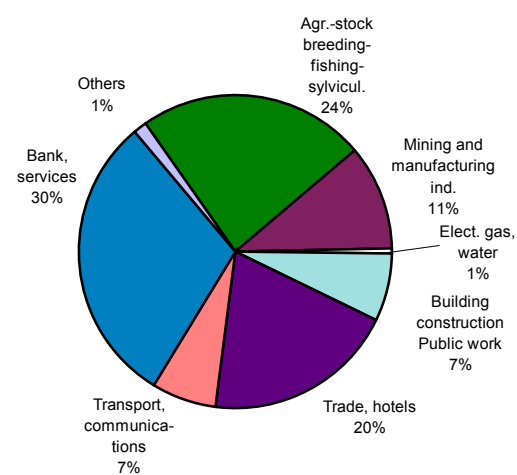
The initiation of projects geared towards human capacity building with a view to enhancing environmental protection will be achieved thanks to the following investments :

OBJECTIVES	Cost (in million CFA F)		
	Pop.	Otherss	TOTAL
- Sensitization in E.P.R.		304.62	304.62
- Adopting and initiating an IFD policy		108.50	108.50
- Protecting the environment as a priority for women		1,250.30	1,250.30
- Observing the requirements of public hygiene		245.10	245.10
TOTAL		1,908.52	1,908.52

AGRO-SYLVO-PASTORAL MANAGEMENT

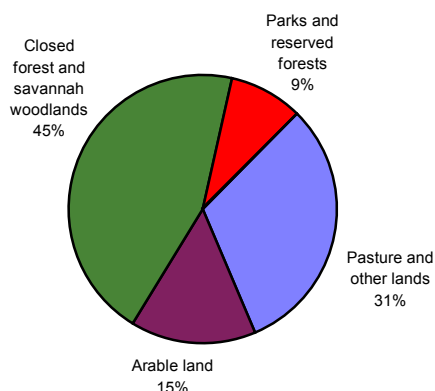
Agro-sylvo-pastoral management involves the following sectors of activity : Agriculture, Animal husbandry, lumbering, Wildlife and protected areas.

Agro-sylvo-pastoral activities play an important role in Cameroon. In effect, the bulk of the country's economy is based on these activities which, in 1987, occupied 71.1% of the population. Furthermore, they satisfy most of the populations' needs in food, energy and other materials. The only problem is that it is estimated today that the population will virtually double in 25 years. From 13 million inhabitants in 1995, it will go up to 26 million in 2020. This would mean a considerable increase in the needs to be satisfied by resources that, on the whole, are limited, ***hence the need to apply an appropriate land use system.*** In this wise, NEMP, which works for sustainable development, has proposed schemes which take the interests of future generations into consideration. These schemes integrate the problems and potentials of every region and conform to a good number of international conventions. Their implementation shall require an investment worth 130 thousand million CFA francs over a period of 15 to 25 years, 2.5 billion being contribution from the population. NEMP is pursuing the following objectives.



Working population in the rural sector

Rational and participatory agro-sylvo-pastoral management guarantees the use of sustainable resources



Distribution of agro-sylvo-pastoral land

People must benefit from the assistance that is necessary for the adoption and implementation of sustainable exploitation systems

Participatory and integrated stabilization and management plans that are adapted to every context and take into consideration the potentials of the area, the needs of the various users, the conservation and processing of products, marketing outlets for them, and the required communications and social infrastructure will be effectively initiated. They will in this way enable NEMP to establish relations amongst multiple users.

To succeed, NEMP lays down a consultation process for all involved parties and sets up platforms for coordinated action. These include plans for rational zonal occupation, management plans adapted to the area, road maintenance and suitable plans for the preservation of forests and protected areas. These plans rely on the previous inventory and study of the resource base and will entail dividing projected activities into zones, after evaluating the natural environment (aptitudes, imperatives and resistance of ecosystems) and the socio-economic milieu (costs, assessment of resources in monetary value, etc).

Institutional aspects are also taken into consideration (real estate management and functional relationships between different groups of users).

On a more general note, national capacities for the creation and initiation of planification instruments shall be intensified in a manner that will allow for the convenient supervision of the state of resources. The imperative need to resort to geography in a bid to improve the quality and availability of information has hence been acknowledged. The following shall thus be covered in a reliable manner: the collection of field data relating to the main physical and socio-economic indicators; the exhaustive mapping out of basic physical resources and their potential and degradation levels; the rapid and economic publication of data on resources following the main development issues.

Practices and exploitation techniques suitable for each environmental context shall be developed. Here, selected strategies include developing suitable exploitation techniques, promoting the use of adapted equipment, popularizing suitable agricultural material, diversifying crop production, developing sylvo-agriculture in forest zones, initiating, the best methods for managing grazing grounds, popularizing suitable techniques for the conservation and use of fodder, guaranteeing the renovation of forest resources by regeneration and reafforestation with a view to perpetuating the potential. Pertaining to plant protection, priority shall be accorded to an integrated control which gives preference to biological control that is ecologically more viable. Chemical control shall be resorted to when necessary under controlled conditions and shall take into consideration the risks of water pollution and poisoning. Research is particularly necessary here. It should, as much as possible, be participatory in a way that will judiciously take the local know-how into consideration.

People shall be sensitized on the need for sustainable management of resources. They shall then be trained on how to use the proposed methods. This training will be easier, since the people would have taken part in the development of these techniques, and would have incorporated their own knowledge in them. The spirit of communal responsibility and self-reliant development shall also be nurtured.

These people should, in the end, master their own resources and , in full knowledge of the situation, take decisions on how to manage them. In this way, training shall mainly play the role of assisting or accompanying the people in their quest for a better way of life.

It is also projected that the training team will be made up of an adequate number of well-trained men and women equipped with appropriate means to enable them to fulfil their mission. Should certain actions require the use of specific logistics, sufficient financial support has been provided for. Methods to be selected must give preference to community initiatives.

Agro-sylvo-pastoral activities can be complementary. ***Schemes put in place to integrate these activities optimize the relationships that exist between them.*** Given that the unisectorial approach that is actually in force does not facilitate the optimization of these relationships, agro-sylvo-pastoral actions shall be harmonized as laid down in the Maintenance and Management of Village Areas (ACTV) approach which is a blend of all structures in charge of initiating projects with local communities. Further measures in favour of such integration shall be taken at the legal, institutional and economic levels. An example of the blending of agro-sylvo-pastoral activities is the recourse to agroforestry. In effect, when it is well run, it can help in maintaining an acceptable vegetation cover, in erosion control, the protection of cultivated plants, soil fertilization, increasing plant and animal production, supplying firewood and wood for other purposes, and toning down agro-pastoral conflicts. This type of exploitation has the advantage of an intensive system of production that is ecologically backed and self-maintained.

Given the gravity of the phenomenon of soil degradation, the protection and restoration of soils have a significant role to play in NEMP Threats to the soil include, amongst others, erosion, chemical degradation, and the alteration of chemical and physical properties of soils.

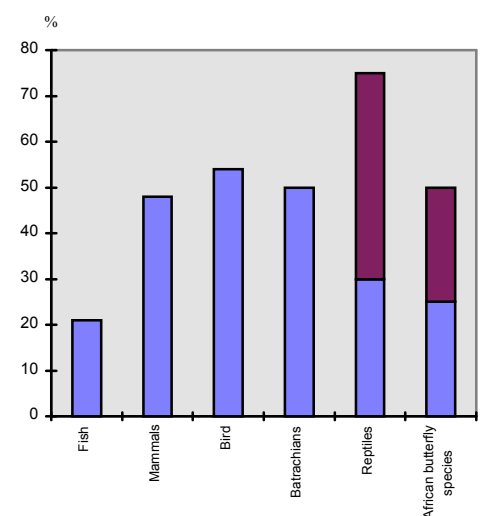
These problems are a result of practices like the occupation of areas with delicate soils, uncontrolled bush fires, over-grazing, wanton destruction of forests. Selected strategies lay particular emphasis on the application of prohibitive measures and the restoration of soils that help in erosion control, suitable agro-sylvo-pastoral practices, and adequate fertilization. These strategies are in the main based on the maintenance of an optimum vegetation cover.

The protection and restoration of pasturelands aims essentially at preserving the quality of pasture. Strategies to be adopted in order to succeed include intensifying tse-tse fly control while respecting the requirements related to environmental protection, and the adoption of a judicious maintenance policy.

A permanent forest and protected areas that represent national biodiversity shall be materialized within the framework of NEMP and TFPA activities. The component "environment and the balance of the ecosystems" will be incorporated in forest development policies. Besides, measures aimed at protecting, improving and conserving all forest and animal resources will be initiated. The intensification of forest control programmes shall strengthen actions to be undertaken.

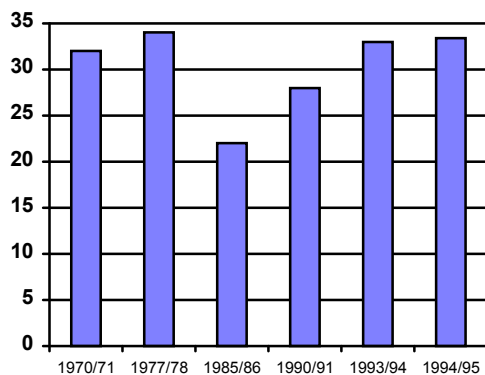
The system of training should change people's mentalities by considering them as partners and not just as people who are supposed to receive lessons

The integration of agro-sylvo-pastoral activities optimizes the relationship amongst them and contributes to the protection and restoration of soils



Percentage of species found in Cameroon

Mass participation in the conservation and management of forests and protected zones with a view to preserving biodiversity is a condition for the effectiveness of NEMP activities



Contribution of the primary sector to GDP

The strengthening of institutional capacities will, through greater harmonisation, allow for actions for the protection of the environment

The conduct of forestry and wildlife policies will henceforth be participatory. This requires that income from forests and protected areas be used in improving the standard of living of the people. Of course, one of the things that can motivate people to respect these measures is the guarantee that they will benefit from them. Timber exploitation shall also be organized in such a way that proceeds therefrom will reach these people. A suitable legislation shall be adopted, popularized and put into force to this effect. Moreover, provisions shall be made to ensure that the peoples' needs in forest products are satisfied with a view to limiting the pressure on resources.

In this respect, encouraging the precautionary management of forest and fauna resources by local communities, promoting the development of private forests as well as community forestry, encouraging the domestication of game and plants exploited for non-ligneous purposes, developing alternative sources of energy, firewood and wood for other purposes will be pursued. The involvement of the populations in the management of protected areas is in line with the desire to see them fully concerned with the future of these ecosystems which are of very great importance.

Actions shall be undertaken to stabilize the products of agro-pastoral activities so as to increase their contribution to the G.N.P. while respecting the requirements related to the preservation of the environment. These actions concern the improvement of the packaging of products, the promotion of products that are not well-known or insufficiently exploited, the development of marketing techniques and the reorganisation of outlets for commercialization. It also means increasing the rate of processing of unmanufactured products and hence enhancing the development of the exportation of half-finished or finished products.

Concerning protected zones in particular, the aim is to develop different forms of tourism. This shall, among many other advantages, help to expand the secondary and tertiary sectors, leading to new employment opportunities.

- **Legislation :** NEMP will be implemented in a relatively favourable atmosphere. In effect, the preamble to the constitution upholds the right of every citizen to a clean and healthy environment, his right to take part in its preservation and that of the State to ensure the proper management of national resources for sustainable development. Pertaining to the agro-sylvo-pastoral area in particular, Law N°94/01 of 20 January 1994 relating to forests is an illustration of the concern of law-makers in guaranteeing the sustainable management of forests. The entry into force of the environment code should, following the example of NEMP, make up for the normative setbacks that slow down the effective application of certain directives.
- **Institutions :** better harmonization of institutions involved in agro-sylvo-pastoral management should contribute to a more efficient implementation of proposed projects and programmes. Their management, technical nature and efficiency should improve considerably. The trans-sectorial and interdisciplinary vision of the guidelines to be followed at the levels of conception and execution shall be one of the main achievements of the system.

The strategies initiated within the framework of NEMP for rational and sustainable agro-sylvo-pastoral management fall directly in line with the recommendations of the Rio earth summit on environmental protection and sustainable development. They also comply with a good number of international guidelines and conventions including amongst others, conventions on biodiversity, climate change, desertification, etc.

NEMP schemes and policies take into consideration the pertinent provisions of international conventions on the environment

These strategies thus recognize the rights of the people over natural resources and their participation in the management, organization and maintenance of forests, the conservation of biodiversity, the protection of delicate ecosystems, the optimum valorization of resources and the strengthening of the capacities of the institutions in charge of managing these resources.

The following are some international legal instruments relating to agro-sylvo-pastoral management to which Cameroon has subscribed.

- Convention for the protection of the world cultural and natural heritage;
- Convention on international trade in endangered species of wild fauna and flora;
- Convention on the conservation of migratory species of wild animals;
- Convention on biodiversity;
- Convention on desertification;
- Convention on the African migrant locust;
- Convention and statutes on the development of Lake Chad;
- Agreement on the joint legislation for flora and fauna;
- Phytosanitary convention for Africa;
- African convention on the conservation of natural resources;
- Cooperation and conservation agreement between the countries of Central Africa on the protection of wildlife;
- Agreement between the countries of Central Africa on the creation of a special fund for the protection of wildlife;
- EEC/ACP (Lome IV) convention.

Investments

The investments required for sustainable management of agro-forestry and pastoral resources are given in the following table, along with the share of the costs to be borne by the populations concerned.

OBJECTIVES	Costs (in million CFA F)		
	Population	Others	TOTAL
Optimal use of resources	120.29	69,233.93	69,365.02
Improvement of exploitation systems	1,172.17	13,862.05	15,035.22
Assistance to populations	462.79	19,931.38	20,394.17
Integration of agro-forestry and pastoral activities	2.5	2,000.0	2,002.5
Protection and restoration of soils	326.96	3,819.03	4,146.00
Protection and restoration of pasture land	9.35	243.84	253.19
Preservation of biodiversity	67.42	7,502.35	7,569.77
Improvement of the participation of target populations	309.96	5,360.46	5,670.42
Optimization of the valorization of products	106.93	5,305.58	5,412.51
TOTAL	2,577.4	127,258.62	129,836.03

SUSTAINABLE MANAGEMENT OF THE MARITIME COAST AND FISHERY RESOURCES

The sustainable management of the Maritime coast and Fishery Resources covers those two sectors of intervention.

Socio-economic development potential in spite of the fragile coastal and marine ecosystems

Cameroon has 360 km of coastline , 14,000 square kilometres of continental plateau and 39,600 square kilometres of inland bodies of water. These milieus are biodiversity reserves and contain many exploitable resources whose potential can be estimated at 200,000 t/yr of fish; 311,000 million barrels of oil deposits and 530,767 tonnes of deposits of various gases ; beaches and tourist resorts , etc.

Thus , these coastal zones provide ideal conditions for a whole range of economic activities. Their management affects various human economic activities: trade , fishing , agriculture , town planning , tourism , leisure , industrialization , navigation , activities in ports , etc, which are often the source of disputes and environmental degradation. Thus , the valorisation and the development of coastal and marine ecosystems , as well as of river and lake basins is an important environmental consideration in the development and sustainable management process in Cameroon. This sustainable development requires the controlling of coastal erosion , the control and reduction of various kinds of pollution , the rational exploitation and valorisation of resources and , lastly , legislative and institutional changes.

Coastal erosion is a hydrodynamic phenomenon which leads to the encroachment of the sea on land. This causes the destruction of plant cover and the erosion of the coastline.

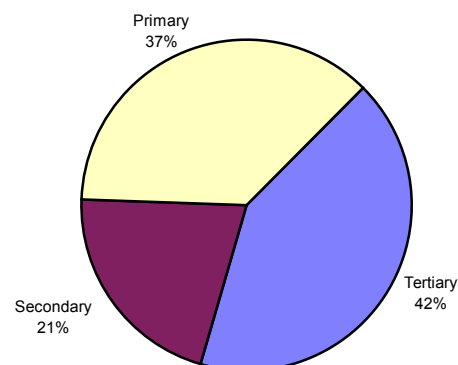
To fight against coastal erosion , several strategies may be considered , amongst which the most important are:

- The protection of fragile and erosion prone areas;
- The monitoring of degraded areas;
- The planning and impact assessment of the construction of all coastal structures;
- The rationalising of the exploitation of sand and gravel quarries , and mangrove trees;
- The fostering of compliance with legislation , especially that relating to the occupation of maritime areas.

In practice , it is necessary to develop or promote the planting of species such as coconut and cashew , which resist erosion and stabilize coastal soils. In the same vein , to avoid illegal felling of mangrove trees , other methods of preserving fish than by smoking must be devised.

Pollution , which is the penetration of the environment by harmful substances , poses a real threat to fishery resources and the coastal environment. The identification and protection of endangered habitats should be done as quickly as possible. This should be done by controlling and reducing the various forms of pollution. Thus , adequate measures must be taken , especially the identification of the various forms of pollution and the various methods of sewage and industrial waste disposal. This should facilitate the setting of national standards for each kind of pollutant.

Moreover , methods that will avoid the depositing of urban waste in mangroves , streams and in the sea should be promoted. Thus , the use of organic waste , especially household refuse , in composting processes should be encouraged. The degree of pollution due to petroleum exploitation , maritime transport and port activities should be accurately evaluated so as to better control it. At the same time , there must be collaboration with oil companies , maritime transport companies and port authorities to prevent oil slicks , better orient activities and follow up the application of measures agreed upon.



Distribution of the working population according to sector in the coastal areas

The reduction of urban pollution, oil stick control, the rational use of chemical inputs, the implementation of impact studies are NEMP's strategies for the protection of coastal and marine ecosystems

Years	Qty (10 ⁶ tonnes)
1980	1.886
1985	8.106
1986	7.816
1987	7.273
1988	7.621
1989	7.601
1990	7.267
1991	6.582
1992	5.361
1993	5.590

oil exports

Source : The World Bank (African Development Indicators. 1996)

Given the widespread use of phytosanitary products by agro-industrial companies situated in the coastal zone , it is indispensable to sensitize these companies about the need for a rational use of inputs. In this case , a list of the companies and their inputs should be drawn up. The evaluation of their impact will help establish a method of control in order to promote the use of alternative inputs such as organic manure or fertilising plants.

To ensure the enforcement of pollution - focused legislation , it is important to involve the populations , sensitise them on the subject , and set up a mechanism to control and sanction polluters. This requires the institution of control and training structures , and the setting up of programmes of control and structures to identify polluters. Finally , it will be necessary to set up a system of repression against polluters by the systematic application of the "polluter pays" principle.

It is equally important to take incentive measures to encourage the carrying out of development projects that are less damaging to the coastal environment. These measures may include:

- tax concessions for industries which make real efforts to protect the environment;
- reduction of taxes on the import or manufacture of anti-pollution products.

Lastly , the conduct of impact studies before carrying out any activity that could affect the coastal and aquatic environment should be made obligatory.

There is currently an unbridled exploitation of fishery resources. It is thus of paramount importance to develop strategies for their rational exploitation in order to ensure their sustainability for the sake of future generations.

Bodies of water	Area (Km ²)	Capacity (in tonnes)
Rivers	1,000	2,400
Yaeres and swamps	34,000	40,000
Natural lakes	1,800	4,500
Water retained in reservoir dams	2,800	19,040
Total on land	39,600	66,740

Continental production capacity of fishery resources

The strategies proposed concern resource evaluation , the creation of a management programme and measures to control exploitation , the development of more appropriate techniques and methods of exploitation , which will be popularized.

For lake and river ecosystems , traditional exploitation techniques for flood plains should be improved , and fishermen should be sensitized on the need to protect juvenile fish. Restocking of dam waters will help increase production. The development of inland fish farming constitutes insurance for the future because up until now, of an estimated potential of 20,000 t/yr , Cameroonian fisheries produce only 170 t/yr.

Emphasis should be placed on the protection of mangroves which are fragile ecosystems but whose biological and ecological roles are very important. They are spawning grounds for various kinds of fish. They also contain wood species which are widely exploited for various uses. It is therefore imperative to set standards for the exploitation of these mangroves , such as setting a minimum diameter for the trees to be felled , and prohibiting indiscriminate fishing and inappropriate fishing methods (use of explosives or toxic products to catch fish). Possibilities for the exploitation of new mangrove resources such as mangrove oysters should be examined.

Research must identify and evaluate the current methods and techniques of exploitation, ensure their popularization and propose improvements. In this case , training and support programmes for fishermen should be started. Improvement and enforcement of legislation will be more effective with the participation of local populations.

This can only be done through a sensitization of these populations on the importance of conserving and rationally exploiting fishery and coastal resources.

Losses after capture are estimated to be between 30% and 40% for small scale fishing , and 20% for industrial fishing , which results in a shortfall in revenues from fishing. Current processing and preservation methods do not guarantee the quality of the product.

Considering the inadequate valorisation of these fishery resources , it is important to give new impetus to research on the preservation of fishing products while updating current methods. This will help maintain or improve efficient methods of preservation and processing which can be passed on to the professionals in the sector.

The State should set up structures and take measures to foster the mobilisation of the private sector in order to promote and develop industries involved in the processing and preservation of fishery products. The scope of activities in this sector means that potential investors will require assistance to carry out feasibility studies.

It has also been observed that there are many unexploited resources. This is true for mangrove oysters and species that live in the rocky seabed around the Kribi-Campo region. To remedy this situation , a quality and quantity assessment is required. Appropriate methods of production , processing and preservation will be developed while taking into consideration the eating habits of the populations and potential consumers. **Programmes will be created to sensitize consumers on the new products and help traders and industrialists in the marketing of these products.**

The creation of an inter-institutional body to coordinate maritime resource promotion activities is a necessity. Indeed , several institutions are currently involved in the management of coastal areas and fisheries. They are regularly involved in conflicts of competence with other actors in the sector or related domains. There are no instruments enabling these institutions to work efficiently to solve the problems raised by the management of these ecosystems.

The following changes are required in maritime legislation in Cameroon:

- a law should be passed on industrial waste and pollution which will include risk-prevention mechanisms, financing, damage repair and compensation for victims as well as repression of delinquents. Such a law should also set scientific standards for the development and replenishment of resources as well as the creation of sites for the treatment of industrial waste;

The promotion of processing and preservation industries should help reduce losses and increase the added value of fishery products

The application of international legislation should strengthen the legal and institutional framework at the national level

DATE	Kind of accident	Pollution
17/12/1975	Collision	45 tonnes of oil lost
21/06/1979	Collision	Crude oil slick, quantity unknown

Source : UNEP

Oil pollution in Douala

- changes should be made in the instruments governing hydrocarbons , while maintaining the current approach of the law stipulating the basic principles on each topic , and the corresponding set of applicable regulations. A code of good conduct in environmental protection should be drawn up in concertation with oil companies;
- a comprehensive law should be drawn up to govern marine pollution. Such a law should give precise and distinct guidelines on the various kinds of pollution. It should include environmental quality control measures and fix the degree of unacceptable pollution. Lastly , it should institute an annual pollution tax which will be paid to the appropriate maritime institutions.

Cameroon has signed and ratified several conventions on the conservation and management of the maritime areas and river basins that it shares with neighbouring countries. These conventions are both regional and global , of which the most important are:

- The United Nations convention on the law of the sea (Montego Bay , 1982): it creates a new law for seas and oceans;
- The Navigation and Co-operation Act between countries of the Niger Basin (Niamey , 1963) and the convention creating the Niger Basin Authority (Faranah , 1980). This convention reaffirms the principle of freedom of navigation between the eight countries through which the river and its tributaries flow;
- The Convention on co-operation for the protection and promotion of maritime areas of the West and Central Africa regions and the Protocol on the fight against marine pollution in crisis situations (Abidjan 1981);
- The Convention and statutes governing the development of the Lake Chad Basin (1964) is a model of sub-regional co-operation between Cameroon , Niger , Nigeria and Chad. It aims at utilising the basin's resources for economic ends;
- The WACAF I and II projects on marine pollution and coastal erosion control in the countries of West and Central Africa;
- The GEF/UNIDO/NOAA project on marine pollution control in the Large Marine Eco-system (LME) of the Gulf of Guinea.

Within the framework of sub-regional co-operation, Cameroon participates in the implementation of inter-State strategies and actions on WACAF I and II, GEF-Gulf of Guinea, Lake Chad Basin, Niger Basin agreements, etc...

Investments

The following table gives the investments necessary for the application of strategies for a sustainable management of the sea coast and fishery resources, while taking into consideration the participation of the populations in regional programmes.

OBJECTIVES	Costs (in million CFA F)		
	Populations	Others	TOTAL
1. Coastal erosion control	10.00	329.20	339.20
2. Exploitation of fishery resources	230.92	6,472.69	6,703.61
3. Exploitation of maritime coastal resources	16.10	788.60	804.70
4. Control and reduction of various kinds of pollution	34.00	424.92	458.92
5. Valorization of fishery resources	64.40	542.10	606.50
6. Reinforcement of legislation and institutional capacities	18.00	659.98	677.98
TOTAL	373.42	9,217.49	9,590.91

RESOURCE MANAGEMENT

**Resource management covers the following sectors:
Energy , Mining , Natural Hazards and Water Resources.**

Cameroon has huge potentialities in surface and underground water resources, as well as in several renewable and non-renewable energy sources. It has considerable mineral, and smaller hydrocarbon resources in its sub-soil.

The problems in resource management are the inadequacy and irrationality of current methods of exploitation , which lead to insufficient revenue both for the State and the populations. Also, volcanic activity along the ‘‘Cameroon fault line’’ running from Mount Cameroon constitutes a permanent natural hazard.

In the fight against poverty, the sustainable development of resources is indispensable to guarantee present and future generations positive economic growth and pleasant living conditions

a) WATER RESOURCES

NAME	OBJECTIVES	COSTS (in thousand million CFA F)
MAPE dam	<ul style="list-style-type: none"> Regulation of flow of river Sanaga for hydroelectricity production Hydroelectricity production 	27.5
MAGA dam	<ul style="list-style-type: none"> Increase of rice yields (irrigated rice fields within the framework of SEMRY II - 6,000 ha) 	-
LAGDO dam	<ul style="list-style-type: none"> Hydroelectricity production Development of irrigation farming Development of inland fishing 	40
Yaounde horizon 2000 water supply project	<ul style="list-style-type: none"> Supply of drinkable water to the national capital, Yaounde 	60

Some major water utilization projects

The creation of a coordinated management framework for water resources will contribute to conflict resolution

Strategies aimed at a rational exploitation of water resources concern four major areas: knowledge of the potential, resource protection, rational use of infrastructures and the setting up of a coherent water resource management system.

A knowledge of the resource potential in surface and underground water would require capacity building in hydrogeological prospecting through the training of qualified personnel and the carrying out of adequate research programmes. This will facilitate the creation of reliable data banks and the evaluation of the potential.

The protection of water resources against pollution is a basic requirement for improving living conditions. It requires changing legislation to include protection standards and, where necessary, restrictive measures. It is also necessary to set up efficient quality control systems for water. This protection will be facilitated by increased sensitization of the populations through campaigns and measures enabling them to educate themselves.

The rational construction and use of water-works is aimed both at improving water supply and environmental protection. To this end, it is necessary to study their possible impact before construction, and where necessary, assess the impact of existing water-works. In both the short and medium terms, a maintenance and construction programme will be best suited to meet pressing needs. Thus, infrastructure to collect rainwater will be constructed. To avoid water loss due to misuse of infrastructures, their maintenance should be popularised through the training of personnel and the provision of spare parts.

Cameroon should try to resolve the conflicts in water resource utilization both at the local level and at the level of the various sectors of the nation's economy. This will be done through the setting up of an adequate management system which will take into account the various users, and the harmonization of institutional action. Hence the revival of the National Water Commission is imperative.

Legislation: The 1984 law on water management should be revised to include the relevant provisions on the preservation and conservation of resources.

Institutional capacities : At the practical level, institutions in charge of the management and valorisation of water resources should be given the necessary technical and financial resources to enable them to work efficiently. The final objective should be to provide an observatory comprising a technical unit for water quality control and operational monitoring brigades.

b) ENERGY RESOURCES : The major tasks revealed by studies carried out within the framework of the national energy policy and which will facilitate the rational management of energy resources are: the rational exploitation of biomass, the promotion of alternative energy sources, the optimal use of hydroelectricity and of petroleum products.

Considering the high demand for biomass , it is imperative to rationalize its use. This specifically implies a mastery of fuelwood needs. Wood resource regeneration programmes should therefore be implemented in the deficient areas of the North. Also, the promotion of improved stoves will help reduce fuelwood consumption.

Moreover , dependence on the biomass for energy should be reduced through the promotion of new and renewable alternative energy sources. To this end, measures must be taken to valorize hydroelectricity , solar energy , wind energy and geothermal energy.

Environmental protection necessitates the use of hydroelectricity as a source of long-term energy. Thus , rural and urban distribution networks should be densified while cutting network losses and providing quality voltage. Security must be guaranteed from production points right up to domestic outlets. Hence , rigorous supervision of domestic wiring is required.

The economic impact and the nature of non-renewable sources of energy from hydrocarbons require the taking of cost-reduction measures such as the use of cycles for urban services and the promotion of collective transport. For petroleum products , the safety of persons and property requires careful use that guards against pollution , fires and explosions. Thus the control of the motor-vehicle pool should be re-inforced to reduce pollution by exhaust fumes. Safety measures will require eliminating fraudulent mixing of fuels. To this effect , the fight against the storing of fuel and the illegal transportation and distribution of petroleum products should be intensified.

Legislation : A legal framework should be created to harmonize and coordinate the various branches of the sector. It must also take alternative sources of energy into consideration.

Institutional capacities : The supervision by MINMEE (Ministry of Mines , Water Resources and Energy) of State institutions involved in the management of petroleum products should be increased by clarifying relations between these government bodies and the Ministry in charge of Energy.

c) MINERAL RESOURCES

The rational exploitation of mineral resources is mainly concerned with determining the quality and volume of the mineral resource base, efficient control of mining , adoption of efficient exploitation methods and the creation of conditions favouring the development of mining activities.

The mastery of the mineral potential requires increased mineral and geological prospecting through the updating of the geological map and the popularisation of the “exploitation-prospecting” method. This will require improving the skills of personnel in prospecting in order to create a mineral data bank. Cameroon should therefore increase co-operation with international bodies and countries engaged in mining activities.

The rational use of biomass as a source of energy requires the use of appropriate methods and the promotion of alternative energy sources

The reinvestment of revenue from hydrocarbons, which are a non-renewable source of energy, should be geared towards energy strategies that will guarantee sustainable development

Ores	Quantity (million tonnes)
Iron	800
Bauxite	2,000
Rutile	3
Limestone	0.6
Marble	2.5
Cobalt/Nickel	2.5

Estimated mineral potential

The promotion of mining using incentive measures should attract foreign capital through industrial and semi-industrial exploitation of sub-soil resources

On August 21 1986, toxic gas emanations from Lake Nyos resulted in the tragic loss of 1,700 human lives and about 10,000 head of livestock

The efficient control of mining requires the respect of existing legislation through the improvement of the State's Supervisory capacities and a harmonisation of institutional action. This in turn requires a mobilisation of funds through the creation of financing mechanisms which would encourage private sector participation. Cameroon should set up a fund to help small-scale miners.

Apart from the efficient control of the mining network , *the adoption of efficient exploitation methods is essential for the rational use of resources* , which presupposes the development of appropriate methods and techniques. This option requires the training and further training of miners. To this end , Cameroon should institute experience exchange programmes which would ensure that technical know-how is maintained at a good level.

The mining industry development strategy must be defined in the medium and long run so as to increase production and the contribution of the mining sector to GDP while protecting the environment. To this end , studies on the impact of mining on the environment , including socio-cultural , biophysical and socio-economic parameters , should be systemized. At the legal level , the principle of liability for ecological damage should be incorporated into the relevant legislation. Also , social support for miners is an important factor in the development of mining activities. Thus , the improvement of socio-economic infrastructures , increasing access to and the development of existing and potential exploitation sites, are essential for the sustainable development of the mining sector.

Mining legislation should make the granting of mining licences and concessions dependent upon the carrying out of impact studies on the environment. For hydrocarbons , apart from drawing up a code of good conduct and adopting the principle of liability for ecological damage , more effective legislation should be enacted for the inspection of petroleum exploration and exploitation sites.

d) MANAGEMENT OF NATURAL HAZARDS

The efficient management of natural hazards requires the use of modern observation equipment , the taking of preventive measures , the information and sensitization of the populations on the hazards , and the setting up of management structures.

Cameroon should create an institutional and legal framework that promotes the implementation of natural risk prevention measures. Thus an analysis of the risk situation should be done in order to facilitate planning. This will require legislation on risks , and the improvement of response capacities , especially the creation of observatories. Also , research programmes on risks should be intensified.

The implementation of an information and sensitization programme for the populations is essential to change their behaviour vis-à-vis these hazards. Thus , participatory measures will be taken to improve the prevention of disasters and emergency responses.

The elaboration of coherent response plans at different levels will enable the effective coordination of action between the various actors, both national and international. This requires the training of relief workers.

INTERNATIONAL CONVENTIONS

As far as resource management is concerned , Cameroon is signatory to several international and regional conventions , including:

- The Lake Chad Basin Convention , which is made up of the agreement relative to the convention and instruments governing the developement of the Lake Chad Basin. It was signed on 22 May 1964 and amended in 1972. This agreement , primarily concerned with the use of the Basin's resources for economic ends has , since 1980 , incorporated ecological considerations. The Lake Chad Basin Commission (LCBC) is a forum where the rational use of water , land and other natural resources is discussed , as well as an ideal framework for the carrying out of regional projects.
- The African convention on the conservation of nature and natural resources , adopted in Algiers on September 15 , 1968 , and which came into force on June 16, 1969. Its main objective is to set standards for the conservation , use and development of soils , surface and underground water , etc. Cameroon signed the Convention immediately it was adopted , but it only became enforceable on 29 October 1978 , that is , one month after it was ratified.
- The Niger Basin conventional system is made up of the Niamey Act of 1963 relating to navigation and economic cooperation between countries of the Niger Basin, the Farranah Convention of 21 November 1980 to set up the Niger Basin Authority and the protocol on the Niger Basin Development Fund. These instruments aim at providing real efficiency to trans-border cooperation in the judicious use of resources of the basin.

Furthermore, Cameroon is expected to ratify all the international conventions on natural hazards.

During its 44th session in 1989, the UN General Assembly proclaimed the 90s the international decade for the reduction of the effects of natural disasters. The aim of this decade is to reduce, through concerted international action, the loss of life and property as well as social and economic disinte-gration due to natural disasters.

In May 1994, the World conference on the reduction of natural disasters held in Yokohama, Japan, and adopted strategies and a plan of action to prevent, fight against, and reduce damage sustained during natural disasters

Investments

The implementation of identified projects requires the mobilization of financial resources on the part of the State, local people and international cooperation. The necessary investments are tabulated below :

OBJECTIVES	Cost (in million CFA F)		
	Pop.	Others	TOTAL
- Protection of water resources	24.00	223.04	247.04
- Realization and rational utilization of water supply facilities	105.20	6,270.30	6,375.50
- Establishment of a framework for the coordinated management of water resources	336.38	6,226.30	6,562.68
TOTAL : WATER RESOURCE SECTOR	465.58	12,719.64	13,185.22
- Rational utilization of biomass	11.85	982.95	994.80
- Development of alternative energy sources	18.70	162.60	181.30
- Rational utilization of hydro electricity		1,830.00	1,830.00
TOTAL : ENERGY RESOURCE SECTOR	30.55	2,975.55	3,006.10
- Assessment of the mining potential		1,369.87	1,369.87
- Optimization of the mining sector		49.80	49.80
- Adoption of adequate exploitation techniques		621.21	621.21
TOTAL : MINERAL RESOURCE SECTOR		2,040.88	2,040.88
- Establishment of the legal and institutional framework		154.00	154.00
- Raising of the population's awareness of hazards		110.00	110.00
- Adoption of preventive measures		950.00	950.00
- Planning of response strategies		1,300.00	1,300.00
TOTAL: NATURAL HAZARDS SECTOR		2,514.00	2,514.00
GRAND TOTAL	495.13	20,250.07	20,746.20

VALORIZATION OF PRIMARY PRODUCTS

The valorization of primary products covers the following sectors of intervention :
industrial development and impact of infrastructures.

Cameroon has tremendous resource potentials in both its agro-sylvo-pastoral sector and its water, energy and mineral resources. *To valorize these resources, efficient and competitive industries and an infrastructural network are needed* whose design and realization incorporate the requirements related to environmental protection.

Yet, there is an evidently serious breakdown between the industrialization process on the one hand, and the equilibriums of the various ecosystems and of the urban environment on the other.

Inadequate industrial development is reflected in generalized poverty with all its attendant social ills (like prostitution, insecurity, housing crisis, communications crisis, difficult access to education and to the job market). It is what could, to use a fashionable expression, be called « pollution of poverty ».

Inappropriate industrial development on the other hand is responsible, among others, for environmental degradation owing to the non-optimal utilization of the primary products used as inputs for various industrial processes, which are themselves unsuitable. This state of affairs is exacerbated by adverse living conditions and a shortage of skilled human resources.

Furthermore, the infrastructures for communications, transportation of goods, and electricity distribution are not environmentally friendly.

At the institutional level, the policies and regulations governing industry and infrastructure do not take sufficient account of the major environmental stakes.

As part of environmental planning, policies and strategies were formulated to endow Cameroon with Ecologically Sustainable Industrial Development (ESID) and an ecologically acceptable infrastructural network which incorporates their environmental impact by reconciling social/economic development with the conservation of nature.

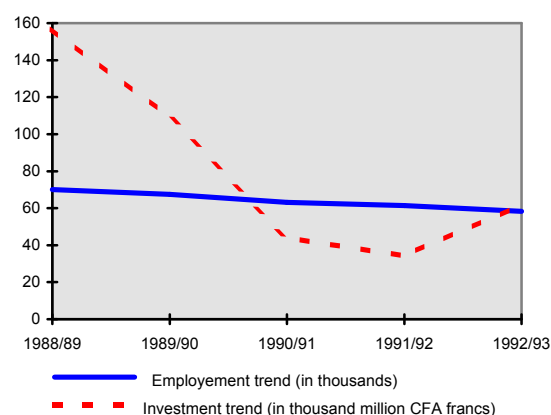
Cameroon materialized this concern by adhering on March 1964 to the Convention on Liability for Nuclear Damage, which became enforceable under Cameroon Law on 12 November 1977, and which could be used to draw up a comprehensive law on industrial hazards in Cameroon.

Thus, to rationalize the extraction of resources for use in industries, there is the urgent need to effectively apply an appropriate statutory framework including, in particular, the prescription of an assessment of the environmental impact of industry.

Besides, the laying down of national technical norms, the strengthening of qualitative and quantitative expertise and the monitoring of the strict application of regulations will enable the mastery of industrial pollution - a source of atmospheric, water and soil degradation.

"Sustainable development is a process of change whereby the exploitation of resources, the flow of investments and technical and institutional changes are in harmony and strength the present and future potential to satisfy men's wants"

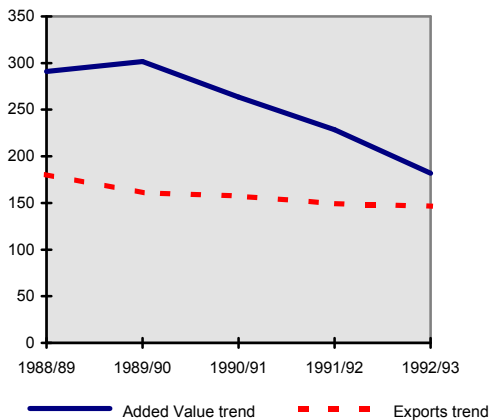
Source : Brundtland report



Employment and investment trends in industry from 1988/89 to 1992/93

Ecologically sustainable industrial and infrastructural development is expected to be the end result of the strategies implemented

To facilitate the financing of the setting up of « clean » industries, capital markets and, on a smaller scale, the mobilization of handy financial resources are going to be necessary.



Trends in Added Value and industrial Exports from 1988/89 to 1992/93 (in thousand million CFA francs)

The framework-Law of June 1996 on the environment in Cameroon stipulates the carrying out of impact studies in order to guarantee compliance with norms related to the setting up and operation of industrial plants and infrastructures

Ecologically sustainable industrial development requires, among other things, skilled human resources in sufficient numbers. This is why it is of capital importance to set up vocational training centres based on a more or less exhaustive evaluation of apprenticeship needs, the definition of adequate profiles, and an assessment of the inappropriateness between training, jobs and the spirit of innovation. Continuing and further training courses should make it possible to turn to « clean » technologies.

This industrial development objective requires favourable framework conditions, including an incentive policy for the development of small and medium-sized enterprises (SMEs) and industries (SMIs) which should then be given access to an adequate industrial information system, and to foreign capital and technological investments.

The economic spinoffs of this process will be measured in the increase of added value of primary products. Hence, the necessity to valorize industrial wastes through appropriate processes. The valorization of agricultural and timber by-products, the setting-up of processing industries and the reorganization of existing industries are some of the important activities expected to be undertaken.

At the level of the infrastructure that should go with and support industrialization, ***the procedures relating to the drawing up of impact surveys will be respected.*** For this, the parties concerned should be sensitized on the interest of environment protection. In the analysis of alternative projects, special attention will be given to possibilities for the multiple uses of infrastructure.. The institution of a training programme on impact studies is an objective to be achieved in order to perpetuate this crucial aspect of environmental protection.

Once the facility has been installed, special attention must be paid to its use. If it relates to water (dams, ports, irrigation and drainage canals), it is advisable to set up response mechanisms in case of flooding, to regulate the flow of water according to the needs of the people concerned, and lay down erosion control measures.

Apart from the above-mentioned activities, the implementation of preventive and curative health measures and the monitoring of the execution of measures on the supervision of the functioning of the infrastructure must all be ensured.

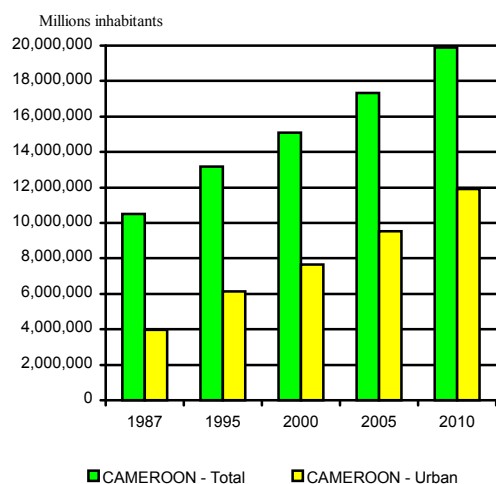
In the case of transport infrastructures, the institution of measures to protect the riparian populations is recommended. Measures conducive to the compulsory technical servicing of motor vehicles as well as the disposal of solid waste are without doubt a significant step in the laying down of regulations aimed at curbing pollution and other damage connected with transport infrastructure.

Investments

The carrying out of identified ecologically sustainable industrial development projects (in both industry and infrastructure) requires the mobilization of financial resources on the part of the State, international cooperation and the private sector. These capital investments will in particular make it possible to take environmental exigencies into account.

OBJECTIVES	Cost (in million CFA F)		
	POP	Others	TOTAL
A. ECOLOGICALLY SUSTAINABLE INDUSTRIAL DEVELOPMENT			
– Rationalized extraction of resources for industrial use		270.00	270.00
– Mastery of industrial pollution		49.00	49.00
– Availability of skilled human resources in sufficient numbers		85.00	85.00
– Institution of conducive framework conditions		99.00	99.00
– Increase of Added value of primary products		110.00	110.00
TOTAL : ECOLOGICALLY SUSTAINABLE INDUSTRIAL DEVELOPMENT		613.00	613.00
B. IMPACT OF INFRASTRUCTURE			
– Reduction of constraints related to the setting up of plants		3,690.50	3,690.50
– Evaluation and incorporation of infrastructural impact on the environment		225.00	225.00
– Reduction of constraints related to the utilization of hydraulic plants		PM	PM
– Reduction of constraints related to the use of transport infrastructure		165.00	165.00
TOTAL : IMPACT OF INFRASTRUCTURE		4,080.50	4,080.50
OVERALL TOTAL A + B		4,693.00	4,693.00

THE URBAN ENVIRONMENT



Urban population trends in Cameroon

Measures envisaged should be backed by a real will to mobilize the financial resources needed to build the capacity of urban councils to carry out urban management at the technical as well as logistic levels

Cameroon's urban centres are experiencing the high population densities that are characteristic of rapid urban population growth. In 1987, the urban population already represented 37.82% (3,968,919 inhabitants) of Cameroon's total population (10,496,655 inhabitants). Various simulations of population growth indicated that this proportion would climb to around 46.6% in 1995, pass the 50% mark by the year 2000, and reach 68% by 2020, representing roughly 71.5 million inhabitants. Cameroon's two large cities -Douala and Yaounde- whose urban population figures had already crossed the million mark in 1995, will each attain three million by the year 2020.

Cameroon's urban framework, apart from Douala and Yaounde, will then comprise 4 towns with 500,000 to 800,000 inhabitants ; 9 towns with 200,000 to 500,000 inhabitants; 20 towns with 100,000 to 200,000 inhabitants, and some twenty towns with 50,000 to 100,000. This represents a total of 55 towns with over 50,000 inhabitants by the year 2020, as against 20 towns in 1995.

This growth in the urban population is coming at a time of economic crisis when urban councils are virtually unable to master the spatial development of towns and to effectively carry out the missions assigned to them by the institutional framework. Consequently, structural multidimensional imbalances are discernible in urban centres, and are reflected in the unplanned occupation of urban land, the proliferation of slums, the chaotic installation of community facilities, urban insalubrity, the consumption of contaminated water, industrial and small-scale pollution and sundry nuisances. The most striking and preoccupying aspect is the piling up of garbage whose average production volume varies between 0.4 kg/inhabitant/day in secondary towns and 0.8 in Douala and Yaounde.

In the face of the need to conserve the urban environment towards sustainable development and towards improving living conditions in urban areas, a number of strategies have been envisaged.

- ***mastery of urban land occupancy*** : this is the base and place where all urban activities are carried out. It conditions the diversity, functionality and harmony of the urban environment. As such, the main priority will be to build the management capacity of urban councils. Land occupancy plans specifically indicating zones for industrial activities and residential areas according to their standing will be drawn up ;
- ***implementation of the reform of State and other land regulations*** not only to address the needs of city dwellers who aspire to acquiring landed property but also and especially to ensure land security through a fluid real estate market which is an essential condition for an optimal management of urban space ;
- ***the establishing of a coordination structure*** for urban projects to ensure proper collaboration between the people concerned on the one hand, and greater technical coordination at the level of urban development strategies on the other ;

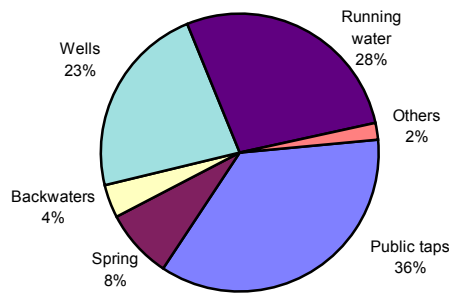
- ***the enhancement of housing conditions*** requires on the one hand, the reorganization of unplanned urban districts with a view to regulating land occupancy rights and development and, on the other hand, the development of resettlement zones so as to prevent the sprouting of new zones of spontaneous housing. In the same vein, the number of low-cost developed plots of land needs to be increased and, especially, the necessary actions for the setting up of land reserves initiated to cater to future needs. Parallel to these curative and preventive measures, the reorganization of the modern urban housing production sector will make it possible to reconstitute a new sector which might yield cheap and well arranged lots. Thus, the missions of the relevant bodies -the Cameroon Real Estate Corporation (SIC), the Urban and Rural Land Development and Equipment Authority (MAETUR) and the Housing Loans Fund (Crédit Foncier)- and social housing norms will be defined while taking account, on the one hand, of the present economic context marked by the State's disengagement from social housing operations and, on the other, of the urgent need to harmonize construction norms in a sector where competition should be carried out normally and in the interest of city dwellers worried about the quality and cost of the products on the market ;
- ***the development and rational installation of community facilities*** (including markets, town greens, botanic gardens and leisure parks) and other infrastructure of public interest (including bus stations and cemeteries) contribute to the mastery of urban space occupancy. Meanwhile, special attention ought to be given to qualitative and quantitative planning so as to realize installations which are suited to local customs and to forestall their unplanned development. Furthermore, markets/bus stations as well as conducive areas for the growth of informal sector activities will all be developed ;
- ***the popularization of forest farming through the planting of trees in deforested outskirt zones and green belts around towns*** will, at the same time, preserve the forest in peri-urban zones, check the expansion of the urban perimeter and reoxygenate the urban environment. Furthermore, the regulation of quarrying and zones with borrow pits for laterite and other materials intended for public or private projects will help to prevent urban environmental degradation ;

The sanitation of the urban environment concerns not only the water cycle but also the cycles of solid waste in general and garbage in particular. The point at issue is to reabsorb in real time, the adverse effects of these cycles which are essential to urban life, and to safeguard the proper hygiene and good health of urban dwellers, and especially the beauty of towns. To ensure these, the following measures are envisaged :

- ***the strengthening of pre-collection, collection and transportation structures, and the development of dumping sites and points ;***

The development of the low-cost housing/local materials sector is an indispensable base for enhancing housing conditions. Meanwhile, to ensure the effectiveness of planned measures, private savings need to be mobilized to finance housing projects

With regard to the observance of rules on hygiene and cleanliness, the attitude of the public deserves special attention. Apart from educating and sensitizing the masses, public toilets should be constructed, public hygiene controls reinstituted, and appropriate sanctions enforced



Distribution (in percent) of urban households according to the water supply method in 1987

Urban sanitation activities involve the creation of new jobs, and thus constitute an important source of income

- *the popularization of recycling techniques* and compost-building from household refuse as well as the promotion of the reclaiming of non-degradable wastes such as metals, will help to reduce the effects which are inherent in their piling up in urban areas. Generally, the regulations governing solid wastes will have to be strengthened ;
- *sewerage systems*, be they collective or individual, require regular maintenance of the existing network, the building of water recycling stations, the regulation of the activities of sewerage companies, the development of natural recycling techniques, the modernization and popularization of techniques to build latrines, septic tanks and cesspools ;
- *the proper draining of rainwater* requires not only the enhancement and protection of the natural drainage system so as to prevent the stagnation of rain water in particular, but also the development of secondary and tertiary systems along urban highways. Furthermore, to ensure the effectiveness of these measures, the existing systems must be rehabilitated and serviced regularly ;
- *the supply of potable water to the urban populations* is a fundamental necessity in that it prevents them from consuming polluted water, thus safeguarding their health. Water supply being generally inadequate, however, it would first of all be necessary to increase accessibility to the potable water supply network, which will involve technical measures to extend, rehabilitate and maintain the existing network, and financial measures to ease the terms of acceding to the distribution network.

Apart from the considerable increase in the number of public taps, it will also be necessary to develop the other sources of drinking water, popularize techniques in the building of wells and take necessary measures to protect ground water in order to forestall the risk of pollution through contamination and the infiltration of sewage and other toxic wastes. Alongside these measures intended to step up the potable water coverage rate, the control of drinking water quality needs to be tightened so as to improve the populations health.

The development and tremendous growth of economic activities in general and of industrial and artisanal activities in particular could have disastrous effects on the urban population. Consequently, the curbing of pollution and other nuisances, particularly the elimination of effluents that are harmful to man, animals and plants, will help to improve living conditions in urban areas. In this light, it will be necessary to implement tighter measures to curb nuisances connected with smoke, noise, exhaust fumes from vehicles, stray animals and the movement of walking herds in urban areas, among others. It will also be necessary to develop the low-pollution crafts by sensitizing and training craftsmen and giving them logistic assistance towards acquiring suitable working materials. Measures to reduce the incidence of industrial pollution on urban dwellers will also be taken, while specific laws on gas emissions into the atmosphere and the treatment of effluents prior to disposal will be enacted.

The success of the envisaged urban projects such as the clearing of slums, resettlement, land development or maintenance work requires the populations' support so as to avoid social tensions and the risk of conflict with public authorities. In this light, the causes of the non-participation of the population should first be identified and appropriate modes suggested. Next, local environmental management committees should be encouraged and assistance given them in carrying out environmental protection activities, especially those that generate revenue and foster their endogenous functioning. Special attention should be paid to the participation of women and opinion leaders in sensitization and other standard programmes.

The dynamism of the populations must be put to good account so as to ensure the sound management of the urban environment

Investments

The total cost of identified projects whose implementation will concretize the proposed urban environment strategies is presented below and broken down according to groups of strategies : the population's financial support has also been taken into account.

OBJECTIVES	Cost (in million CFA F)			
	POP	Others	TOTAL	%
Mastery or urban space occupancy	75.31	7,193.11	7,268.41	25.87
Sanitation of the urban environment	288.19	9,937.75	10,225.94	36.39
Reinforcement of potable water supply	43.85	2,256.95	2,300.80	8.19
Curbing of pollution and other nuisances	50.70	7,039.28	7,089.98	25.23
People participation in environmental management	21.10	1,192.23	1,213.33	4.32
SECTOR TOTAL	479.15	27,619.32	28,098.47	100

RESEARCH, INFORMATION, SENSITIZATION

This section covers the following intervention sectors : Environmental Awareness and Education, Training, Research and Information and the Building of Institutional Capacities.

Avoiding uncertainty requires the formulation of a research programme that would lift the veil over the complexity of the environment which has an almost infinite number of internal bonds. Indeed, human interventions therein have long-term effects which are difficult to predict and slow in becoming apparent. If well-directed, this research makes it possible to have data which is an invaluable ingredient for sustainable development.

The concern of Research, Information and Sensitization is to strengthen measures and actions for the protection and sustainable management of the environment

The scientific and technical research policy is directed towards the execution of programmes which enable the attaining of the global objectives outlined in the "Structural Adjustment Plan" (SAP)

The Regional Project for Environmental Information Management (PRGIE), which is financed by the World Bank to the tune of 11 million US dollars, and the sustainable Development Network (SDN) Programme, financed on UNDP-Capacity 21 funds for an amount of 350,000 US dollars, are concrete examples of strategic measures through environmental information exchanges at the sub-regional and international levels

Their reliability makes the economic analysis of environmental problems and the implementation of subsequent policies very easy. This is only effective when, at the most elementary level that is the nuclear family, people are informed and have an awareness of environmental issues. Such people will thus be more ready to accept certain particular decisions emanating from public or private local institutions. The concept of sustainable development and the strategies and resources implemented to carry it through are the subject of long and serious discussions which are still going on across the world. Besides, material wealth would cease to be an accurate measure of development if the human potential is not fully development through research, information, sensitization and the building of institutional capacities.

In Cameroon, it is unfortunate to note that *data from research activities carried out in specialized institutes and universities are not fully exploited* because there is no correlation between the goals of the selected research programmes and environmental concerns. One of the major consequences of research deficiency is the lack of reliable facts on environmental management. The existing statistics are treated haphazardly and access to them is extremely complicated for want of an environmental data bank. Apart from the points raised above, the masses are not sufficiently involved in environmental protection, most often through ignorance.

In the case of research measures will be taken such that results are geared towards the needs in the domain of environmental protection and resources valorization.

For this, it is necessary to outline suitable research programmes which should be provided with the adequate resources necessary for their implementation and should benefit from the setting up of prototype development structures for a greater valorization of the results obtained.

Indeed, as far as the environment is concerned, communication is deficient because of the absence of an adequate information system. The current media devote little effort and interest in awareness building for better environmental management among the populations. Information and awareness-building are crucial elements for sustainable development.

It can be further observed that the institutions which are supposed to support any decision on the environment have insufficient intervention capacities, particularly because of the weakness of farmer organizations as far as land management is concerned, inadequacies in the planning and coordination of environment-related actions, and the weakness of legislation.

Information activities are still dominated by public organizations. Although there are a few private newspapers, the liberalization of the audio-visual sector is still not effective. A readjustment of the information policy in Cameroon has been expected ever since the « National Forum on Communication » was held.

Furthermore, environmental information should be made available at all levels (decision-makers/users). In this way, the establishment of an information system that addresses the needs of both users and decision-makers is a significant activity. And beyond, *information exchanges at the national, regional and international levels will be strengthened.*

To raise funds in all cases, it will be very helpful to valorize the products of the information system through duly identified and studied marketing channels. Scientific conferences and seminars on the environment will also be encouraged by making adequate logistic resources available.

The NEMP analyses reveal that the populations have not been sufficiently sensitized on environmental protection. This is reflected in the uncontrolled dumping of refuse, poor use of phytosanitary products and building of latrines on piles over backwaters, among others. Their sensitization and education depends on the adoption of a strategy which aims at progressively changing a situation by sequentially modifying knowledge first, then opinions and, lastly, behaviour. The strategy makes use of the media and communication networks to promote environmental education and awareness-building.

It is in this light that the programme envisages ecological hiking, clean-up operations and tree-planting activities, among others. The environment is a major stake for all : all the segments of the population need to be prompted to participate in the process of environmental management.

Awareness-building campaigns must ensure that this message is shared on a wide scale, and that it prompts adherence and participation in the programme. The programme will consider the environment as a system of wealth-creating resources and not as a system of constraints and sacrifices. It will therefore be a question of breaking down the resistance of the socio-cultural milieu to the optimal protection and management of the environment.

To ensure the success of the awareness-building programme, opinion leaders have to be involved in the coordination process which should enable the people themselves to tackle their own problems by the expression of their needs. They will be helped in the search for solutions to their problems.

To ensure the change of behaviour, it will be necessary to encourage private initiatives which aim at protecting and enhancing the environment and to support new modes of exploiting the environment. Participation must thus be fostered in micro-projects which offer reliable alternatives through environmentally friendly eco-development projects.

The incorporation of environmental concerns at all levels of the educational system-primary, secondary and higher-and in associations/grassroots programmes aims at optimal environmental protection and management through educative programmes. Activities which develop the sense of curiosity and sensitivity of youths with regard to the environment will be initiated : field trips into nature ; rearing of animals and visits to farms and botanic or zoological gardens, among others. Improving the environmental knowledge of trainers will ensure the effectiveness of environmental education. Seminars for the training of trainers could be organized. Education on environmental issues should also involve parents for they are one of the priority communication target groups considering the many roles that they are called upon to play in education and awareness-building.

Awareness-building consists in building a sense of eco-citizenship by stimulating a love for the environment among all segments of the population

Opinion leaders should be the first to convince themselves that "Nature is our home : it should be beautiful and sustainable"

The sustainable management of rural lands requires the strengthening of the capacities of rural associations in the fields of management and organization

A significant attendant measure will be the implementation of the new framework-Law of June 1996 and the sectorial instruments adapted to environmental requirements

In Cameroon, the intervention capacities of institutions are inadequate as far as environmental management and resource valorization are concerned. This inadequacy arises from the weakness of farmers' organizations and the relevant legislation. It therefore appears to be necessary to strengthen the capacities of these institutions as far as the environment is concerned. It would essentially involve the human resources in rural areas, the improvement or strengthening of the Government services and, lastly, the adoption of appropriate legislation.

The populations will be sensitized on the importance of sustainable resource management. Thus it is crucial to assist them in setting up and organizing land management committees, in defining guidelines and priority activities, and in drawing up management plans. Rural farmers shall be trained in the identification of degradation symptoms and in the techniques and methods of executing and monitoring land management plans.

Rational land management essentially concerns community lands and therefore requires the implementation of control and supervisory mechanisms to ensure that operations are carried out in accordance with the requirements of sustainable environmental management. This can only be consistently carried out by the administration which, to be operational and efficient, must be strengthened : its services, especially, need to be improved. To do this, *the capacities of institutions need to be strengthened in the area of planning* ; the people concerned in the management of activities need to be assisted and a system of organizational development needs to be instituted.

The planning of activities is a complex process. Thus, *structures need to be set up which are specialized in the inventory of the basic resources so as to produce the data necessary for the planning of production activities.* This planning will only be efficient when it culminates in activities whose rational management works towards the improvement and sustainable exploitation of resources. A suitable organizational and human resource development system will be instituted. For this, the structures concerned must be initiated into situational analysis.

Lastly, monitoring and evaluation enable sustained control and adaptation of the duties of organizational bodies to their environment in general, and to the progress of activities in particular. An efficient mechanism for coordinating the various bodies will make it possible to avoid conflicts of competence which are detrimental to the smooth conduct of activities.

Investments

The implementation of identified projects demands the mobilization of financial resources on the part of the State, and the international community. Estimates of these investments are tabulated below.

OBJECTIVES	Cost (in million CFA F)		
	Pop.	Others	TOTAL
A) Training, Research, Information			
- Acquisition of skills in environmental management		1,191.00	1,191.00
- Gearing of research results towards environmental protection and resource valorization		12,474.30	12,474.30
- Placing of information on the environment at the disposal of decision-makers and users		279.00	279.00
TOTAL A		13,944.30	13,944.30
B) Sensitization			
- Acquisition of knowledge on optimal environmental protection and management through educative programmes			
- Acquisition of attitudes proper to environmental protection		434.50	434.50
- Implementation of ecologically sustainable forms of investment and resource exploitation thanks to new attitudes		1,454.50	1,454.50
TOTAL B		1,889.00	1,889.00
C) Strengthening of institutional capacities			
- Management of land resources	351.21	10,961.00	11,312.22
- Optimal projections of the Administration with regard to the management of execution	283.07	7,903.68	8,186.74
- Implementation of suitable legislation	172.00	1,976.11	2,148.10
TOTAL C	806.28	20,840.78	21,647.06
TOTAL A + B + C	806.28	36,674.08	37,480.36