

The Integration of Biodiversity into National Environmental Assessment Procedures

National Case Studies

Cameroon

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3 CAMEROON

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2.1 List of Abbreviations

ACP: Africa Caribbean Pacific
BIP: Budget of Public Investment
CDB: Convention on Biological Diversity
E.E: Environmental Evaluation
E.E.S: Study of Environmental Impact
F CFA: Franc of the Financial Community of Africa
GEF: Global Environmental Facility
PAFN: Plan of National on National Forestry
PNGE: National Programme on the Management of the Environment
UNDP: United National Development Programme
UNEP: United Nations Environmental Programme
MINEF: Minister of Environment and of Forests
MINTP: Minister of Public Works
DRC: Democratic Republic of Congo
SEE: System of Environmental Evaluation
NBSAP: National Biological Strategy and Action Plan

2.2 Introduction

In a political situation where the main preoccupation is to satisfy the material consumption needs of the population, it remains difficult to assure the continuity of national resources or to provide for protection of nature.

The Convention of Biological Diversity has identified the need for Parties to integrate biodiversity with other sectors of the economy and civil society. Given that EIA is the only instrument available to ensure that consideration is accorded to environmental aspects in economic development plans, it is important that EIA should fully incorporate biodiversity considerations, to ensure that natural resources are taken into account in the development process.

2.2.1 Location of Cameroon

Cameroon has an area of 475440 km². It is situated between 1°40' and 13°5' latitude North and 8°30' and 16°10' longitude East. The country is located in the heart of Africa near the Equator, in the Basin of Congo. It has a diversity of landscapes, geo-morphological zones and climatic conditions that offer a wide range of natural conditions and support a rich biodiversity.

2.2.2 Principle ecosystems

Ecosystems vary regionally according to phytogeographical and climatic conditions. Six ecosystems can be distinguished in Cameroon:

- maritime and coastal
- dense, humid tropical forest
- woody savannah/shrub
- semi-arid savannah
- aquatic
- mountainous/alpine

2.3 Biodiversity status

Based on available data, the importance of Cameroon's biodiversity is remarkable: it is ranked No 4 in Africa after the Democratic Republic of Congo Tanzania and Madagascar.

2.3.1 The Continental Flora

9000 plant species from an estimated total of 12000 have been identified. These include about 400 woody species of which about a hundred are used commercially. Inventory suggests that of 22 million ha of national forests, there are in the region of 14 million ha of dense forest. There is a potential yield of about 4.165 billion m³ of usable timber: a volume which can be multiplied by 4, if wood for pulping and energy is taken into account.

This potential for exploiting wood has increased to 750 million m³ a year. Other forest plants and products with economic value have not been completely inventoried. They include:

- medicinal plants such as *Pygeum africanum* and *Piper guineensis*
- service plants: *Gnetum africanum*, rotin.
- barks, fruits, roots, spices, fibres etc...

Mangroves, which form a belt of maritime and coastal ecosystems spread out over 243 km² and shelter 350 species of lianas, 15 species of mosses and 8 species of ferns.

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2.3.2 Maritime and coastal biodiversity

Of particular importance is the aquatic fauna which includes up to 542 species of fish, many species of crustaceans, some mammals and a great many species of plankton. The marine flora, although important, has not yet been taken into account or inventoried thoroughly.

2.3.3 Fresh water biodiversity

Cameroon's freshwater ecosystems cover 3960 km² and support 354 species of fish, of which 115 are endemic.

2.3.4 Terrestrial fauna

The diversity of the Cameroonian fauna is impressive. There are:

- ❑ 409 species of fauna of which 11 are endemic and 27 threatened
- ❑ 1000 species of mammals of which 11 are endemic and 27 threatened
- ❑ 183 species of birds of which 25 endemical. 47 threatened and 1 extinct
- ❑ 85 species of snakes
- ❑ 190 species of batrachians of which 1 is threatened
- ❑ 1110 species of insects
- ❑ 1050 species of butterflies

2.3.5 Agricultural biodiversity

Cameroonian agricultural products include:

- ❑ cereals: maize, Sorghum, millet, rice
- ❑ tubers such as cassava, sweet potatoes, chinese yams and potatoes
- ❑ vegetables: groundnuts, beans, peas
- ❑ bananas: banana and plantain bananas
- ❑ other fruits: citrus fruits. mangoes and pineapples
- ❑ cash crops including cocoa, coffee, tea, cotton, rubber plants, Palms for palm oil

Livestock breeding programmes focus on beef, mutton, goat, pork and chicken.

2.3.6 Microbial biodiversity

More than 300 species of fungi and bacteria are now listed and their role is recognized in agriculture, forestry, health and industry.

2.3.7 Threats to conservation

Until recently, Cameroonians have lived as part of the natural environment, which they modified more or less over the course of years to feed themselves or construct their own houses, using the rich biodiversity resources available to them. Demographic pressure and the associated development have provoked an irreversible degradation of ecosystems. The degree of utilization has varied according to social factors, but it is clear that natural ecosystems have become profoundly degraded in many regions of the country.

Deforestation caused by industrial exploitation of the forests, urbanization or other development projects cause irreversible modifications to the original biodiversity of ecosystems. Inappropriate cultural systems, such as shift and burn agriculture compromise biological cycles and the ability of ecosystems to recover. Over-grazing, harvesting of brushwood, poaching and water pollution constitute some serious threats to the stability of biodiversity in Cameroon.

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Anthropogenic threats to biodiversity have been compounded by natural disasters, such as the advance of desertification caused by rain shortage, other climatic perturbations or disturbances, pest outbreaks (eg locusts) and disease epidemics.

2.4 National biodiversity strategy

2.4.1 The historic situation

The importance accorded by the Cameroonian authorities to the conservation of biological resources goes back to the dawn of the country's independence. Before 1960, there already existed a law on the management of forests and wildlife which inspired western laws at that time, and defined politics of national exploitation of the natural heritage.

The socio-political changes which followed brought about some modifications to the management of biodiversity due to the need to adapt to a new context and to find a universal solution.

The most important factor in this evolution was the creation in April 1992 of the Ministry of the Environment and of Forests, an institutional base for a strategic orientation towards protection of the environment and the sustainable development of natural resources.

Other signs signalling this politics of Conservation are:

- The Law 94/01 of 20 January 1994 setting out the Law of Forests, Wildlife and Fishing and the associated decrees 95/531 (Forests), 95/466 (Fauna), and 95/413 (Fishing)
- The Law 96/12 of 5 August 1996 containing the relative framework law for the Management of the Environment.

The governmental philosophy is to develop the economic, social and ecological functions of biodiversity in a framework of integrated and participatory management, which assures in a supportive and sustainable way the conservation and utilization of natural resources and ecosystems.

Far from the process of implementation of a Management framework for environmental resources, two important programmes have been implemented by MINEF relating to matters of Conservation of Biodiversity:

- The PAFN adopted in 1995 has retained among its main aims the conservation and value of biodiversity. It is underlined here that having taken into account the wealth that Cameroon possesses due to its geographical and climatic variability, its biodiversity should be protected and valued thanks to a well and appropriately protected area- network
- The PNGE approved in 1996, also affirmed the need to focus attention on the problems of management of Biodiversity, notably in recommending the conservation of biodiversity, the national exploitation of forests and the management of the maritime coasts, a sustainable exploitation of halituous resources and a valuation of its fishing products.

2.4.2 Adherence to the Convention on Biodiversity

On the 14th June 1992, Cameroon signed the Convention on Biological Diversity. On the 19th October 1994 it became a Contracting Party. As a consequence, and following the clauses of this agreement, the government declared itself responsible for the

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conservation of national biodiversity and gave an undertaking to take measures to avoid the over-exploitation of natural resources and to ensure their sustainable use.

Cameroon, like the other Contracting Parties, is convinced of the necessity to install the strategies needed to struggle against the loss of biological diversity. One of the first recommendations of the CBD is that Contracting Parties should elaborate their strategies, plans and national programmes with a view to assuring the conservation and sustainable use of biological diversity.

2.4.3 National Biodiversity Strategy

The political situation for management of biodiversity in Cameroon presents major opportunities. Between 1992 and 1996 Cameroon endowed itself with a whole group of judicial, political and institutional instruments which are intended to ensure conservation of biological resources.

National planning activities related to the evaluation and the management of biodiversity take the form of:

- Two fundamental laws (forestry Law and framework Law on the Environment)
- two programmes (PAFN, PNGE)
- sectoral strategies (agriculture, fishing, water)

All that remains is to integrate all the information for the formulation of a national strategy and an action plan. In order to do this the Government created a National Committee on Biological Diversity in 1997, with a mission of elaborating a National Strategy and Action Plan on biodiversity. This Committee, under the title of MINEF, is composed of diverse competent experts involved in the management of biological resources: agronomists, foresters, wildlife experts, fishing specialists, botanists, lawyers and politicians.

Since it was established, the committee has examined all the existing information, notably the problems raised by the PNGE in matters of the management of biodiversity. The ultimate aim is to produce a strategy for the sustainable use of biological resources in Cameroon.

The document has not yet been officially validated, therefore it is not possible for us to divulge the contents. Nevertheless, we can review the process followed so far:

- The different sectors and elements of national biodiversity have been identified and classified as: forestry, agriculture, aquaculture and wildlife. The data were then regrouped according to the different ecosystems.
- The group of experts examined the composition and status of biodiversity in each sector with the goal of making a monograph for the whole country.
- For every ecosystem and given sector, strategies were proposed and corresponding actions suggested.
- For every action, key actors and responsibilities were identified.

To further elaborate the concepts outlined in the draft, public consultation was carried out using seminars open to all key stakeholders concerned with the conservation and sustainable use of biodiversity.

2.4.4 The current situation

The NBSAP of Cameroon should have already been adopted and validated because it was originally forecast for completion by June 1998. The draft elaborated by the national

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committee of Biodiversity is already completed and awaits official validation. The overall objectives of the NBSAP are conservation and sustainable use of biodiversity and the sharing of its benefits. The experts who elaborated the strategy made reference to the programmes and past action plans to ensure that the management of our Biodiversity would be executed following the appropriate strategies.

In the forestry sector:

- ❑ the zonal plan adopted in 1994 established the distribution of land uses for sustainable management
- ❑ the national forestry action plan of 1995 provides a code regulating the exploitation of timber resources,
- ❑ the National Programme of the Management of the Environment of 1996 protects biodiversity and natural ecosystems.

In the agricultural sector, the actual strategies concern:

- ❑ Biosafety (Decree of 1990)
- ❑ the regulation of pesticides, environmental protection, the regulation of the knowledge of plants (Decree 1992) and of national plans for food security like the SNAR (National System of Quick Alert) which intervenes in cases of threat of famine.

In the Fishing and aquaculture sector there also exist policies related to the management of biodiversity:

- ❑ the regulation on the movement of troops for controlling certain crossings and avoiding contagious diseases (1974, 1976, 1984)
- ❑ mastery of the biology of fishes
- ❑ environmental follow-up of the effects of pollution (Law of 1994)
- ❑ campaign against certain techniques of fishing (Law 1994).

Briefly, although official validation is awaited, in effect the national strategy on biodiversity is already operational.

2.4.5 Progress in implementing the NBSAP

The NBSAP has been delayed for a number of reasons. These include:

New attribution of responsibilities

The final validation of the National Strategy on Biodiversity is under consideration by the Government who will determine the form of adoption of the document: by law, Decree, Plan, etc .

In order to get to that stage, some steps remain to be taken, notably the review and the formulation of a final version according to the authoritative techniques of MINEF and of the Prime Minister. But the reasons for the delay lie elsewhere.

In June 1998, the national co-ordinator of the NBSAP project assumed his right to retire. While the provisional draft is already ready, the retirement of the co-ordinator brought about a premature halt to the process. At the end of December the same year, the assignment of responsibilities to the Permanent Secretary of the Environment was followed by the nomination of a new co-ordinator of the project NBSAP, who is also the Chief of Division in the Permanent Secretary's office. But after 3 months the GEF project on the Biodiversity of Cameroon became by Ministerial Decree the 'Programme of Conservation and of Management of Biodiversity of Cameroon' with adoption of the National Strategy of Biodiversity among its statutory responsibilities.

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Whereas all of its transfers should have contributed to the acceleration of the process of the implementation of the NBSAP, the contrary has happened. Because until now the new co-ordinator of the committee has not yet revived the activities he inherited from his predecessor.

Financial constraints

In the beginning financed by UNEP, the project NBSAP of Cameroon found itself suddenly in the course of judicial liquidation of its resources, of the agricultural ex-credit of Cameroon since 1997. They estimate the blocked funds in this deported bank in the committee's account of Biological Diversity to be 30 million FCFA.

The financial backers of the funds (World Bank, UNEP) are hesitating to grant new financing at the moment. Even the Programme of the Conservation and Management of Biodiversity could not foresee the support in its budget of 2000.

Constraints in the application

Other constraints include:-

- ❑ inadequacy of follow-up and of control of prescriptions programmed;
- ❑ slow administrative procedures which sometimes do not take account of the time requirements (for example to ensure that surveys are carried out at an appropriate time);
- ❑ lack of awareness amongst local populations and difficulties in understanding messages about conservation which excludes them as stakeholders;
- ❑ the participatory approach has not yet started to yield fruits;
- ❑ the absence of motivation from principal actors and of agents charged with the protection of resources brings about measures contrary to the interests of conservation of biodiversity.

2.4.6 Principal objectives of the NBSAP

The different strategies are not based on management of biodiversity and do not contain models for plans which have rigour and clear objectives. The PAFN that regulates forestry politics has, as a principal objective the sustainable management of forests and the integration of methods of agroforestry. As for zonal plans, these aim for a distribution of land with a view to sustainable land-use. The major objective of PAGN is the protection of all environmental components and the understanding of biodiversity.

For all those who support the National Strategy of Biodiversity, as well as a development that respects the CBD, its cardinal foundation will be the conservation, the sustainable use and the equitable sharing of the benefits deriving from use of Biological Diversity-resources. In depth the national committee of biodiversity, in researching the directions of Cameroon's NBSAP, had final programme that included:

- ❑ five sectors of biodiversity for which knowledge was required: wildlife and forests, fresh water, marine and coastal ecosystems, agriculture and the microbiology.
- ❑ A series of priority actions to apply in each sector of which the principal ones are:
 - evaluation,
 - management,
 - exploitation,
 - study of environmental impact,
 - research,
 - information.

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It would have been interesting to evaluate the significance of this programme at the end of five years for example. The worry is that because its very laudable actions have been applied in certain sectoral domains, but not as part of an official national strategy, its effects can only be appreciated in a diffuse way.

2.4.7 New Perspectives

Having considered the new political context for environmental concerns, there is a hope that the adoption of NBSAP will soon take place.

The urgent Action Plan of Cameroon relating to the follow-up of the resolutions of the summit of Heads of State of Central Africa on the Conservation and Management of Tropical Forests (1999) retained amongst its actions the completion of the elaboration of its national strategy of conservation and of the management programmes of biodiversity.

Moreover, the urgent action plan defined a need for:

- increasing protected areas,
- campaigning against poaching,
- knowledge of the potential and of the distribution of special non-timber forestry products, mastery of exploitation systems and
- organization of different network of exploitation of non-timber products,
- implication of forestry management for populations,
- re-examination of the zonal plan.

In order to perfect the national strategy on biodiversity, it was foreseen that an amount of 60 million of FCFA would be required (coming from diverse sources, including BIP, GEF and UNEP).

2.5 EIA system

2.5.1 Adoption and description

It was in 1994 for the first time that the concept of regulations on environmental impact was introduced.

- The Law 94/01 of 20 January 1994 concerning the regime of Forests, Wildlife and Fishing stipulates (article 16), in effect, that every development project likely to bring about perturbations to forests and wetlands should have submitted a previous study on the environment.
- The advent of the Law 96/12 of 5 August 1996 carrying the relative framework law of the Environment further defined the concept of Environmental Evaluation (EIA). Article Number 4 of this law; first of all stipulates that the Study of Environmental Impact should be a systematic evaluation undertaken with a view to determining whether a project will or will not have an unfavourable effects on the environment.
- As a consequence, the proponent's responsibilities and those of the Administration are laid down (articles 17,18 and 20).
- The framework-law goes further in describing the steps of an EIA in article 19 :
 - analysis of the initial state of the site and its environment,
 - reasons for the choice of the site,
 - evaluation of foreseeable consequences of the implementation of the project on the site and its natural and human environment,

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- measures proposed by the proponent to suppress, reduce and if possible compensate for the damaging consequences of the project on the environment and an estimate of the associated costs,
- presentation of other possible solutions (alternatives) and reasons for choice of the project proposal presented with a view to implications for protection of the environment.

2.5.2 The role of EIA in project planning in Cameroon

The real need for EIA is evident in Cameroon, considering the requirements of donor agencies for development projects to have been subject to environmental assessment prior to project implementation. The World Bank, the European Union, and other financial backers all expect every programme, plan or sensitive project that is likely to cause harmful effects on the human or natural environment should be subject to EIA following the methods of the framework law on the Management of the Environment.

2.5.3 Legal requirements for EIA

Referring to the relative framework law of the Management of the Environment, EIAs are carried out following the terms of reference as laid down by the competent Administration, having taken into account the sectoral politics of the domain concerned, eg Sectorial Strategy of Transports, Mining Programme, Plan for the Management of Water.

The other fundamental data concerns the conduct of the Study required by the organisation that finances the project, eg the World Bank, or the European Union have their own requirements for how EIA should be undertaken.

All EIAs should take into account the following points:

- the description of the site
- biophysical factors
- the evaluation of impacts
- measures for mitigation, restoration or compensation
- the surveillance programme and its follow-up.

More or less detail may be required depending on whether a full EIA is required. The terms of reference create an opportunity for public appeal and for consultation with the competent structures: Bureau of Studies, Consultants etc. From the time of selection of the judged candidate opted to realise the E.E; the administrative procedures of the contract or the financing will follow immediately. The rest will be determined by the respect of arrangement concluded between the consultant and the Public Administration.

2.6 Implementation of EIA

2.6.1 Progressive Integration

The application of EIA procedures is relatively recent in Cameroon as the first mention of a regulated disposition requiring EIA for development projects goes back to 1994 (Law 94/01 of 20 Jan 1994). But in spite of this prescription of the Forestry law one has to wait for the adoption of the PNGE and above all the publishing promulgation of the framework-law related to the management of the Environment in 1996 to see the more detailed indications of the EIA system. EIA is now integrated in diverse projects. Increasingly, EIA is becoming a prerequisite for external financing by institutions such as the World Bank and the European Union. EIA is not slowing down consent procedures

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for development but reaffirms the importance of the environmental factors that are to be taken into account in land use planning and the directing of government politics.

2.6.2 Control weaknesses

Reviewing control and follow-up of plans of environmental management elaborated as a result of EIA one can sometimes observe some weaknesses. Environmental management plans produced as a result of EIA may well define requirements for environmental follow-ups and identify the responsible institutions for execution of these tasks, but it can be seen that there is a lack of internal organization, qualified personnel or even financial means to carry out the required environmental follow-ups. The hope however resides that this inadequacy will be soon fulfilled, as the majority of Ministries implicated in the Protection of the Environment are putting in place the required institutional arrangements and personnel.

2.6.3 Influence of E.E in political decisions

In Cameroon, like elsewhere there are difficult choices to be made between environmental protection and the development of the Environment. EIA should have contributed by raising awareness. Concerning biodiversity, EIA has also permitted the government to rehabilitate protected areas to preserve rare animal and plant species. As for other environmental and social aspects, eg the economy, culture, health, technology, their own position in the EIA system has contributed to their achieving political recognition in the development process.

2.6.4 Impacts on Biodiversity

The taking into account of impacts of projects on biodiversity appears in the wording of different terms of reference in studies of development projects of Cameroon. Due to the wealth of our biological resources and the regulatory protection of which they are the objects, the EIA system accords priority to evaluating possible effects of projects on their continuity. In this way, whatever the type of EIA, the author of the study is first of all held responsible for describing the site and identifying the existence/non-existence of protected reserves, threatened animal or plant species, fragile ecosystems and sensitive habitats of the native population.

The EIA practitioner must also enumerate real future impacts (direct/indirect, and positive/negative) and equally propose the measures of mitigation, compensation or the failing case of other alternative solutions of the project.

2.7 Biodiversity and EIA

2.7.1 Requirement for EIA (Screening)

The potential impacts on biodiversity determine the need of an EIA above all since the site of the project is in advance recognized as a protected area (Park, Reserve, Sanctuary) or is known to support a threatened/protected species. The extent of biological wealth of Cameroon is such that most of the EIAs do treat impacts on Biodiversity. The data taken into account include:

- list of protected animal and plant species
- list of declining and threatened species
- list and records of principal natural habitats
- records of different reserves of conservation of the resources of fauna and the critical sites for the conservation of the forests.

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Full EIA is usually required for any proposal affecting a protected area.

2.7.2 Impacts on biodiversity

Terms of reference for EIA in Cameroon nearly always give prominence to evaluation of impacts on biodiversity. The target components of biodiversity are generally the species and their natural habitat. The E.E takes into account effects that can influence neighbouring regions of the site after the execution of the projects (indirect impacts).

The available data on biodiversity allow an evaluation and to propose some significant mitigative measures. However, there is sometimes a lack of depth of information to really appreciate impacts.

The identification of impacts on biodiversity concerns globally the flora and the fauna of the region, the natural habitats, the protected species, the threatened or rare species, the fragile ecosystems and the protected areas.

2.7.3 System of Evaluation of Impacts

The impact studies of Cameroon are for the moment conducted following articles 17 and 19 of the framework-law, related to the Management of the Environment that requires impact studies to evaluate impacts on the ecological balance.

Certain sectors of activity disposes of particular norms to which the consultants refer to execute the EIA, eg Directives on taking into account of the environment in the road maintenance of the Ministry of Public Works.

Outside of these references, EIAs are conducted according to Operational Directive 4 : 01 Environmental Evaluation of the developed Impacts by the European Commission and the ACP countries in the frame setting of the 4th Convention of Lome.

It emerges from that which follows that the impacts on the biodiversity, even though taken into consideration, do not have a specific reference. For the moment, they are part of an integrating party according to other environmental aspects tackled during EIA. The need for an appropriate strategy is real.

2.7.4 Environmental follow-up

Following the studies of evaluation of impacts on biodiversity, mitigation measures are elaborated taking into account the politics of the National Government of Conservation and of universal demands for Protection of natural resources. The mitigatory measures once approved by the Administration are immediately executed.

However, one needs to underline right now the absence of decrees and texts of application to the framework law related to the management of the environment which specify in detail the framework for implementation of environmental follow-up.

As examples of efficient mitigation on biodiversity of Cameroon we can cite :

- the modification of the layout of the petroleum pipeline Chad-Cameroon which should initially pass by a Forestry reserve in the East of the country and of which the itinerary was turned around to safeguard the biological wealth as proposed by the EIA.

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- ❑ the ban since the year 2000 of transport of game poached by the train that constituted before this date as the unique way used by the poachers to dispose off their products in the big cities. This contributed to a perceptible slackening of the destruction of the fauna in regions well served by the train as proposed by the EIA
- ❑ The creation of many protected areas in the regions where the biodiversity was threatened with destruction because of industrial deforestation.

These examples demonstrate well that the governors have taken into account the place of biodiversity in the taking of decisions and that the EIAs have given more up-to-date biological data which serve the authorities to plan certain activities of development. The examples that are the most outstanding are the projects of the construction of routes.

2.8 Illustrative examples

2.8.1 Case I

Location: All the regions of Cameroon

Proponent: BUURSINK/ROM

Proposal: Sectorial Environmental Evaluation of Transports of Cameroon

Alternatives: Eventual modifications in the choice of future construction sites of infrastructures, since they are found in sensitive ecological zones, protected areas or natural habitats of protected species. The layout of routes can be deviated. On the contrary if the protected area had only been invaded by the transport infrastructure like the steam engine, this would have been downgraded and another one created near to compensate the cost.

Characteristics of biodiversity

The biodiversity in Cameroon is characterised by its variability. The country is covered with savannahs and forests, presented by plains, mountains and a vast coastline. The rich and multi-specific fauna blends well with other threatened species like the elephants, gorilla, chimpanzee, the black rhinoceros, ostrich and the giraffe. The physical Cameroon is an African condenser where one can find almost all the bio-ecological components of the continent : equatorial forests, mangrove coastlines, arbustive savannahs, displayed steppes.

Data on biodiversity

The figures had been presented in the introduction. Recalling the available figures :

- ❑ the list of plant species (9000), mammals (409), birds (1000), fish (542) and butterflies (1050)
- ❑ the list and the card of 7 principal ecological regions
- ❑ the list and the card of protected areas and of sites of conservation of forests
- ❑ the zonation plan

Many sources of information exist : Available documents (Guides, Atlas, Publications) are in the Ministries in charge of biodiversity (MINEF, MINRESTM MINEPIA) are in public bookshops.

Process of EIA

In the study, the consultant first of all, analyzes the environmental sector of transports and observes that outside the road and maritime transports, the train and plane under-sectors do not take into consideration the environmental aspects in their real management. Afterwards, the environmental impacts of each under-factor is indexed. The effects of biodiversity are : the dislocation and perturbation of ecosystems, the disappearance of protected species, the destruction of the animal and plant population, the abusive and illegal exploitation of forests, poaching, the destruction of the aquatic fauna, the deterioration of natural habitats, the degradation of the quality of the water, the

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modification of the flora and of the fauna of the mangrove, the flight of the animals from their natural resting places, the pollution of natural minerals.

Finally, the consultant proposes some measures of mitigation to answer to the different identified, environmental impacts. This has been contained in a Plan of Environmental Management. Here are some relative points of reference on the impacts of biodiversity :

- ❑ Undertake impact studies before every construction project
- ❑ Elaborate the adjustment plans for preserving the biodiversity
- ❑ Adjust the foot bridges for the animals in the sensitive zones through which the road passes.
- ❑ Reinforce the measures for the struggle against poaching and promote pisciculture
- ❑ Effect a follow-up on the salinity of water.
- ❑ Incorporate the site connected to the ecosystem to the construction of the site.

The Study considered the value of Biodiversity, above all the sensitive ecosystems, (natural habitats, protected areas) and the rare or threatened species. They were studied and put into documents or according to witnesses.

The expertise used by the consultant to study the biodiversity is acceptable according to the results obtained and from relevant conclusions.

The omissions that one can raise suggests the impacts on biodiversity are quantitative estimations of raised effects. The study cannot provide numbered data.

The study mentions as well negative impacts on transport, some indirect positive impacts of transport on biodiversity. It suggests the facilitation of tourism activities and of research on biodiversity. It suggests the facilitation of tourism activities and of research in natural sites more accessible thanks to a reserve of transport.

2.8.2 Case II

Location: Extreme- North, West, Centre and South

Proponent: INGEROP/ERE DEVELOPMENT

Proposal: Study of environmental impacts of the Institutional Support Programme for the decentralisation of Maintenance of rural roads.

Alternatives

The project concerns the rehabilitation of the support of already existing tracks. The possible alternatives are some eventual modifications of layout of routes that would disturb sensitive ecosystems.

Characteristics of biodiversity

The Study involves three of the big ecological regions of Cameroon.

The extreme north zone is found in the domain of Sudanese Sahara where one finds plentiful arbustive sahara together with principal oils : the albida acacia, the jujubier and the tamarind-tree. The zone shelters a national park and two reserves that support some birds, antelopes and monkeys. A number of sites overflow with biological wealth which is the object of some projects of classification in progress;

The Western zone is situated in the region of plateaus and mountains and is the domain of abundant rains favourable to a thick vegetation. A lot of natural forests have disappeared for the benefit of commercial forests. One however finds some relics of beafreen forests, semi-deciduous forests and some peri-savannah forests. The original biodiversity was rich but a number of protected areas are actually occupied by population. A lot of areas are the object of reforestation by Eucalyptus plantations. Almost all the wild fauna have disappeared, but the avifauna remains important.

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The central southern zones is in plain equatorial forest characterized by dense, humid, semi caducifoliated forests and humid, dense sempervirente forests. The vegetable/plant formations are the object of an intense deterioration because of an overexploitation of woody resources and the over burnt, itinerant culture. The forestry oils are amongst the most prized in commerce : Mouaki, Sapelli, Ayous, Doussie etc... The importance of biodiversity is yet remarkable from the certain protected areas in a region considered as one of the most richest of the country. One can find there, some mammals, reptiles, birds, a variety of species of fish, Elephant, Buffalo, Gorilla, Chimpanzee, Sitatunga, Hornbill, Touraco, Parrot, Python, etc. The fauna is becoming more and more rare because of poaching and the destruction of its natural habitats.

Data on biodiversity

Information on biological diversity of the study zones only concerns present animal and plant species. No inventory had been made in the past to provide numerical data. Thus we can have :

- records in the middle of each region
- records of definition and the surface of protected areas
- the zonage plan
- sources of existing information : Documents (Guides, Atlas, Report, diverse publications)

Process of E.E

The consultant presents the evaluation study in relation to five points :

- The description of the initial state of every site based on examination of physical and biological factors.
- The description of works of road maintenance which explains the technology applied, the material used and the advantages of the exploitation of works.
- The identification of impacts on the environment and the proposition of mitigatory measures, of compensations or of discount. There is a distinction between the direct and indirect impacts on the one hand, positive and negative impacts on the other hand. Concerning, biodiversity he suggests that the direct negative impacts are negligible, the rehabilitation works on tracks are not creating new effects on the fauna and the opening up of the vegetation in the surroundings was controllable. On the contrary the indirect negative impacts are many and the consultant has associated each one with a measure of understanding.
 - Poaching ⇔ Formation of personnel and surveillance
 - Degradation of plant and agricultural plantations ⇔ advising the population
 - Disturbances of the ecosystem ⇔ respect of the regulation
 - Illegal deduction of the flora and the fauna ⇔ reinforcement of the surveillance
 - Some indirect positive impacts include facilitation of commercialisation of agricultural production and the surveillance of illegal removals of fauna and flora

The organization has to put in place measures to assure good management and protection of the environment through ;

- on the one hand education and awareness raising and the mobilization concerning the decentralized administration, the locally elected, the local enterprises and the population ;
- the methods of environmental follow-up of works that will beforehand be made (EES), during the jobs (environmental control) and during the periods of current support (following the indicators)

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- The methods of environmental follow-up, including the actual institutional framework, the technical assistance, the budget corresponding to the benefits programmed

The values of biodiversity had been profoundly taken into consideration in the Study. Protected areas, zones of sensitive ecology, fragile ecosystems and protected species were considered. They had been obtained from site visits, results of preceding studies and interviews with populations or local authorities.

The techniques of the study of biodiversity used by the correspondent were consistent with norms in vigor, the results obtained demonstrate the adequacy in terms of duration and qualification of personnel

The omissions that we raised are the absence of a quantified estimate of impacts in order to better judge the degree of these

The impacts on biodiversity were positive in certain cases and negative in others.

2.9 Perspectives on sustainable management of biodiversity

2.9.1 Improvements to the EIA System

The system of E.E actually in vigor in Cameroon, necessitates a reinforcement of its capacities if one wants to enhance the consideration of biodiversity.

The judicial framework

Two laws need to be considered:

- the law 94/01 of 20 January 1994 carrying the regime of forests, of fauna and fishing
- the law 96/12 of 5 August 1996 carrying the framework law relative to the management of the Environment.

Although the law on the regime of forests, fauna and fishing mentions that all development projects likely to create disturbances in forestry/aquatic places should be subject to a study of their impact on the environment, it does not specify any method of application of the evaluation of impacts on biodiversity. The decree of 23 August 1995 that reaffirms this disposition of the law, simply declares the Impact Study is realised by the proponent following the norms law fixed by the Administration in charge of the Management of the Environment. It repeats the obligation to carry out an impact study in every project likely to affect the ecological balance of the region, notably giving the indications, that this study should include:

- the analysis of the initial state of the site ;
- the evaluation of foreseeable impacts ;
- the expression of mitigatory measures ;
- the estimation of costs ;
- the presentation of other solutions

But this is, but a global canvas, that returns the methods of application to a decree that is waited for till today. The EIA system actually suffers from a judicial void aggravated by the non-existence of a formal strategy on the management of biodiversity that is delayed to this day.

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The solution is the elaboration and the adoption or rather a degree of application fixing the methods of study of the environment impact whereby all the details of the impacts and alternatives on biodiversity are provided for. This will avoid the actual impression of a superficial consideration and not to say sometimes subjective of problems of biodiversity.

2.9.2 The institutional framework

The Ministry of Environment and Forests (MINEF) is by its attributions, the principal governmental institution in charge of the management of biological resources. It should co-ordinate all the different environmental studies. All the more since, all the development projects in Cameroon are likely to encroach on the integrity of biological diversity. Unfortunately and for reasons that remain unknown, MINEF remains absent in most of the process of the impact study. On the contrary it is the Ministry of Public Works (MINTP) that implicates itself and supervises all the impact studies of infrastructural works on the Environment. Only the expertise of MINTP is however, poured in the construction works and the support of infrastructures and works, from where the weak consideration brought problems of biodiversity in a lot of the E.E.

It is time that MINEF assures its role of planning strategies of sustainable management of natural resources. The authorities of MINEF should intervene in all the processes of EIA so that the biodiversity is not treated in a superficial and scanty way, and that the control and the environmental follow-ups are assured.

If the system of E.E in Cameroon has not attained its cruising speed or its optimal efficiency, it is also because of the insufficiency of national frameworks is urgent, as very often one has to resort to foreign technical assistance which not only is costly but also does not always master the wishes of the local data on biodiversity.

Taking impacts on biodiversity into account will have a slow evolution. Nevertheless it is surprising that even MINEF (that coordinates the different operations of industrial exploitation of forests) does not place so much priority on controlling the impacts of forestry activities on biodiversity.

2.9.3 Other mechanisms

Studies of impacts on biodiversity could play a significant part in influencing development plans if other measures had been adopted. We are suggesting the following :

- an inventory of flora fauna: to ask every proponent of a sensitive development project likely to perturb the biodiversity, to carry out an actual inventory of the biological potential of the affected area, before quantifying impacts or specifying mitigation measures.
- Taking into charge of damages: to apply the principal of 'polluter pays', in instructing the promoter of the project to settle off all the equivalent expense for the foreseeable damages on biodiversity. This can be done on the basis of taxes for slaughtering, not only the animals, but also trees previously inventoried or even following a fixed tax, fixed by the Administration of FINANCES.

2.10 Final conclusions

Despite its late adoption and taking into account in the procedures of execution of development projects, the EIA system has sensitively contributed to the preservation of biodiversity in Cameroon. Before the introduction of environmental impact studies, the

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conservation of natural resources was not an issue that could modify the work plans or did not prevail to except for the socio-economical preoccupations. Today, we can count many examples where the sites had been stopped, or itineraries of routes diverted to the benefit of a protected area for the conservation of biodiversity; or an ecologically sensitive zone of which the previous presence had been voluntarily occulted by deciders a bit worried on the preservation of biological wealth. The results are edited; creation of reserves, parks and sanctuaries to limit the extension of units of forestry exploitation, declassified and classed protected areas invaded by the human population. Even if the statistics are not available, it is evident that the EIA system permitted safeguards of the important potential of biodiversity.

As regards to the strategy of biodiversity, its outstanding elaboration, one cannot ever appreciate its impact that it has on the system of EIA. However, there is no doubt that this strategy will be positive on the efficiency of EIA. We regret for the moment, that there exist judicial voids that cannot guarantee the interest of biodiversity in the impact studies. In the absence of details on the components and the abundance of impacts raised, it is difficult that the worthiness of biodiversity be understood in all its acceptance.

Actually, the process of available and applicable EIA on Cameroon does not bring together the impacts of biodiversity in a direct and profound way. It does not carry the values of biodiversity pertinent to biodiversity. It is up to the consultant in charge of executing the impact study to appreciate the data and to prioritize it and to propose to the deciders as well. From where, sometimes constant deviations since by adventure the expert retained does not have deep knowledge in matters of biodiversity. This explains why for the moment some values of precise reference, of pertinent standards of appreciation and consensual for all the parties present.

But in all, the support of the EIA system on the conservation of biodiversity has started appreciably well in Cameroon, If we can complain for the lack of environmental follow-up sometimes by the lack of financial means or weaknesses of institutional structures, we regretted sometimes the technical propositions are not rigorously applied for reasons often social-economical, if at the end the strategy of Biodiversity of Cameroon already in gestation does not produce the discounted results on the perpetuity of resources ; some successes exist out of some shortcomings.

We can say in a resume that if there were a few failures on the system of E.E in Cameroon, it is the directors responsibility sometimes a bit animated by motivation to the conservation of biodiversity. The problem here is the choice of option of development or the priority of biological wealth did not prevalue in the spirit of certain political deciders. We saw one day the authorization of forestry exploitation in plain forest reserve. Certain political lites encourage the illegal occupation of population of national parks.

However, amongst the actions classed as success of E.E, there are certain classed projects of protected areas long blocked. But we should not forget the works that had been stopped which was followed by an important modification of the outline of the petroleum Chad Cameroon in 1999 because of the massive forests on Eastern Cameroon which could have been destroyed according to the revelations of the impact study. The case rests memorable and exemplary as external backers of funds were required together with the NGOs in order to constrain the government to respect the resolutions of the E.E.

2.11 Recommendations

In analysing the situation concerning integration of biodiversity in the process of environmental evaluation in Cameroon, we recommend:

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- ❑ the elaboration of a Decree of application to the Framework-Law fixing the methods of Environmental impact Studies.
- ❑ the elaboration of a Ministerial Stop fixing the methods of integration of Biodiversity in the process of Environmental Evaluation.
- ❑ the Adoption of a National Strategy on the Conservation and the Management of Biodiversity and its Action Plan.
- ❑ the determination of indicators of appreciation of the abundance of impacts on Biodiversity under the form of types of clauses.

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2.12 Bibliography

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