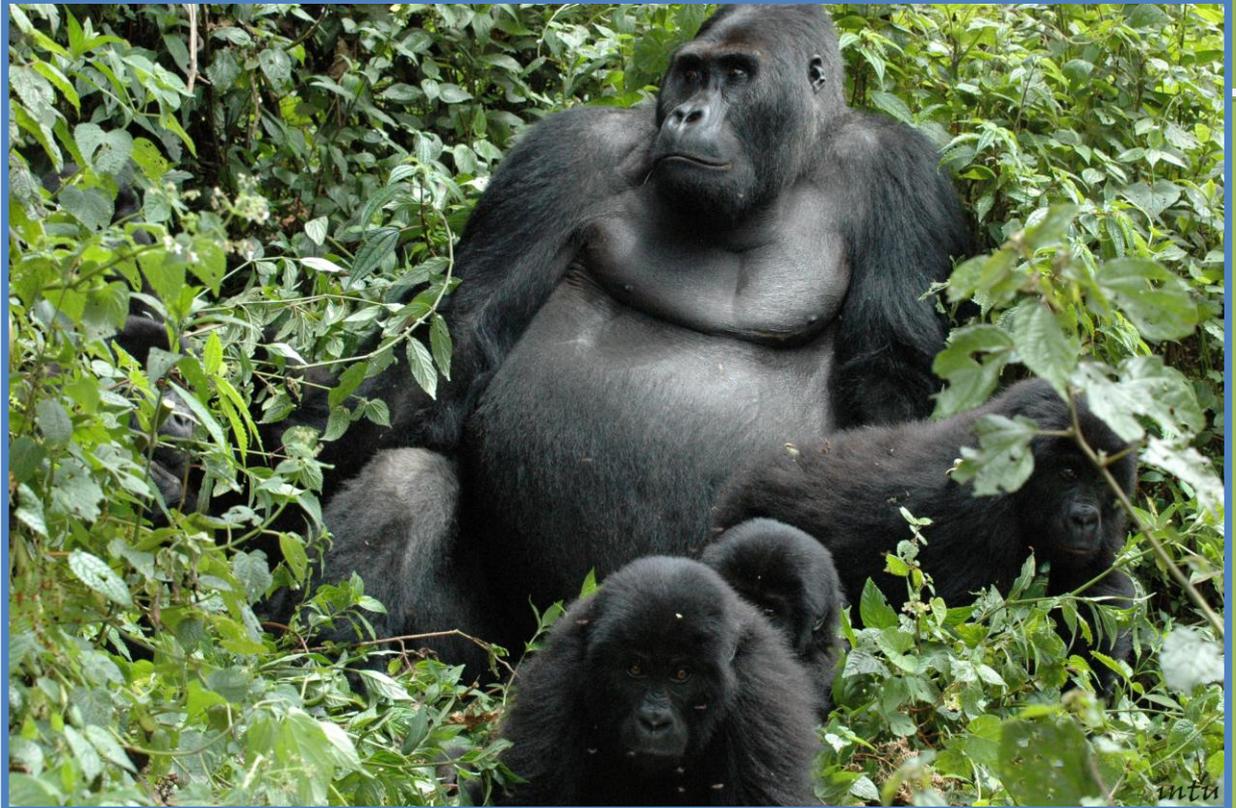


# *Integrating Biodiversity Conservation into National Development Policy: A case study of Cameroon*



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## List of Abbreviations

ANAFOR	National Forestry Development Agency
BF	Operation budget
CARPE	Central African Regional Program for the Environment
CBD	Convention of Biological Diversity
CHZ	Community Hunting Zones
CITES	Convention on International Trade in Endangered Species
COMIFAC	Central African Forest Commission
CWCS	Cameroon World Conservation Society
FTNS	Sangha Tri-National Foundation
GRASP	Great Apes Survival Project
IEA	Environmental Impact Assessment
IUCN	International Union for Conservation of Nature
MIKE	Monitoring Illegal Killing of Elephants
MINEPDED	Ministry of the Environment Nature Protection and Sustainable Development
MINFOF	Ministry of Forestry and Wildlife
OCFSA	Organization for the Conservation of Wildlife in Central Africa
PA	Protected Area
PNGE	National Program for Environmental Management
PSFE	Forest and Environment Sector Program
RAPAC	Network of Protected Areas in Central Africa
USAID	United States Agency for International Development
WCS	World Conservation Society
WWF	Worldwide Fund for Nature

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## **I- INTRODUCTION**

### **I.1 Context**

With a total size of about 475 440 km<sup>2</sup>, Cameroon is situated between latitude 1°40 and 13 ° 05 North, and longitude 8 °30 and 16 ° 10 East. The country is part of the Congo Basin and harbours a wide range of biological resources. It is the fourth most biodiverse country in Africa after the Democratic Republic of Congo, Tanzania and Madagascar (UNDP *et al* 2001). For example, the following number of species are found in Cameroon: a) 409 mammal species, including the largest and smallest species in the world, of which 14 are endemic; b) 165 reptile species; c) 916 bird species, of which 8 are endemic while some 150 are migratory; d) 9000 plant species, of which 156 are endemic; f) 200 amphibian species, of which 63 are endemic; and g) about 1500 Butterfly species (UNDP *et al* 2001). Unfortunately, many species are either threatened, endangered or at the brink of extinction including flagship species such as gorillas and chimpanzees.

There are a number of drivers of biodiversity loss in Cameroon including unsustainable logging and slash-and-burn agriculture. As a result the need for biodiversity conservation has been highlighted in State forestry and legislative policy – in particular the current forestry law (1994) and its 1995 Implementation Decree. They have also been some attempts to encourage coordination between sectoral Ministries (e.g. Environment, Planning and Regional Development) to facilitate synergy between conservation and development objectives. However, policy makers have encountered some difficulties which this paper has identified.

This document aims at reviewing the extent to which biodiversity conservation has been integrated into national development policy – and vice versa – and to draw conclusions as to whether this has enhanced the implementation of key biodiversity conservation objectives and commitments.

### **I.2 Methodology**

The study was carried out over 2 months using rapid appraisal tools; open-ended interviews were implemented in the Ministry of Forestry and Wildlife and the Ministry of the Environment, Nature Protection and Sustainable Development. We primarily selected this sample because they are the two main ministries in charge of biodiversity issues. We also used structured questionnaire guides to interview key local and international conservation organizations in their respective projects and program sites. We finally contacted donors who were instrumental in providing us with information on funding mechanisms to support biodiversity conservation in Cameroon. The main purpose of the questionnaire was to assess their understanding of biodiversity management in Cameroon and to see how best practices can be put in place to allow a better integration of biodiversity aspects into national development policies. Data collected were analyzed and compared with previous studies and relevant literature review.

## II. Key issues affecting biodiversity conservation in Cameroon

### II.1 Continued reliance on natural resource-based development

With the political ambition to see Cameroon becoming an emerging economy by 2035, natural resource exploitation is a key development strategy and in many cases is having an adverse impact on biodiversity. The average rate of deforestation estimated from 2005-2010 in Cameroon stood at 1% per annum (COMIFAC 2008). At a glance, some observers might think that it is not significant but when projected to the overall forest cover which is 19,916,000 ha per annum this becomes alarming. Deforestation in Cameroon has multiple causes including agricultural expansion, overgrazing, fuel wood gathering, commercial logging, and infrastructure and industrial development (Rowe *et al* 1992). The resulting forest fragmentation and degradation greatly affects the habitats of flagship species such as chimpanzees and gorilla.

Beyond timber, Cameroon is also initiating a series of big mining projects in the East and South of the country. Cobalt, Nickel and Iron will be exploited in the East Region and a new railway line of about 510 kilometers will link the exploitation sites and the Kribi deep sea port, crossing the jungle forest. Mining exploration has already drastically affected the habitat of great apes and other species, including some explorations operations conducted at the edge of protected area (Figure1). For both timber and mines, road construction to support these industries adds further impacts, facilitating access to the forest and settlements in newly opened areas.

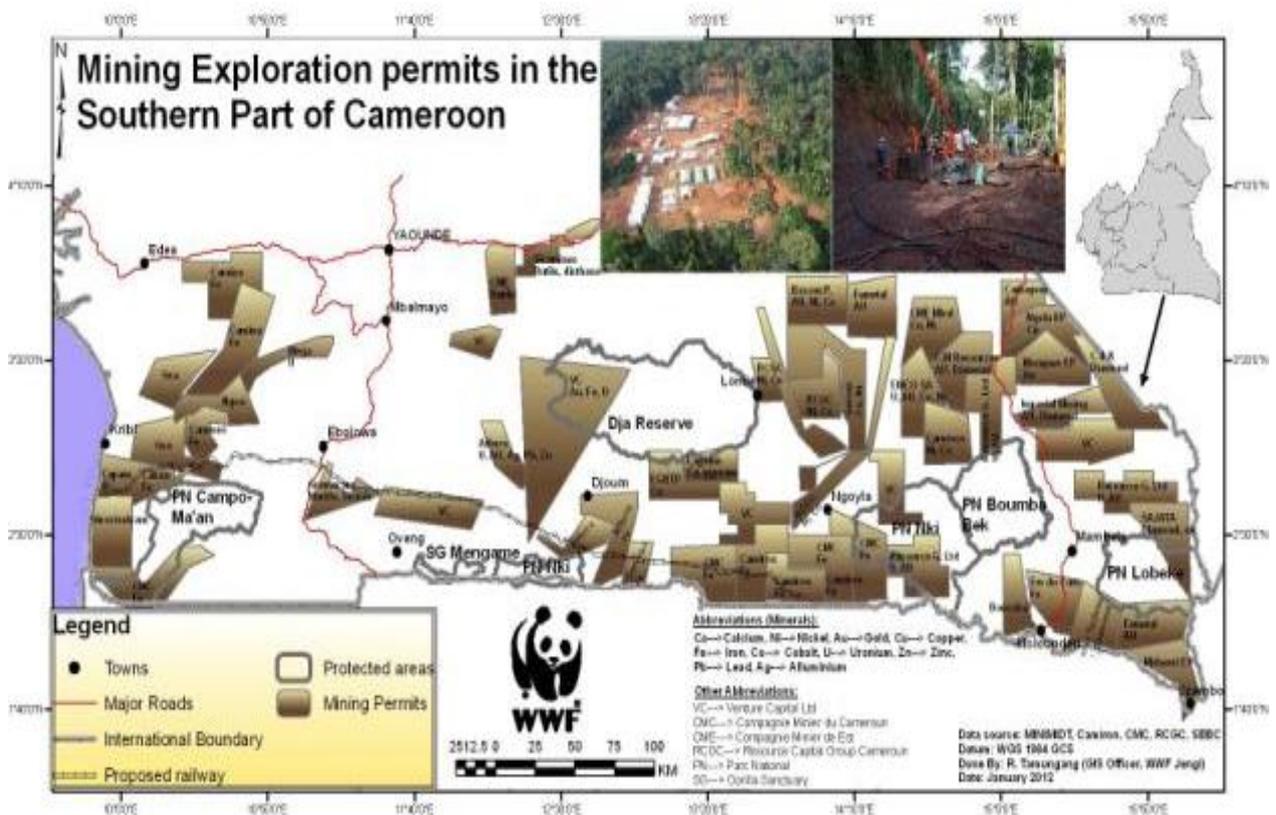


Figure 1: Mining exploration permits in the Southern part of Cameroon (Source: WWF)

## II.2 Coastal zone degradation

Coastal zone biodiversity has been severely impacted by uncontrolled or inappropriate development. The marine and coastal biodiversity of Cameroon is rich and diverse. It is highly endangered because of human activities including artisanal and industrial fishing and pollution generated from industries, accidental loss of crude oil in transit or during loading or unloading. In Douala, thousands of inhabitants have settled in and around the mangrove swamps, destroying the mangrove ecosystem and endangering biodiversity including snakes, birds, fish, trees and frogs (MINEP 2008). The main danger comes from preparation (smoking and grilling) of fish and meat. For these activities, the mangrove is cut down for the purpose

and no regeneration strategy is in place in most of the communities (Figure 2).



The extraction of sand to build houses is also very common in the coastal zone. This activity aggravates landslides and flooding. In Kribi coastal town the installation of the oil pipeline has affected the biodiversity and fishermen report that they now need to travel longer distances to maintain their yields.

*Figure 2:* Local community regenerating the mangrove ecosystem in Edea (CWCS, 2006).

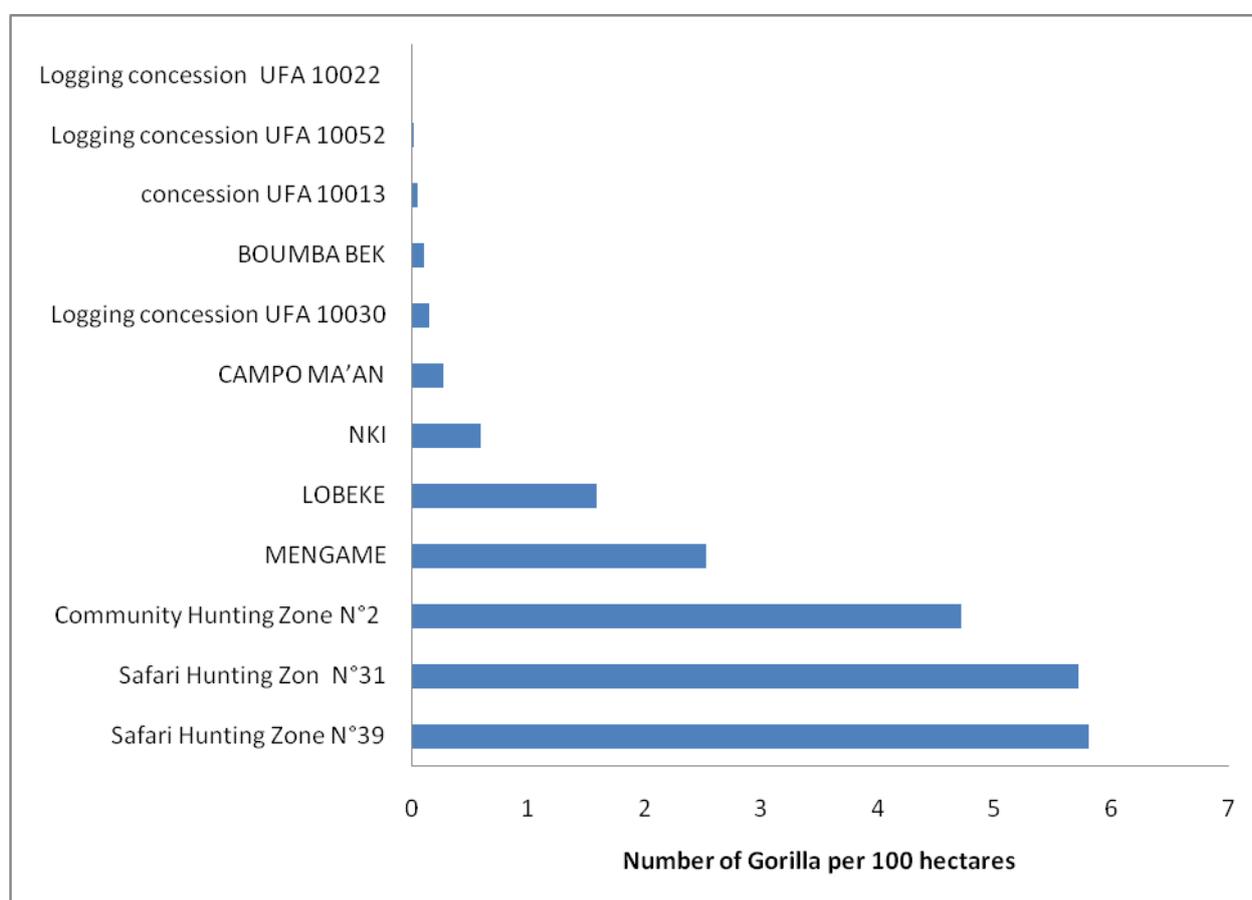
## II.3 Land degradation

The savannah zone in Cameroon hosts important protected areas. In general, several landscapes are under high pressure, but this is aggravated in the Far North, Adamawa, West and North West Regions. The main threats in these zones include:

- a) Wild bushfires: Savannahs are subject to regular wildfires as a result of human clearing during farming, these fires are usually confined to the herbaceous layer and do little long term damage to mature trees. However, these fires either kill or suppress tree seedlings, thus preventing the establishment of a continuous tree canopy.
- b) Grazing: much of Cameroon's savannas have undergone change as a result of grazing by sheep, goats and cattle, ranging from changes in pasture composition to woody weed encroachment;
- c) Agriculture: Tree clearing is also common, as savannah is cleared each year for agricultural purpose. This is mostly common practice, thus shift and burn agriculture compromise biological cycles and the ability of ecosystems to recover;
- d) Tree-cutting; Besides, cutting down trees for agriculture, trees are cut for domestic uses e.g. firewood;

## II.4 Wildlife management

Hunting is one of the main activities of the people living in the savannah zone and is often not sustainable because of high levels of poaching. For example, over 200 elephants in Bouba Ndjida National Park in northern Cameroon were reported to have been killed between the period January-mid March 2012. The CITES program for Monitoring Illegal Killing of Elephants (MIKE) revealed increasing levels of poaching in 2011. This problem is further exacerbated by the fact that much wildlife lives outside protected areas. For example, recent data shows that gorillas are more populous in hunting zones and some concessions than in protected areas (Figure 3). This highlights the need to enhance collaboration between communities, logging concessions and formal protected areas.



**Figure 3:** *Gorilla gorilla* abundance in various sites in south Cameroon (source: MINFOF 2005)

### **III. Mainstreaming biodiversity and development in policy and practice**

#### **III.1 Legal and regulatory Instruments for Biodiversity conservation**

Cameroon is a Party to a number of international biodiversity agreements including the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Fauna and Flora (CITES). At the national level, the legal framework for biodiversity conservation is set out by several law and decrees among which are:

- Law 94/01 of 20 January 1994 (also refer as Forestry code), to lay down forestry, wildlife and fishery regulations and its subsequent Implementation Decree. Section 11 of the law stipulates that: “the genetic resources of the national heritage shall belong to the State of Cameroon. No person shall use them for scientific, commercial or cultural purposes without prior authorization”. Under the Forestry Code, wildlife species are divided into three protection classes: A, B and C; great apes belong to class A which includes all fully protected species. Activities for the commercial exploitation of wildlife are authorized only to those holding legal and valid title from the Ministry of Forestry and Wildlife. Poaching is therefore defined as any act of hunting without license. Hunting is allowed in specific season with authorized equipment and it is forbidden in protected areas. Poaching is severely punished by the law with several months’ imprisonment and a penalties ranging between 100 USD to 6000 USD.
- Law N°96/12 of August 5 1996 on Environmental Management. In addition, Cameroon has a National Programme for Environmental Management (PNGE) which affirms the need to focus attention on biodiversity management. It notably recommends: the conservation of biodiversity; sustainable exploitation of forests and the management of the maritime coasts as well as the sustainable exploitation of other natural resources and the valuation of national products. The framework states that “scientific exploration and biological and genetic resource exploitation in Cameroon shall be done under conditions of transparency and in close collaboration with national research institutions and local communities, and should be profitable to Cameroon. The exploitation and exploration should be done under the conditions stipulated by international conventions relating thereto, duly ratified by Cameroon, especially the Rio Convention of 1992 on biodiversity”.

#### **III.2 Policy approaches to enhance biodiversity conservation**

In 2011 a presidential Decree was signed to enhance territorial management. One important aspect of this Presidential Decree is that it is complementary to the on-going zoning plan mapped out by the forestry administration which has defined a permanent forest domain (production forests, protection forests, etc.) and non permanent forest domain (Community Forests, etc.). Under this repartition, biodiversity conservation is included in the management

plans of all production forests. Therefore, logging concessions have to assist the state in improving biodiversity management and are requested by law to re-design their zoning plan, if it happens that part of their operations overlap biodiversity hot spots. In fact, logging concessions have gradually moved toward certification. Relevant literature has proven that biodiversity is well managed in certified forests than ordinary logging concessions under management plan solely (Van Kuijk *et al* 2009).

Cameroon has developed a national biodiversity strategy and action plan (NBSAP) as part of its commitments under the CBD. This document, which promotes a participatory approach to biodiversity conservation, identifies opportunities, risks, challenges and solutions to sustainable biodiversity conservation and national development. Cameroon also initiated the development of a national action plan for the conservation of great apes last March 2003 with the support of Great Apes Survival Partnership (GRASP) and other international NGOs. This action plan aims “to update knowledge on the geographical distribution and the status of the populations in the various areas of the country” (MINFOF 2005). The national plan for the conservation of great apes translates the political will of Cameroon to contribute to biodiversity conservation efforts and defines the concrete and urgent actions that must be undertaken for the conservation of the great apes species.

In addition to this national-level approach, Cameroon has partnered with countries in the Region to facilitate high level intergovernmental dialogue to conserve the rich biodiversity in Central Africa. The Central African Forest Commission (COMIFAC), for example, is the primary authority for decision-making and coordination of sub-regional actions and initiatives on conservation and sustainable management of the Congo Basin forests. The Commission is supported by several donors to implement its action plan. The Commission’s Executive Secretariat also hosts the Central African Forest Observatory that produces biennial “State of the Forest” review. Since its creation in 2005, The Commission has facilitated the establishment of national environmental sustainable strategies and has informed and trained key actors participating in policy formulation and implementation. The organization has also put up sub regional surveillance, monitoring and evaluation of desertification efforts in the region and reinforced national systems for collecting and analyzing data on desertification.

After the World Summit on Sustainable Development in 2002, the international community, together with central African States committed themselves to protect the Congo Basin tropical forests through an ambitious partnership which include donor organizations, states, international NGOs and the private sector. The resultant Congo Basin Forest Partnership has, to date, developed a conservation funding mechanism, and disseminated best practices on the management of the second largest tropical forest in the world. Besides the above, Cameroon is also part of various other regional processes in the Congo Basin, including the Organization for the Conservation of Wildlife in Africa (OCFSA) and Central African Protected Areas Network (RAPAC).

At the sub-regional level, in collaboration with the Central African Republic and Congo-Brazzaville, Cameroon established a trans-boundary protected area - the Sangha Tri-National (STN) Park. This area is one of the most important critical sites for biological conservation in

Central Africa. It is home not only to a wide variety of habitats, including a large river system and lowland forests, but also diverse animal populations like forest elephants, lowland gorillas, chimpanzees and bongos. The recently established Sangha Tri-National Foundation (FTNS) is intended to ensure long-term financing support to the STN and is currently being managed by a Board of Directors consisting of representatives from the three states, the Wildlife Conservation Society (WCS) and the World Wide Fund for Nature (WWF) among others. There is also the TRIDOM, a trans-boundary network of protected areas between Dja National Park in Cameroon, Odzala National Park in Congo-Brazzaville and Minkebé National Park in Gabon. The TRIDOM cooperation agreement between the three countries was signed in 2005 and defines a tri-national governance structure, which has generated international commitment for the conservation of this block. These two blocks are financially supported by the international communities, for example USAID supported directly sustainable landscapes management for the past seventeen years through the CARPE program. This regional program is funding field partners (local and international NGOs) to support conservation efforts in the TRIDOM and TNS.

Apart from the two main trans-boundary protected areas, Cameroon has developed a network of protected areas which covers a surface area of about 8138800 hectares and 17 National Parks, all of which covers about 20% of the national territory. Other protected areas are grouped into the following categories; 6 wildlife reserves, 1 wildlife sanctuary, 3 Zoological Gardens, 46 hunting concessions and 22 community hunting zones (MINFOF 2010).

### **III.3 Integration of biodiversity conservation into broader national development policy**

Cameroon's framework for economic development is described in the national Strategy Document on Growth and Employment (DSCE). This document indicates that Cameroon will put in place mechanisms for sustainable development with a high consideration for biodiversity management and the valorization of natural resources as well as the creation of plantations. The newly signed Voluntary Partnership Agreement (VPA) between the Cameroonian Government and the European Union aims at improving transparency in the logging sector and compliance to biodiversity and environmental protection standards (Gyimah 2011).

The Government's overall approach to achieving the biodiversity objectives within the DSCE is to organize and encourage individuals, associations, partners, civil society, etc. to commit themselves to facilitating sustainable use of natural resources to promote local and national development. These actions are included in an ambitious Forest and Environment Sector Programme (PSFE) and are part of the main mission of the National Forestry Development Agency (ANAFOR). The Ministry of Forestry and Wildlife has assigned the task of implementing key components of the PFSE to the Ministry of Social Affairs - notably aspects related to improving the living standard of indigenous people. This was done to ensure

efficiency and cost-effectiveness as well as to encourage synergies between the various ministries.

#### **III.4 Environmental Impact Assessment**

Despite some shortcomings, Environmental Impact Assessment (EIA) still remains the main instrument to mainstream environmental concerns into development programmes and policies in Cameroon. For example, Article 16 of the Forestry Law stipulates that “the implementation of any proposed development likely to cause disturbances in forests or water is subject to a prior environmental impacts analysis”. Such a rule is also included in Article 17 of the Environmental Management Law (N° 96/12): "the sponsor or the master authority of any development which might adversely affect the environment is required to conduct an impact study ". The EIA intends to limit damage in areas where projects take place and has become a pre-requisite to all large-scale development activities. Terms of reference are laid down by the Ministry of the Environment, Nature Protection and Sustainable Development. A public consultation with communities surrounding the area where the investment will take place is mandatory. Because EIAs are now compulsory requirements to all strategic development projects like road construction, mining, forest exploitation, etc, it has avoided major threats on biodiversity and landscapes degradation.

#### **III.5 Community involvement in biodiversity conservation**

Within Cameroon, both urban and rural populations depend on natural resources and biodiversity for their basic needs. The Government’s overall approach is to encourage local participation in biodiversity management (Tapondjou 2009). Populations living adjacent to forest concessions and protected areas have priority over other potential users (such as private concessioners) to exploit natural resources. In the timber sector for instance, this right insists that in case of competition between the community and the logging concession, the permit to exploit should be allotted to the community. Although communities have restrictions to harvest resources in protected areas, efforts have been undertaken to facilitate a people-centered approach to conservation. Cameroon has involved local communities in the management of wildlife resources, particularly through a community hunting zones (CHZ) approach which enables them to receive various royalties from their hunting zones.

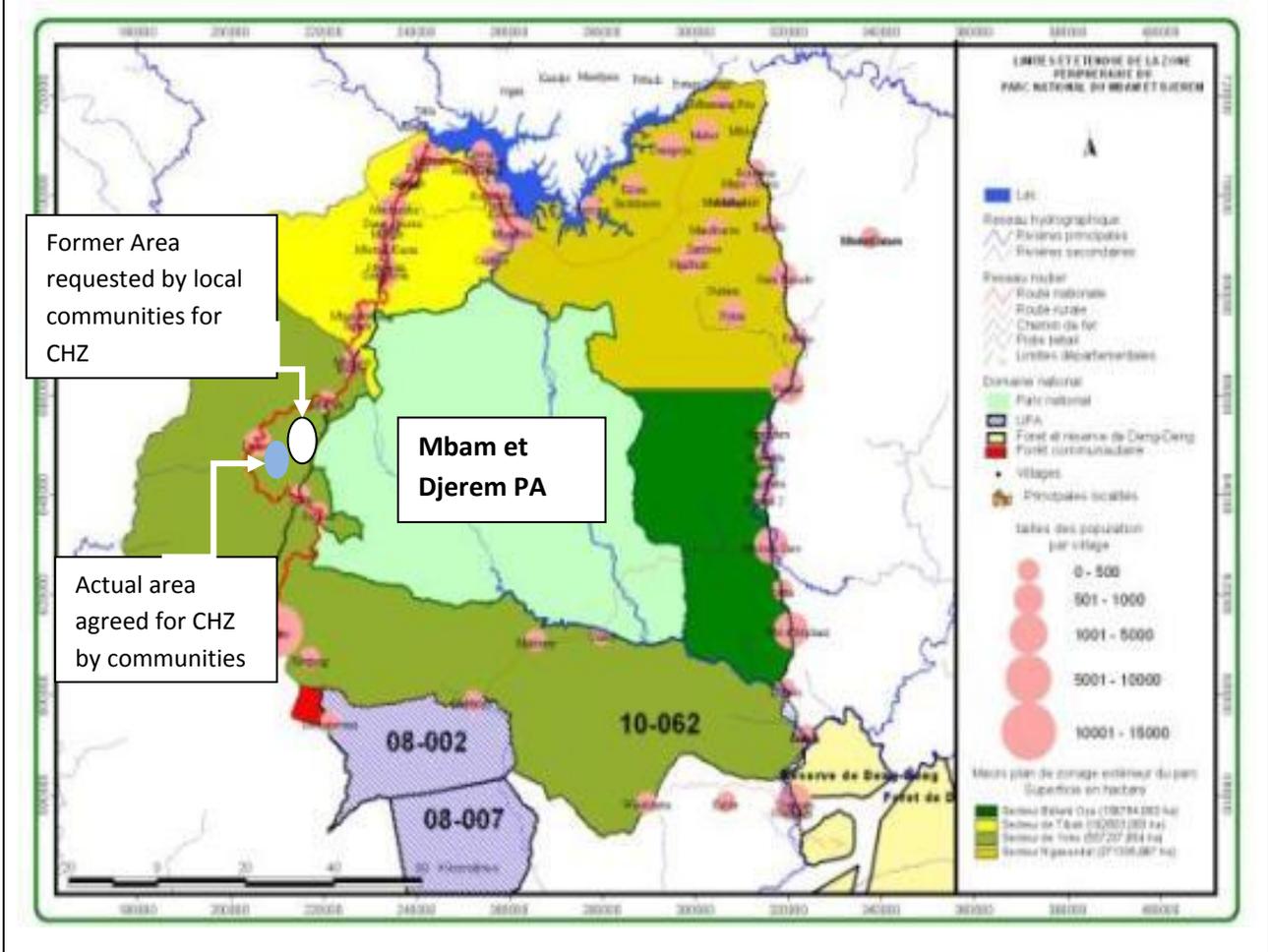
These CHZs, as well as provisions for community forestry highlight the willingness of the Government to grant this pre-emptive right to local communities.

Participatory approaches have been fairly successful, especially because they have strengthened the willingness of communities to preserve biodiversity in specific protected areas such as Mbam and Djerem National Parks where communities have requested that their community hunting zone be redesigned to avoid great ape hot spots (Box 1, Figure 4).

**Box 1: Success story: Local communities willingness to support great ape conservation in Mbam et Djerem PA**

The Mbam and Djerem NP was created in 1999 and has benefitted from the active management of the Wildlife Conservation Society (WCS). Field staff from WCS created an incentive for conservation for communities living around the Park. When designing the management plan of the protected area in 2008, WCS made an analysis of possible fishing activities at the edge of the park. Communities have been trained on how to conduct a sustainable fishing in streams surrounding the protected area. As a result of this participatory approach, communities are now fully engaged in protecting wildlife flag species such as great ape, elephant etc. Communities have applied to have a community hunting zone at the edge of the park, this will allow them to have some revenues from safari hunters. The total area of the community hunting zone is around 25 thousand hectares. When designing the area to be covered by the CHZ, communities personally asked to remove a piece which according to them was a hot spot of great ape species to avoid the risk of killing them if included in their zone. This shows that when a participatory approach for conservation is well conducted, local populations would support conservation initiatives

**Figure 4:** Reallocation of a CHZ in Mbam et Djerem PA (source: WCS).



There are also some good management practices applied in some regions; e.g. Mount Cameroon which is considered a sacred site. Hunting or the exploitations of plants (bark, roots, and leaves) is prohibited. These rules are respected because individuals are afraid to attract the wrath of the gods of Mountain. There are some other cultural areas such as sacred forests in the West region where any activity has to be authorized by traditional authorities. For example, the Kilum-Ijim Mountain forest in the North West Region (the largest remaining stretch of Afro-Montane forest in West Africa) is protected mainly by local customs with support from the Government because of its very rich biological diversity, notably the rare bird species found there.

### **III.6 Communication and training**

Cameroon provides a number of biodiversity training opportunities to local people and individuals from further afield. In line with its policy to promote participatory natural resource management, environmental sensitization programmes are run via local radio which broadcasts conservation programmes in local languages. At a more formal level, a number of specialized training schools are operational and they include:

- The University of Dschang, with its major agricultural faculty (FASA), which offers a high level agricultural training in the sub region. The faculty has a Distance Learning Programme which trains professional farmers, agricultural technicians and field technicians.
- The forestry school in Mbalmayo which has trained several thousand forestry technicians over the last decade.
- The wildlife college in Garoua which has trained an estimated 2,000 wildlife experts from 22 African countries. 90% of trained professionals are operational on the ground as National Park Directors, Conservation Project Managers, Head of anti poaching units, and so on.

## **IV: Limits to effective mainstreaming**

### **IV.1: Weak involvement of local communities in biodiversity conservation.**

It is well documented that failure to respect social justice in conservation makes it difficult to mobilize local participation for conservation (Pimbert & Ghimire 1997) and that participatory approaches to conservation are sustainable only if communities perceive a benefit from their actions. In Cameroon, communities living around protected areas do not receive any significant benefits from conservation and has not fostered attitudes that are supportive of conservation practices.

Some traditional practices also have a negative impact on biodiversity. Several households for instance reported that they prefer meals cooked with firewood instead of with a cooking stove or electric cooker. This has drastically increased the rate of deforestation around urban towns. Palm wine is also a product with high level of cultural value. The production of palm wine has increased after the cocoa crisis in 1990 and it is still very common today due to the high price of imported wine. The younger generation are involved in palm wine taping but they have not learned from elders how to process palm wine with standing trees, so they cut palm trees to collect palm wine for just two or three weeks while the processing of standing trees allows the communities to collect both palm wine and nuts for more than sixty years. Palm trees are now very rare in villages where palm wine processing is done with tree felt down. In general, palm trees have drastically reduced in the humid forest zone of Cameroon.

### **IV.2 Weak law enforcement**

Judges are not always well informed about environmental laws and are not usually sensitive to wildlife crimes. Some forestry agents in the field do not understand the forestry code and prefer harsh or repressive actions when dealing with wildlife infractions, alienating communities away from the conservation processes. Apart from the lack of mastering the law, magistrates are also reluctant to apply the maximum sentence to poachers, thus providing no disincentive to killing endangered species. In addition, some poachers corrupt some wayward magistrates and forestry guards by giving them huge sums of money (Confidential pers comm).

### **IV. 3 Difficulty linking climate change to biodiversity conservation**

Development of national policies related to climate change issues remains a challenge. Until now, policy makers have not identified strong adaptation and mitigation approaches to climate change issues, particularly with the anticipated high demand for agricultural products. During a recent conference on climate change organized in Douala, MINEP highlighted that the agricultural sector contributes 41%, of greenhouse gas emissions in Cameroon.

There is a need to increase budgetary resources to enable construction of infrastructure such as dams to boost energy production which is vital for industrial growth. However, this

infrastructure, together with the expansion of mining exploration and exploitation, will certainly aggravate problems associated with land use – and, by default, climate change and biodiversity particularly as mining exploitation and dams construction are located in the jungle forest, part of the second largest tropical forest in the world. These new investments will certainly aggravate problems associated with deforestation and forest degradation, especially as Cameroon has not yet finalized its REDD national strategy. There has been increasing attention to climate change over the last five years in Cameroon – demonstrated by the creation of a national observatory on climate by the Head of State. Unfortunately, this is still to be translated into concrete action on the field.

#### **IV.4 Limited capacity to fight pollution**

Although there is a framework on pollution, Cameroon has encountered many problems related to this issue. For example, in April 2010, an oil spill was reported at the Chad – Cameroon pipeline in Kribi. Such events can cause irreparable damage to biological diversity.

Monoculture farming practices are common in the volcanic highlands of western Cameroon and there have been reports of widespread use of illegal pesticides by agricultural companies. For example, in 2009, the French daily newspaper *Liberation*, accused High Penja Plantations, the largest producer of export bananas from Cameroon of spraying a pesticide chlordecone which was prohibited since 2002. Such chemicals are dangerous for human health as well as for biodiversity. It is anticipated that pollution of this sort might become common in Cameroon with the extension of agro industries. Though EIA is now a compulsory requirement to most projects, some strategies highlighted by the EIA actually undermine sustainable natural resources management. For instance the Summary EIA of the C and K mining company exploiting diamonds in East Cameroon states that “payment of compensatory indemnities linked to deforestation and destruction of exploitable wood is envisaged in the case where the wood cannot be used by the mining company”. This is an incentive for the company to exploit the wood before the diamond. Planned mining operations in East Cameroon might also be associated with high level of water pollution, affecting communities who used mostly water from streams.

#### **IV.5 Inadequate budget allocations**

According to Nlom (2011), in Cameroon, the approximate cost of efficiently managing protected areas stands at about 16 million USD per year. There are internal instruments to support conservation including the Public Investment Budget (PIB), the operating budget (BF) and special development funds for wildlife and protected areas. The PIB is the overall annual state budget and is also the primary tool that the state uses to achieve the Millennium Development Goals. This tool is mostly used for infrastructure development. Meanwhile, the BF covers the cost of day to day PA operations while the special funds provide for conservation and sustainable development of wildlife resources. The source of these funds is as follows:

- 30 %: Recoveries from licenses (e.g. hunting licenses, etc.).
- 40% Proceeds from fines, settlements, damages, public auction and other seized objects.
- 30%. Collection of duties and taxes other than those mentioned above

Apart from internal sources, several donors also support conservation initiatives, but funds are not always properly used (confidential source). This has frustrated some donors supporting the Cameroon Forest and Environmental Sectoral Program (PSFE) which involve the two main ministries in charge of biodiversity management. There is the prospect to receive more funds for conservation with the newly created African Funds for the Environment (CAFE) and the Congo Basin Forest Fund, However, the Cameroon officials in charge of preparing project proposals needs to be serious in the entire process: they either complain of time or the capacity to elaborate the projects. Major donors of the Cameroon Forest and Environment Sector Program have decided to suspend funding the program because of poor management.

#### **IV.6 Insufficient communication and training**

In 2005 the Ministry of Forestry and Wildlife was invited by international partners to visit the jungle forest in East Cameroon. Local communities reported that they did not have this privilege over the past decade. High level authorities rarely go to the field except during political campaigns during elections. They mostly dispatch their subordinates and communicate mostly with tools which are not accessible to communities (Internet, newspapers, and briefing notes, radio programs monthly and semi-annual information.). Though these tools are important in urban cities and permit biodiversity ministries to share their experiences and their conservation and development efforts, unfortunately, they are not relevant to rural areas. In addition, the websites of administrative structures are very porous because most of them contain little or no information and where there is any information, they contain obsolete information/data.

Researchers, administrative staff and other Government partners find it extremely difficult to obtain viable administrative and technical information. The training costs in Cameroon are high and do not encourage personal financial investment efforts. For example, the average costs per annum at the Garoua Wildlife School are 6800 USD, approximately two years salary of a middle class civil servant. Finally, operating technicians are not encouraged to enhance their technical capacity for possible appointment at higher position levels since some believe that appointments are politically motivated.

## **V. Conclusion and recommendations**

Although Cameroon is plagued by a myriad of biodiversity problems, the Government has demonstrated the political will to integrate biodiversity conservation into the overall national development policies in the last three decades. For example, this can be seen through the creation of two biodiversity related Ministries (MINFOF and MINEPDED) and the signing of many conventions and partnerships with different international organizations (WWF, IUCN), multilateral Agencies (WB, IMF, UN Systems) and various Governments (USA, France, Germany, etc) and African countries notably. This political will has been supported by actions such as the creation of protected areas, the fight against the killing of endangered species, the creation of professional institutes for biodiversity conservation, capacity building, etc. As evident in the findings of this research work, there have been several measures taken by the government to enhance the integration of biodiversity conservation into national development policies. However, we also observed a lot of bottlenecks which hindered the effective implementation of the process. These bottlenecks include: corruption, the long period before the promulgation of law, and the ineffective implementation of existing laws which has triggered massive loss of biodiversity such as the recent killing of more than 200 elephants in the Bouba-Ndjida national park during the first quarter of 2012.

Despite these insufficiencies and loopholes observed, there is hope for the future in the conservation of biodiversity if solutions are provided to compliment these insufficiencies

The following recommendations could be drawn to mainstream biodiversity conservation in national development policies:

- Enhance the trans-boundary management of flag species by reinforcing actual existing trans-boundary agreements and initiatives.
- Improve judicial and law enforcement structures in protected areas and timber concessions.
- Standardize protocols for training and implementation of biological diversity monitoring programs and set up exit strategies where these programs could be managed by nationals after the programs end.
- Develop and sustain human wildlife conflict mitigation strategies and clearly adapt them in the legal framework.
- Develop an epidemiological surveillance system and rapid response structure for the emergence of wildlife diseases.
- Enhance capacity building, monitoring systems, and promotion of wildlife protection laws in logging concessions.
- Put in place appropriate mechanisms to exploit ecotourism potential for wildlife with benefits to both conservation structures and local communities.
- Integrate women fully in biodiversity conservation and put in place good mechanisms for such integration.
- Develop a sustainable platform for collaboration between stakeholders about logging issues.

- Ensure that forest companies can operate within a stable political and economic climate. However, it will be important to encourage these companies to comply with forestry laws and take the necessary measures to sanction defaulters
- Ensure the legality of the entire production of timber through FLEGT-VPA notably
- Ease the disbursement of funds to facilitate the administrative aspects, for instance in place a special structure to managed PSFE funds and remove their management under MINFOF MINEPDED.
- Enhance the current monitoring and evaluation of the financial system to make sure that funds for conservation are efficiently used

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