EXPLOITATION AND EXPORTATION OF *Pericopsis elata* (Fabacea) IN CAMEROON

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ABSTRACT

Cameroon's forest law was promulgated in 1994. This law takes in consideration the three main dimensions of sustainable use of forest products as formulated by the convention on biological diversity, namely the ecological, social/ cultural and economical dimensions. The implementation of management plans or simple management plans implies for loggers or communities, three main constraints including the respect of the annual surface of the forest to be harvested, the respect of the volume of timber to be harvested, and the respect of the minimum exploitable diameter. To ensure the control of forest logging and wildlife exploitation in the country, the forest administration has created a National Brigade, which is working closely with an independent national observer. Local people are involved in the management of forest resources, and they are gaining royalties from taxes paid logging companies and professional hunters. To enhance the contribution of the forest sector in the national budget, Cameroon government acted in securing and increasing forest taxes by creating the Forest Revenues Enhancement Programme, and in allocating forest concessions and hunting areas on a competition basis. *Pericopsis elata* or Assamela, a Fabaceae, classified among the most important timbers in Cameroon, has a FOB value that ranges between 156,608 FCFA and 173,092 FCFA according to the harvesting zone in Cameroon. The main phytogeographical area of *P. elata* in Cameroon covers a total area of 4,071,857 ha in the South-eastern region. Data gathered in different surveys in forest management units tend to show that Assamela is still abundant in its distribution area, with a density of 0.52 stem/ha. The problem resides on the efficiency and the credibility of those inventories, which are often conducted by loggers themselves and for a specific target (exploitation). One of the measures undertaken by the Cameroon government to ensure the conservation of Assamela was the increase of its minimum exploitable diameter from 80 to 100 cm. This is considered as being the highest in the Congo basin. The National Agency for Forest Development is the scientific authority in charged of questions regarding Assamela and other plant species concerned with CITES rules in Cameroon. All those measures aim to ensure the conservation of *Pericopsis elata* in Cameroon and lead to the rejection of the idea supporting the ban in its exportation. To ensure and enhance further conservation of Assamela in Cameroon, we suggest: (1) the National Agency for Forest Development should conduct sound management inventories, and assess the abundance of Assamela in Cameroon; (2) Based on those data and others regarding socio-economic aspects, the state of vulnerability of Assamela in Cameroon should be established and updated; (3) The Cameroon government should promote the

plantation of *Pericopsis elata* and the development of forest plantations with this plant species and other threatened timbers or non forest timbers resources such as *Prunus Africana* and *Pausinystalia johimbe*.

INTODUCTION

Cameroon is located in Central Africa, tropical zone, and counts about 475, 000 Km^2 Cameroon (see figure 1) is divided in ten administrative provinces: the Centre province (Yaoundé being the capital), the Littoral (Douala), the East (Bertoua), the South-east (Buea), the North-west (Bamenda), the South (Ebolowa), the Adamaoua (Ngaoundéré), the North (Garoua) and the Far noth (Maroua).

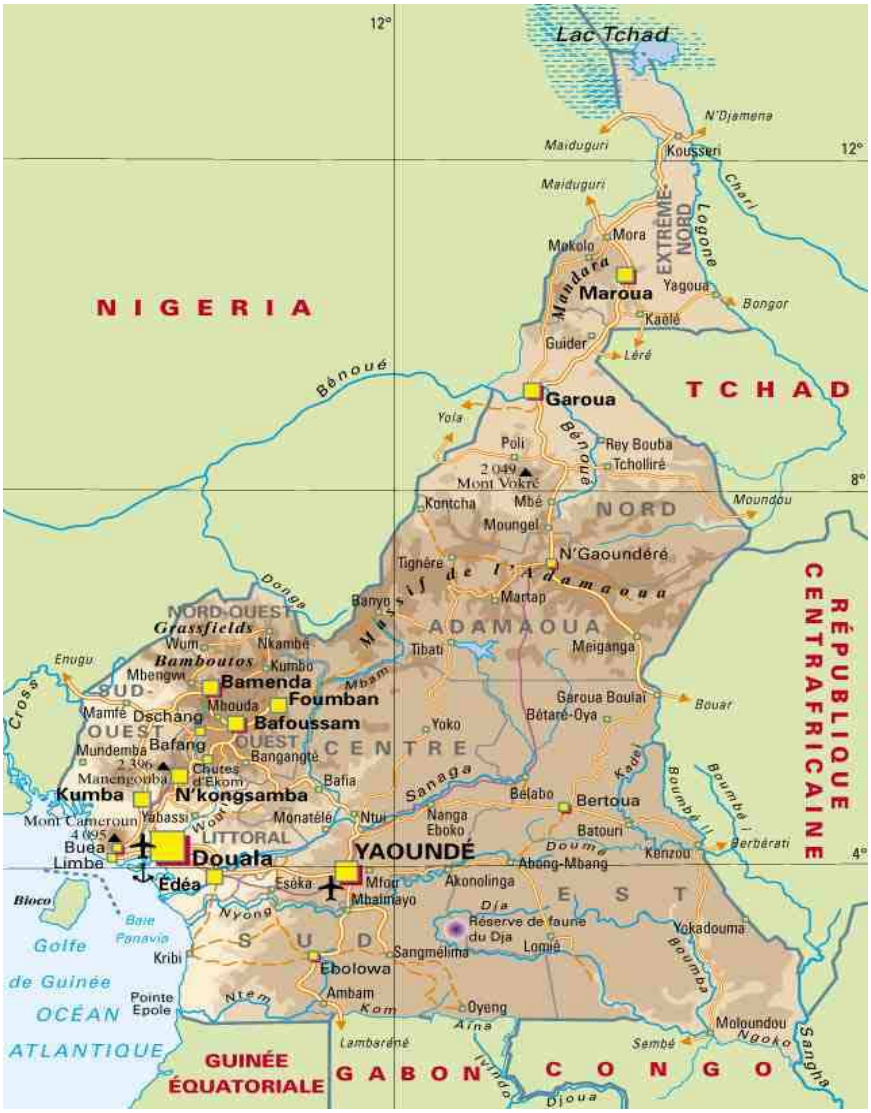

Figure 1: The administrative map of Cameroon with different provinces

Cameroon totalises about 16.5 millions of hectares of dense rain forests (FAO/PNUD, MINAGRI 1989). The total number of timber plant species is about 333 while that of food plant species is 6,000 representing 40 to 50% of the total flora. About 1,000 medicinal plant species are found in the country.

The country contains two main climatic domains: the equatorial domain and the tropical domain. Cameroon is often considered as Africa in miniature due to the large variety of ecosystems and climates.

Cameroon is considered as one of the most advanced in terms of forest sector policy in the Congo basin (Carret 2000, Karsenty 2006). This means that, Cameroon is the first country to have produced and implemented a good and coherent forest code in the sub-region, after the summit of the world on sustainable development held in Rio de Janeiro (Brazil) in 1992.

This paper aims to (1) underline the progress made in the forest sector after the new law (first part of the work), and (2) to explore the state of vulnerability of *Pericopsis elata* or Assamela in Cameroon based on data gathered on the exploitation of this plant species. Data were gathered in different reports and during discussions conducted in the Division of Forest.

BACKGROUND IN THE FOREST SECTOR

Cameroon's forest law was promulgated in 1994 and other application tools were published in 1995 (MINEF 1996).

The elaboration of sartorial policies relating to the conservation of biodiversity and sustainable development include mainly Forest and Wildlife Policy, the objectives of which include:

a. Protection of nation's forest and wildlife heritage by participating in the conservation of the environment and the preservation of biodiversity in sustainable manner, as well as renewing the forest and wildlife resources through better management;
b. Regular supply of forest and wildlife products in a sustainable manner for the present and future generation;
c. Forestry and Wildlife Law n° 94/01 of 20.01.94 and its various implementing decrees. Compared with past policies, it makes statutory the involvement of rural populations, partners and stake holders in its implementation, notably by the ownership of community forests. This innovation is intended to encourage people to better protect their vegetal cover. The management of forestry resources for actions in long term, with benefits, is central to the provisions of the law.

As it can be observed, this new forest code is interesting since it takes in consideration, the three main dimensions of the sustainable use of the forest products as formulated by the

convention on biological diversity and comprising: the ecological dimension, the social and cultural dimension and the economical dimension.

The ecological dimension aims to promote and guarantee the conservation of forest resources for future generations. To do this, Cameroon government through the forest administration acted in different logical steps: the knowledge of the resource, the zoning of the country and affectation of different land uses, the enhancement of the forest and wildlife control and monitoring. The national inventory conducted during the years 1980 led to the division of the forest zone in two main domain types, namely the permanent domain and the non-permanent domain. The permanent domain is the one which interests us since this domain comprises the production forests also known as the forest management units (FMU), the council forests, protected areas, hunting zones, …. The non permanent domain is composed of land affected for agricultural activities, community forests, community hunting zones,… The FMU are assigned to the sustainable production of the wood and other resources (for e.g. non timber forest resources) in respect to the conditions that allow the preservation of ecological, environmental, and sociological functions of the forests. Till date, a total of 83 FMU have been attributed for a total area of 1,835,367 ha. Two FMU are still in the process of attribution and nine are preserved for the conservation of biodiversity. When allocating FMU to a given company, a preliminary three years agreement is signed between the Forest administration and the forest company. The terms of this preliminary agreement state that the forest company has to produce within the three years of the agreement, a management plan in respect to the norms and rules indicated in the forest law. At the end of the preliminary agreement, a definitive agreement is then signed between the forest Company and the Cameroon government for a period of 15 years, renewable. More than 20 forest companies have produced their management plans, some of which are in the process of validation by the Inter ministerial Committee, established to this end. The implementation of the management plan implies two main constraints for the company: the respect of a specific part of the forest that has to be exploited (block of about 2500 ha, to be exploited for 5 years) and the respect of the minimum exploitable diameter (DME). Community forests (about 2500 ha) are also exploited for 5 years according to guidelines prescribed in a specific document called “simple management plan”. The community to whom the community forest is allocated has three main constraints, which are the respect of a specific surface of the forest that has to be exploited (block to be exploited for 1 year), the respect of the DME, and the respect of the total volume of timber to be harvested. To ensure the control of the forest logging and wildlife

exploitation in the country, the forest administration has created a National Brigade, which is working closely with an independent national observer (Global Witness). The forest law aims to promote a sustainable exploitation of timbers (by the increase of the harvesting volume per hectare) and non timber forest products. The forest code also aims to diversify and ensure the high processing of forest resources. This implied the settlement of appropriate and performing processing units (industries), and also the search of the adequacy between the capacities of industries and the available of resources. The measures undertaken within the application of the forest law have had a significant impact on the development of the forest sector. These measures and rules included: the forbidden of the exportation of logs of many species, the instauration of additional tax for the exportation of logs of concerned species, the obligation for forest companies to settle a processing unit. Following these measures, the number of forest industries increased, even if the harvest volume per hectare did not increase much.

The social and cultural dimension is one of the important innovations outlined in the Cameroon forest legislation. This dimension states that, the local people may participate to the management of forest resources and may gain some profits of the exploitation of those resources. The concrete measures undertaken by the Cameroon government in this regard are for e.g., the obligation of forest companies or wildlife societies to realise certain number of social activities (duties) such as the creation of schools, health centres, etc… for the benefit of local communities, the payment of the annual forest tax ("*Redevance forestière annuelle"* in French) by the exploiter. The annual forest tax is a specific tax that is settled on the surface of the forest under exploitation. This tax is shared between the public treasury or the forest administration (50%), the local council (40%), and the local communities (10%). The annual forest tax exists in both timber and wildlife (hunting) sectors. Other concrete social measures under experimentation within the forest and wildlife sectors in Cameroon concerns the allocation of community forests and community hunting zones to the local people. These forests and hunting zones are exploited by local communities who can sign specific agreement with the forest administration and other partners. So far, a total of 19 community hunting zones have been allocated to local people by the government and many communities are now looking to have their own.

The economical dimension states that, the exploitation of forest resources may contribute to the national budget. To attend this objective, Cameroon government revised the forest sector and initiated a forest fiscal reform (FFR). This was not easy, since the FFR does not only means increasing tax rates, nor only conserving forest products. The value of a fair forest tax

resides in its capacity of increasing forest revenues and conserving forest resources (Sholl 2005, Betti 2007). Increasing tax rates is often considered as an unpopular measure and thus difficult to communicate. FFR goals, namely generating revenue, providing incentives for an environmentally more sustainable resource use, can often be achieved by various complementing measures, such as increasing enforcement of existing fiscal efficiency, as well as competitive allocation of concessions. Cameroon government applied strictly these assumptions by taking two important measures: the allocation of FMU by competition namely adjudication and by the creation of the Forest Revenues Enhancement Program (FREP). The competitive allocation of FMU promises higher revenue, and is more efficient and fair allocation of harvesting rights administratively. The creation of the FREP in 1999 aimed to combat tax frauds and increase the contribution of the forest revenues in the national budget. The realisations of the FREP are illustrated in table 1 during the first years of functioning.

Table 1. Evolution of forest taxes with the creation of the Forest Revenues Enhancement Program (source PSRF 2004)

Year/period	Amount of revenue (in billions of FCFA)
1999	11
2000 – 2001	27
2001 – 2002	38
2002 - 2003	39

These results are enough to explain the important rule of the measures undertaken by the Cameroon government for a sound economical exploitation of timber resources.

EXPLOITATION AND EXPORTATION OF Pericopsis elata IN CAMEROON

Pericopsis elata largely known as Assamela or Afrormosia, is a high tree, belonging to the Fabaceae family, often found in the semi-deciduous forest types. This plant species covers all the West and Central Africa, in the Soudano- zambesian region (White 1983). In Cameroon, *Pericopsis elata* is limited to the South-eastern region, namely in the Dja, Boumba, Ngoko and Sangha basins (Vivien & Faure 1985). Three national parks (see figure 2) exist within the specified area of Assamela, namely: Boumba-Beck, Lobéké and Nki, for a total area of 777,729 ha.

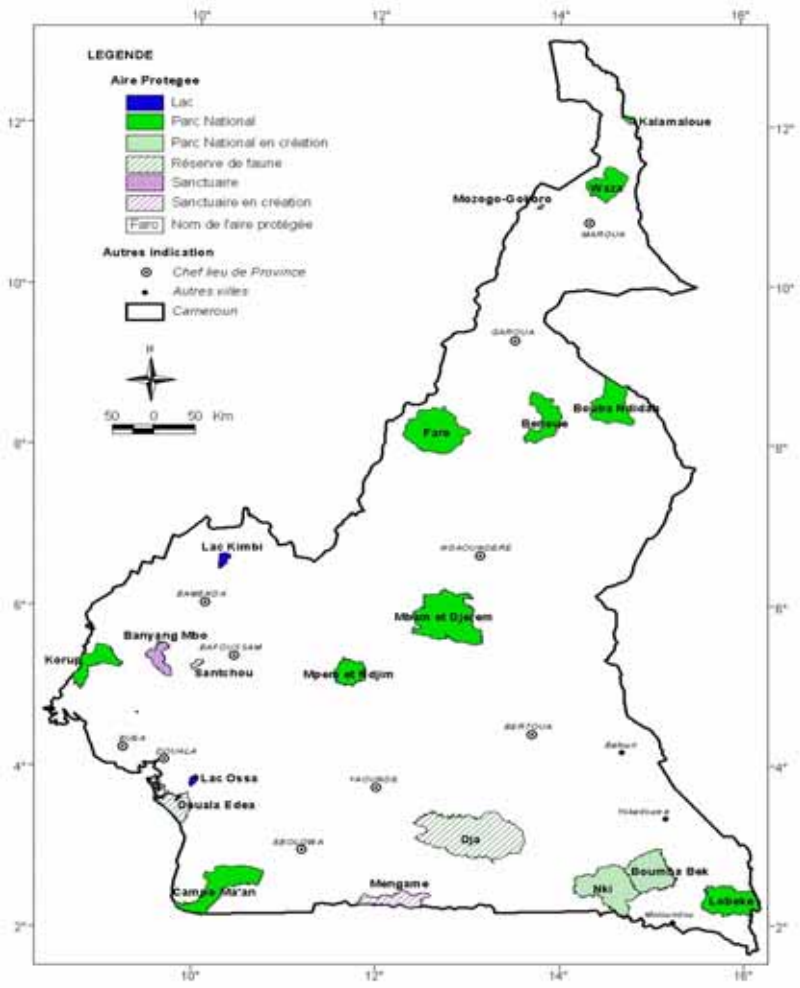

Figure 2 : Location of the three protected areas (Boumba-Bek, Lobéké, and Nki) where Assamela is found in the national network of protected areas in Cameroon.

Pericopsis elata is classified among the most threatened plant species in the world according to IUCN. The importance of this timber species is linked to its high quality of wood, which is largely solicited and which is sometimes used as the substituted of *Tecktona grandis*.

Assamela is classified among the most important and economic value tree logs in Cameroon, with a FOB (Forward On Board) value ranging between 156,608 FCFA and 173,092 FCFA according to the harvesting zone in Cameroon.

The main phytogeographical area of *P. elata* in Cameroon covers a total area of 4,071,857 ha in the South-eastern region.

About 43% of this area are protected areas, 42% are FMU, and only 15% are assigned to farms and other agroforestry activities.

The updated results of the national inventory conducted in the forest zone of Cameroon, are not yet available. The only data often used for estimating the density of the plant species in the south east forest zone are those produced by forest companies. Those data are recorded during the exploitation inventories, with a sample rate of about 1%. Such an inventory cannot be very efficient, credible and useful since it is conducted by the forest loggers themselves for specific targets (exploitation and economic considerations). Also, the inventory is limited to trees with diameter at breast height of above 20 cm. Nevertheless, according to those inventories, about 829,000 stems of *Pericopsis* exist on a total area of 1,602,209 ha, leading to the density of 0.52 tree/ha. According to Forni (1997), a plant species is said to be threatened if its medium density is less than 0,05 stem/ha. This assumption, which was used by the Cameroon forest administration as argument of claiming the non vulnerability of Assamela, is not enough. The vulnerability of a plant species is not only link to its abundance or density in the forest; many other factors influence endangerment of a given plant species. In fact, the vulnerability or the endangerment of plant species should be based on two groups of parameters or constraints: the internal constraints and the external constraints (Betti 2001, 2002). The internal parameters are those that are linked to the proper characteristics of the plant species including for example the morphological type, the habit type, the type of scattering of seeds, and the abundance/density of the plant in the forest. The external parameters are those linked to environment (wind) and human activities such as the popularity of the resource, the plant part used, the way of harvesting, and processing. The combination of those parameters leads to the establishment of the relative endangerment of a given plant species.

Figure 3 shows the distribution of stems of Assamela per class of diameter. The figure characterises plant species that require the light, tending to illustrate a weak level of regeneration of this plant species in the primary forest.

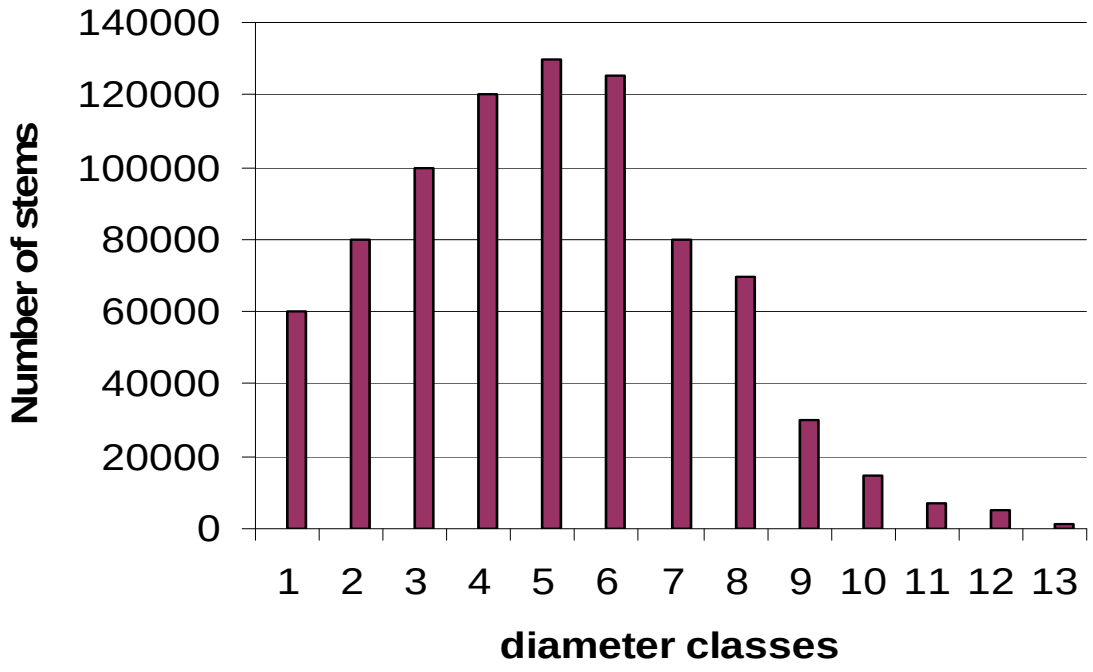

Figure 3: distribution of stems of Assamela per classes of diameter (MINEF 2004)

This means that, forest logging which is considered as a tool for forest clearance (forest logging opens the primary forest and allow the light to reach seeds and young stems of Assamela) may have a positive effect in the survival of this plant species. The light being one of the limit factors for the growth and development of young stems of Assamela. According to ATIBT (2002), the harvest of *P. elata* of 80 cm diameter at breast height (dbh) improves the dynamism and facilitates the regeneration of the plant species.

Management prescriptions of FMU in Cameroon are based on that important parameter of individual (or specific) curve (MINEF 2004).

The DME of *P. elata* is equal to 100 cm; which is crucial for the sustainable utilisation of the plant species. This DME is considered as being the highest in the Congo basin (Barney & *al*. 2005). This DME classifies Assamela among the high DME plant species together with moabi (*Baillonella toxisperma*), Tola (*Goswweilodendron balsamiferum*), Iroko (*Milicia excelsa*), and Sapelli (*Entandrophragma cynlindricum*).

Table 2 shows the production of Assamela declared by forest companies to the forest department database on forest logging for the period between 2002 and 2006. The results show an increase in both the number and the volume of logs of Assamela between 2004 (14,200 m3) and 2006 (18,473 m3).

Table 2. Production of Assamela between 2002 and 2006 (SIGIF 2007)

Year	Number of logs	Volume (m3)
2002	1596	17868
2003	1231	14346
2004	1214	14200
2005	1399	16490
2006	1494	18473
Total	8871	102 583

The decrease of the production during the years 2003 and 2004 may be due to the problems arised in the regulation of *Pericopsis* timber by both the Commission of European Union and the CITES against Cameroon government.

The wood of Assamela is mostly exported to the following countries: Italy, China, Holland, United State of America, Belgium, France, South Africa. The forest companies which export the high quantity of timber of Assamela from Cameroon are: SFID, CFC, SEBC, SEFAC, GRUMCAM, SFWI, and TTS.

Data recorded from CITES indicated that for a period of 7 years, between 1993 and 1999, Cameroon exported more than 21,000 m3/year of Assamela. During the period 2000 and 2003, the exportation dropped down to the mean of 7000 m3/year. This may be linked to the ban in the exportation of logs from Cameroon in 1999.

According to the available data, and mostly for the questions addressing the implementation of the management plans in different FMU, we can said that Assamela is not threatened in Cameroon.

In 1980, Cameroon government tried to plant *Pericopsis elata* in the forest reserve of Deng-Deng, in the Kebe block to be precised. The results were interesting, since today, the diameter of stems varies between 40 and 50 cm. This experimentation permits the forest sector to gather useful tools, which are required for the slviculture of Assamela in Cameroon. The sylviculture of this plant species can be easily acquired by villagers and economical operators.

In 2004, the question regarding the absence of the scientific authority in charged with Assamela in Cameroon was targeted as one of the problem around this plant species. Today, it is clear that the ANAFOR which replaced the ONADEF, is the scientific authority for CITES plants in Cameroon.

The main recommendations formulated during the CITES Committee on plants required that Cameroon government provide information and justifications around the following three questions:

- the policy framework guiding the sustainable exploitation of *Pericopsis elata;*
- the procedures in issuing the exportation certificate for *Pericopsis elata*;
- the control and monitoring of exportation volumes in regard to the article IV of CITES.

To answer these three questions, it is important to remind the political and institutional framework that guides the exploitation and exportation of *Pericopsis elata* in Cameroon.

Pericopsis elata is regulated in Cameroon through the Ministry of Forest and Wildlife, the Ministry of Financial Affairs and the Ministry of trade. The ministry of forest and wildlife is concerned with the management of the plant species. Two departments of the forest administration are concerned for this plant species including the forest department and the department for the promotion and processing of forest products. The forest department ensures the management of the resource, including the inventory, the control, the allocation of FMU, the control, and monitoring of the exploitation of this plant resource. This department has built a database on forest logging in Cameroon. This database recorded data regarding forest companies, FMU, plant species, number of timbers and volume of timbers declared by the foresters (forest companies). The department for the promotion and the processing of forest products is concerned with the issuing of the exportation certificates. The exportation certificate is issued after verifying that the timber is harvested in good manner These certificates are issued for companies who have observed and applied the rules regarding the sustainable exploitation of *Pericopsis elata* as stated by the forest law. The department for the promotion and the processing of forest products works closely with the ministry in charged of trade matters. The financial and economical administration fixes and collects the forest taxes mainly through the FREP. The FREP works in close collaboration with the forest department and with the forest logging database.

The control and monitoring of *Pericopsis* resource within the country is assumed by the forest department through the National Brigade. The independent observer (Global Witness) assists the Brigade in this task, and mainly for matters regarding the respect of logging area limits. The main quantity of *Pericopsis elata* is exported from the Douala and Kribi ports. At these points, the General Society of monitoring (*SGS = Société Générale de Surveillance* in French)

does not only records data regarding the timber volume exported, but it also controls this exportation, in collaboration with the FREP, customers and forest officers. The presence of forest officers is crucial in the port since customers and other financial administration agents do not have skills for the identification of timbers.

In regard to what precedes, we can note with satisfaction that the forest law and other measures undertaken by the Cameroon government provide an adequate basis regarding the sustainable exploitation and exportation of *Pericopsis elata* in Cameroon.

CONCLUSIONS AND RECOMMANDATIONS

The background of the forest sector shows that Cameroon is one of the most advanced countries concerned with the sustainable use of forest resources in the Congo basin. This is due to the definition and the progressive implementation of the forest 1994 law which conciliates the three main dimensions required for the sustainable exploitation of forests: the ecological dimension, the social and cultural dimension, and the economical dimension. Important measures have been undertaken for a sound ecological use of forest resources including the exploitation of FMU according to management plans, the enhancement of forest control and monitoring. Local people participate to the management of their environment through the community forest and these people are gaining some profits from royalties raised such as annual forest taxes paid by the forest companies and wildlife societies. The forest sector revenues have increased and contributed more to the national budget.

Pericopsis elata's exploitation and exportation are conducted within this forest policy framework, which implies the sustainable use of this plant species in the country. Results of inventories conducted by forest companies show that the resource is still abundant in the south east forest zone of Cameroon, with 0,52 trees per ha. The MDE of Assamela is fixed to 100 cm in Cameroon, and is considered as being the highest in the Congo basin. The exportation of Assamela is conditioned by the detention of the exportation certificate, issued by the forest administration after verifying that the timber is harvested in good manner.

The scientific authority which is in charged of assisting the forest administration in the CITES/Flora questions is the ANAFOR.

To support the idea of sustainability in the exploitation and exportation of Assamela in Cameroon, the ANAFOR may conduct a certain number of activities:The first one is the obligation of conducting the national inventory of *Pericopsis elata* in the whole country. According to the report of the Fauna & Flora International, some people in Cameroon claim

that this plant species does not only exist in the southeast of the country, but also in small quantity in the Dom and Mamfe regions, South west Cameroon. The national inventory will provide good and updated data, which are crucial for the management of the plant species.

The second thing is to establish the vulnerability status of *Pericopsis elata* and other important useful timber and Non timber forest products at the level of Cameroon. Such information is crucial and may guide the forest administration in the process of issuing quotas for the exploitation or the exportation of a given resource.

The forest administration may promote the development of forest plantation of Assamela in the forest zone. The importance of forest plantations is viewed in different ways. The harvesting volume per hectare of the plantation is higher than that of the natural forest. Also, planted trees are subject to the rapid certification than the wild plants. At the moment, all timber exploited in Cameroon is harvested in the natural forest. This does not guarantee the future of timber industry in the country and in the Congo basin, since the most important part of timber sold in the world market comes from plantation forests. If the restrictions concerning certification of forest products were to be applied strictly, it should have negative impact in the national economy.

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