PROJET OIBT / CITES SUR LA GESTION DURABLE DE Pericopsis elata (Assamela) DANS LE BASSIN DU CONGO

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STATE OF THE ART OF *PERICOPSIS ELATA* (ASSAMELA) PRODUCTION AND MANAGEMENT IN CAMEROON

Photo-BETTI: Stock of *P. elata* in the logging park of Groupe Thanry (CFC) in Ngola 35, South east Cameroon

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Table of Contents

Acronyms

ANAFOR	National Forestry Agency, Cameroon
ATAEF	Agent Technique Adjoint des Eaux et Forets
ATEF	Agent Technique des Eaux et Forets
CAMBOIS	Cameroun Bois
CBFP	Congo Basin Forest Partnership
CFC	COMPAGNIE FORESTIERE DU CAMEROUN
CFE	Compagnie Forestière de lôEst
CIBC	COMPAGNIE INDUSTRIELLE DU BOIS DU Cameroun
CITES	Convention on international trade on endangered species of flora& fauna
COMCAM	Commerce du bois du Cameroun
COMIFAC	Forestry Commission of Central Africa
CRD	Commun Rurale de Dimako
CRM	Commune Rurale de Moloundou
CMY	Commune Rurale de Yokadouma
DDFF	Délégation Départementale des forets et de la Faune
DF10	Field register
DRFF	Délégation Régionale des Forets et de la Faune
FB	La Société Filière Bois
FMU	Forest management unit
GVI	GREEN VALLEY INC.
Ia	Ingénieur dôagriculture
IA	Ingénieur Agronome
IEFC	Ingénieur des Eaux Forets et Chasse
ING F	Société Ingénierie Forestière
ITEF	Ingénieur de Travaux des Eaux et Forets
ITTO	International Tropical Timber Organization
J.PRENANT	Société dôExploitation Forestière J.PRENANT
KIEFFER &CIE	Société KIEFFER et Compagnie
MINFOF	Ministère des forets et de la Faune
NGO	Non-governmental organisation
PALLISCO	PALLISCO Company Ltd
PCFC	Poste de Contrôle Forestier et de Chasse
PSFE	Forest and Environment Sector Programme
REPAR	Network of Parliamentarians for the Sustainable Management of Central African Forest Ecosystems
SAB	Société Africaine de Bois
SABM	Société Africaine des Bois du Mbam
SAFIE	SAFIE
SAOMP	Subdivision Active des Opérations Maritimes et Portuaires

SCIF	Société Commerciale Industrielle et Forestière
SCTB	Société Camerounaise de Transformation du Bois
SD	Standard Deviation
SEBAC	Société dŒExploitation des Bois dôAfrique Centrale
SEBC	Société dŒExploitation des Bois du Cameroun
SEFAC	Société dŒExploitation Forestière dôAfrique
SEPBC	Société dŒExploitation des Parcs à Bois du Cameroun
SFCS	Société Forestière de Commerce et de service
SFEES	Ste Forestière Eboume Ebaka Sarl
SFID	Société Forestière et Industrielle de la Doumé
SGS	Société général de surveillance
SIBAF	Société Industrielle des Bois Africains
SIGIF	Système informatique de gestion des Information Forestière
STBK	Société de Transformation de Bois de la Kadey
TEF	Technicien des Eaux et Forets
TPEF	Technicien Principal des Eaux et Forets
TTS	Transformation Tropicale du Sud

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Summary

Cameroon is a reference country in the Congo Basin in terms policy formulation and implementation to achieve sustainable forest management. However, many problems still exist in the field in relation to the control and management of forest operations as well as the gathering and analyzing of statistical data. The main objective of this study was to examine the status-quo of Assamela production and management in forest management units (FMUs) in order to inform policy makers on options towards sustainability. This study involved the review and analysis of literature from reports and the records of timber companies to identify the annual authorized volumes of Assamela, its production and residuals in the forest. Further analysis was conducted on multi-inventory data used in establishing management plans as well as data available at road and seaport checkpoints. Field checks and cross-checks on data were carried out in the Ministry of Forestry and Wildlife (MINFOF) at the central, provincial, divisional, sub-divisional and local levels. The main results of the study showed that most authors of management plans for FMUs did not follow the same structure in writing management plans. This rendered data collation and analysis on concessions and their practices difficult. Where some data was supposed to be available, accessibility was difficult because of the dispersion and poor handling of hard copies of waybills, factory entry and output registers. Reports on the activities of community forests were not available and where available not consistent for statistical analysis. Electronic versions of most activity reports for present and past years were not available. The chief of service in charge of certification at MINFOF did not have access to statistical data on the volume of Assamela transformed per year. This put to question the reliability of the certification of timber from a Convention on international trade on endangered species of flora& fauna (CITES) listed species such as Assamela. Many problems were observed on the chain of control of timber products from the forest up to the exit ports at Douala. Even at the ports, accessibility is difficult for the forest officers who encounter many problems with custom agents. There was little linkage between the main databases (SIGIF and COMCAM) that gather statistical data on forest products. The main recommendations raised included the re-organization of the control and monitoring system as outlined in the Forest and Environment Sector Programme (PSFE), development of a database encompassing logging, processing, transportation and trade statistics components, the provision of adequate materials and logistics for data collection and analysis and the training and sensitization of forest and custom officers at different levels.

Chapter I. Introduction

General context

This study was commissioned to the consultant by ANAFOR (National Forestry Agency, Cameroon) to analyze and comment on the statistics of production and commercialization of *Pericopsis elata* (Assamela) in Cameroon under the overall ITTO (International Tropical Timber Organisation)/CITES (Convention on International trade on Endangered Species of Flora and Fauna)ös project on the sustainable management of Assamela in the Congo Basin. According to Roerhorst (2006), of all trees felled worldwide, 48% are used as raw materials in the forest products industry; giving timber companies involved a significant influence on forest landscapes and their management. Timber harvesting has been documented to have immense impacts on the vegetation structure and the floristic composition of forests by triggering many disturbance regimes (CBFP, 2006; Nasi *et al.*, 2006; Ruiz-Perez *et al.*, 2005; Laurence, 2003; Veenendal *et al.*, 1996). In some cases timber exploitation has led to the rarity or endangerment of locally desirable species (Tieguhong and Ndoye, 2007a). The international community has become conscious of this trend and has put in place norms under the auspices of CITES. CITESôrole is important to ensure that the international trade in endangered commercial wild plants and animals is based on legally acquired products that are harvested in a sustainable way. This is aimed at avoiding extinction of species by controlling harvests, exports and imports. The drive is to ensure sustainable forest management, which is in line with the forestry legislations and codes of practice for timber harvesting and trade in most countries of the Congo Basin.

The countries of the Congo Basin are committed to ensuring sustainable forest management in the region especially within the framework of regional processes such as COMIFAC and REPAR (Tieguhong 2009a&b, Tieguhong and Betti, 2008). Indicators to the achievement of this objective could become evident when an endangered species listed in CITES Appendix II is unlisted in the long run. A Commercial timber species that fall under this consideration is Assamela, listed as CITES Appendix II species in 1992. This means that its production and trade are controlled by a quota system in accordance with international norms such as specified quotas allocated per year (Tieguhong and Ndoye, 2007b). Such a quota has to be based on sound knowledge of the ecological conditions for the species, its productivity and the current stock in natural and/or planted stands. However, there is paucity of knowledge to this effect making the

non-detrimental findings for this species a matter of guesswork (Betti, 2008). In 1997, Assamela ranked in the 15th position for the most commercial species exported from Cameroon with total export volume of 18 433 m^3 representing 1.34% of all timber exported (SGS Cameroon S.A., 1997). The main recommendations formulated during CITES committee on plants required that the Cameroon government should 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 *P. elata*
- The control and monitoring of exportation volumes in regards to articles IV of CITES

To answer these three questions, field realities have to be factored into existing political and institutional framework that guides the exploitation and exportation of *P. elata* in Cameroon.

Research questions

The main research questions that guided this study included:

- In which general context is the exploitation, processing and trade of *Pericopsis elata* conducted in Cameroon? Better asked, what are the management measures undertaken for *P. elata* in Cameroon?
- Do management plan documents respect the norms requested by the Cameroon government?
- Which services are in charged of gathering and analyzing statistical data on *Pericopsis elata* in Cameroon?
- What are the problems those structures face in gathering statistical data on *P. elata*?
- Which timber companies lead in accessing rights to production and trade in Assamela in Cameroon?
- Are the timber companies harvesting or trading volumes that concord with the management plans of their concessions?

- Are the companies that gain rights to the production of Assamela the same as those that export the processed products?
- Can the current rate of harvesting Assamela render the species an endangered timber tree in Cameroon?

Objectives

The main objective of this study was to examine the status-quo of Assamela production and management in forest management units (FMUs) in order to inform policy makers on options towards sustainability.

Specific objectives include:

(1) To collect data on timber production, transportation and exports in Cameroon (explore field registers, factory wood entry registers, waybills etc);

(2) Document the structure of institutions in charge of data collection and analysis in the wood sector with focus on Assamela;

(3) Make a comparative analysis of the capacity and potentials of forest management units, timber companies producing Assamela;

(4) Draw lessons on the strengths and weaknesses of data collection and analysis with particular focus on Assamela;

(5) Make appropriate recommendations for realistic action plan to better monitor the production, transformation, transportation and exportation for Assamela in Cameroon.

Structure of the document

After the introductory section, this document is composed of eight Chapters. Chapter 2 presents Cameroon as a country in general and the method used to gather data. Chapters 3 to 8 present some results according to the research questions. The document ends with some conclusions and recommendations addressed to the Cameroon government and other stakeholders involved in the Assamela trade chain.

Chapter 2. Study area and method

2.1. Study area

The Congo Basin is one of the two most extensive and contiguous forested regions in the world, second only to the Amazon basin; it epitomizes the dialectics of forest conservation and its use for sustainable development. Because forests provide both a source of income and a life-supporting environment to many peoples, animals and plants; forest conservation itself poses many complex challenges.

Cameroon belongs to the Congo Basin, located at the centre of Africa near the Equator and covers about 475,000 km2. It totals about 16.5 millions ha of dense rainforests. The flora component (higher plants) has 7,000 species of which 300 are woody plants, ranking Cameroon 4th in Africa after the Democratic Republic of Congo, Tanzania, and Madagascar (MINEF 1995). From South to North, there are various types of tropical rainforests, humid savannah, forest galleries, dry forests, dry savannah, steppes and paeres. Apart from these natural ecosystems, there are also man-made agro-ecosystems (Letouzey, 1968; 1985). Cameroonôs phytogeographical map can also be classified as follows: afro-mountain region, in Southwest, West and Northwest regions, the Soudano-Zambezian region in the North and Far-north regions, the Guineo-Congolese region found mainly in the Centre, South, Southwest and East regions, the Dja-Congolese district found in the East and South regions, and the Pery-forest savannah found in the Adamawa region (Letouzey cit. Sonké 1998).

Cameroon is often considered as Africa in miniature due to its large variety of ecosystems and climates. The various ecosystems have always been inhabited by Cameroonians, who have, some how, reshaped them through the years by harvesting this rich biodiversity for food, income, medication and construction of houses (Tieguhong, 2009b). According to the Cameroonôs minister of forestry and wildlife, ñthe forest sector of Cameroon contributes to some 30% of total non-oil export revenues. Presently, the timber industry ranks first in terms of exported goods deadweight and accounts for 20% of the total value of exported goods. Its contribution to GDP rose from 4.3% in 1992 to 8% in 1999 and is currently exceeding 12%. It directly and indirectly employs 90,000 persons. This development potential can only become sustainable within a participatory management plan articulated both outside and inside the countryò (Ngolle Ngolle, 2008).

The utilization of forest resources is not always rational and sustainable thus constituting a threat to biodiversity. Farming systems such as slashï andï burn agriculture constitutes the major cause of the destruction of the tropical forests. It is important to note that poaching, which used to check animal populations has now become a real drain on wildlife. Activities of forest logging companies are viewed as some of the main causes of intensive poaching and commercial hunting (Betti, 2004; MINEF, 1995).

Among the ten regions of Cameroon, six, namely the Centre (Yaounde being the capital), East (Bertoua), Littoral (Douala), South (Ebolowa), Southwest (Buea) and West (Bafoussam) regionss, are situated in the forest zone where logging and ñwild sawingò are commonplace. The three Northern regions, namely the Adamaoua (Ngaoundéré), the North (Garoua) and the Far North (Maroua) regions, are situated in the savannah area, mostly concerned with sport hunting activities with most wood supplies coming from southern part of the country. In Cameroon, the distribution of Assamela is largely restricted to the East region. This region is largely covered by the semi-deciduous and transition forests and is often referred to as the main reserve of timber resources in the country because it contributes about 53.5 % of the total volume of timber produced in Cameroon (MINEFI, 2006). In terms of cash income contribution to government revenue, this region in 2007 contributed about 3 billions Franc CFA from felling taxes only (Mr Mbandji, the East Provincial Delegate of Forest and Wildlife, pers. com.).

2.2. Research method

This study involved the review and analysis of literature from reports and the records of timber companies to identify the annual authorized volumes of Assamela, its production and residuals in the forest. Further analysis was conducted on multi-inventory data (management and exploitation inventories) used in establishing management plans. Field checks and cross-checks on data were carried out in the Ministry of Forestry and Wildlife (MINFOF) at the central, provincial divisional, sub-divisional and local levels. Information at road and seaport checkpoints, and the forestry revenue recovery programme (PSRF) were also collected. In every institution visited in Yaounde, Douala and Bertoua, the perceptions of resource persons on data collection and analysis with regards to Assamela and the timber sector at large were sought. Overall, data in

management plans was analyzed to get reporting coherence on stock and availability of Assamela in concessions, data from DF10 was analyzed to get production per concession, data in waybills and from COMCAM (Commerce du bois du Cameroun) were analyzed to get processed volumes and exported volumes respectively. Further comparative analysis looked in stock in concessions versus authorized, authorized versus production, production versus exports volumes per Timber Company. However, the limitation of this study could be that information on Assamela trees and/or their exploitation and trade outside formal concession areas was difficult to come by. It is also important to note that data collection for this study faced several hurdles at the level of the field because of poor data handling/archiving (waybills, reports etc) for past years. It was difficult to consistently trace data five years back. For instance, at the Bertoua head office, only two reports of the Transformation service were available. Factory wood entry registers were scattered in one room at the regional Delegation. Some waybills were available but the data was not compiled talk less of being analyzed. Data from some institutions like SGS and custom offices in Douala were not easy to access, given their own bureaucratic procedures and the limited time that was made available for the field study in Douala.

The results of this study are thematically answering specific questions on management measures, monitoring/collection of data and control measures, the frequency and quantity of authorized and factually produced volumes of Assamela by timber companies in Cameroon.

Chapter 3. Management, monitoring, statistics and control measures

3.1. Management plans in place

The management plan of a FMU aims to exploit the timber resource in a sustainable manner. For Assamela, the management plan aims to ensure that the international trade in that plant species is non-detrimental to its conservation in Cameroon. Elements of the management plan are specified in the arête *n° 0222/A/MINEF/ 25 may 2001*. This Arête sets the procedures of the elaboration and approbation of management plans, and the procedures for monitoring and control of the implementation of the management plans for production forests, in the permanent forest domain. Article 5 of the arête stipules that a management plan is a document, which aims to direct forest logging activities in permanent forests through a deliberate planning of harvests in space and time, and by enhancing silvicultural interventions to ensure sustainability. This document is composed of five main sections including: (1) description of the natural milieu of the forest concession, (2) mapping, (3) management inventory, (4) affectation of soils and use rights, (5) calculation of the forest potentials (stock).

The general silvicultural provisions for sustainable forest management have been taken into consideration by the forest administration for the management of Assamela. They include the minimum girth limit: 100 cm in Cameroon instead of 80 in other countries of the Central African sub-region, the marking of seed-trees (with a record of GPS coordinates for each one of them), adequate spatial distribution and artificial regeneration work undertaken in some management units (Betti 2008). Annual production forecasts in the managed forests are over 45,000 m^3 raw timber (round timber).

As it can be observed, the management measures undertaken by the Cameroonian forest administration takes into account the main principles of the sustainable forest management as outlined by the international tropical timber organization (ITTO 1992). These measures follow the framework developed by the international technical tropical timber association (ATIBT 2002).

3.2. Structures in charge with the statistics and control in the timber sector in Cameroon

Control and gathering of statistical data on timber exploitation, trade and exportation is the main responsibility of the Ministry of Forestry and Wildlife (MINFOF). Other services are concerned,

such as the Ministry of Finance through the Forest Revenue Enhancement Program (FREP) and the General Division of Customs (GDC). The Ministry of Forestry and wildlife is concerned with the management, promotion and valorisation of forest resources, while the Ministry of Finance recovers the taxes.

Services in charge of statistics and control in MINFOF can be distinguished in two parts: the central level and external levels. Central services include services of the forest division, services of the processing and promotion division, and the Central Unit for Control. External services are those that are working under the control of the regional delegations of forestry and wildlife. The MINFOF gets two important databases on the timber sector: the database on forest logging (SIGIF), and the database on the commercialisation and export of timber products (COMCAM).

The regular circuit of extraction of timber in the country is as follow: FMU (external level) ï Local forest post (external level) ï divisional delegate of forestry and wildlife (external level) ï regional delegate of forestry and wildlife (external level) ï check points in processing units (external level) ï Central Unit for Control (central level in Yaoundé) - SIGIF (central level in Yaoundé) ï PSRF (central level in Yaoundé) ï control posts/check point along roads ï control post in port I (Douala) ï control post in port II (Douala) ï Customs office (Douala).

3.3. Monitoring provisions

Cameroon has also taken some ad hoc measures to ensure healthy trade practices and to meet the following challenges: (1) the allocation of logging titles by an inter-ministerial commission assisted by one independent observer, (2) the support of one independent monitoring organization (Global Forest Watch) to monitor the status of plant cover, (3) the publication of a national strategy document for forest and wildlife controls in Cameroon, which is validated by all stakeholders, (4) the strengthening and facilitation of obtaining forest logging documents, (5), the enhancement of forest revenues through the forest and finance administrations, (6) the reinstatement of a visa system to certify the legal origin of timber, (7) the suspension of concession agreements where applicable taxes have not been paid or where the details of the forest management plans have not been validated, (8) the requirement to have an environmental impact study implemented before the start of any forest management work for all concessions exceeding 50 ha. The Government of Cameroon is firmly committed to improving the national

forest governance but is also committed to raise the level of confidence that already exists between the Cameroonian forest sector and its external partners, who have been providing their long-standing support.

3.4. Control

3.4.1. Control of logging

According to the Cameroonôs forest law, two main documents are required before undertaking any forest logging activity in Cameroon: the forest logging agreement and the permit. The agreement gives access to the forest logging business, while the permit gives access to the forest resource (timber in this case). One must have these two documents before extracting any log from the forest, and mainly from the permanent forest domain (Republic of Cameroon 1994, 1995). In the control of logging, one can distinguish two types of controls: the technical control and the administrative control. Technical control consists of control measures at the point of felling and along transport routes. In 2000, a Central Unit for Control/Unité Centrale de Contrôle (UCC) was set up by the forest administration to coordinate forestry controls nationally and to support provincial control units (Brigades de Contrôle). Since 2004, the UCC became the National Brigade for Control (Brigade Nationale de Contrôle in French). To reinforce transparency in control measures, the forest administration has appointed an independent observer, Global Witness (MINEF, 2002). Global Witness is currently working together with the National Brigade for Control to ensure sustainable forest logging in Cameroon. The administrative control mainly verifies the different logging documents including management plans, DF10 sheets, and activity reports transmitted by the forest company to the forest administration (Betti 2008, 2009).

3.4.2. Control of timber products along transport routes and at the ports of export: circuit of timber from forest to abroad.

This section aims to present the regular circuit of timber from the felling site to the ports of export by a legal forest company as outlined in the forest law (République du Cameroun 1994, 1995). Let us take the example of a given concessionaire who wants to convey his products to

Douala, the economical capital of Cameroon. Once a log has been confectioned at the gantry (park where logs are kept for evacuation out of the forest), the local chief of forest and wildlife post must deliver, after further verification, two documents to the exploiter: the certificate of origin and the way bill for the transport of logs. This log is then conducted to the saw mill for processing (here we suppose that the saw mill is not located in the same place as the felling site or wood park). At the entrance of the saw mill exists a checkpoint of control. This is an external service of the Forest Revenue Enhancement Program (FREP). This service aims to verify and compile the volume of timber at the entrance and exit of all timber processing units.

When the timber has been processed, the local chief of forest and wildlife post must deliver two other documents: certificate of origin and the waybill for sawn wood, which are used to convey the sawn wood to the points of export. Along the road, there are many forest control posts and check points. At each post, the forest agent has to control the existence and the authenticity of the required documents for logs or sawn wood transportation including: the forest agreement, the annual permit with volumes indicated, the certificate of origin, cubage and the waybill. He also has to verify the conformity of these documents with the actual volume of timber transported, before putting his stamp on the waybill. Thereafter, the controller must record all the data in a book (register), provided by the forest administration to this end. The total volume of the sawn wood volume recorded at the end of each season is calculated for further verifications.

Once in Douala (point of export), the company has two alternatives: selling the wood in the domestic market, or exporting this wood. Most of the wood produced by the timber companies in Cameroon is usually destined for export. The local market is furnished by the illegal or ñwild sawn woodò (Betti 2007b). In the Douala port, the exporter has to deal with two main administrations: the forest administration and the customs administration. The forest administration is mainly composed of three main services: the chief of forest and wildlife post n° 1, the chief of forest and wildlife post n°2, and the Wood Trade database (COMCAM).

The exporter has first to present himself with his product to the Chief of forest and wildlife post n°1, based at the entrance of the port, known as ñport 1ò. There, he has to present many documents including: the agreement, the annual permit, the certificate of origin of sawn wood, the way bill for sawn wood, the certificate for export, and the CITES certificate for what concerns the CITES products (*Pericopsis elata* and *Prunus africana*). The certificate for export

is delivered by the Ministry of Forestry and Wildlife/Division of promotion and processing/Sub-directorate of processing. This certificate is issued, after having verifying that the company has paid all taxes related to the volume and quality of the wood subjected to export (felling tax and saw mill entrance tax). The certificate for export provides information on the origin of the wood, the volume, the products (sawn wood, veneer, or flooring board), the country of destination, the address of the buyer in the importing country. The company may therefore present the payment receipts issued by the FREP. The CITES certificate is issued by the Ministry of Forestry and Wildlife/Division of forests/Sub-directorate of forest management/service of forest intervention norms. This service is also the one that plays the role of the CITES management authority. The CITES certificate is issued after having verified that a company has respected the requirements prescribed for the exportation of CITES products, including the respect of the quotas allocated. Once the Chief of forest and wildlife post n°1 has verified the existence and the authenticity of all the aforementioned documents in conformity with the product subject to exportation, he then delivers the specific bulletin. The specific bulletin records data on the origin of the product (FMU), agreement, permit, volume, products, destination (importing country). This bulletin is produced in many copies; some of which are given to the exporter and some to the trade wood database (COMCAM).

With his specific bulletin, the exporter has to thereafter present himself and his product to the Chief of forest and wildlife post n°2, based at the port 2, together with the customs officers. These controllers (forest and custom officers) have to check the conformity of the declared products with what is mentioned in the specific bulletins. After these verifications (checking), the exporter has to pay the exit taxes (fees) (droits de sortie in French), before putting the product in the container for export (Betti 2008).

3.4.3. Problems observed in the field of control

3.4.3.1. During logging activities

During the logging control, forest officers are often faced to problems (Betti 2008). The most important being the lack of financial and logistical resources to appropriately conduct forest monitoring and achieve the several tiers of objectives ascribed to SFM. Many chiefs of forest and wildlife posts do not have any bike. They are usually transported to the forest by the forest concessionaires that they have to control. Under such a condition, they are often receptive to any

ñtentationò (corruption or bribery) moves proposed by the timber company. Some of the forest officers who refused to make some arrangements with the concessionaire have been abandoned in the forest (Betti, 2008). Another problem often observed in the control of timber logging in the forest, is that of the lack of coordination between different services of the forest administration. This problem was already outlined for non-timber forest products (Betti 2007) and is also observed in the timber sector.

Illegal logging constitutes together with poaching, the two serious problems of the forest sector in Cameroon (MINEF, 1995; MINEFI, 2006). Illegal logging is the harvesting of timber in contravention of a countryôs laws. Together with the associated international trade in illegally-harvested wood products, it causes environmental damage, costs governments billions of dollars in lost revenue, and is closely associated with corruption and organised crime. It also undermines the competitiveness of legitimate forest operations in both exporting and importing countries.

Different forms of illegal logging exist, including: exceeding allowed cutting boundaries, the non respect of the minimum exploitable diameter, the non respect of the volume of timber allocated, illegal felling, false declarations (Betti, 2004). Illegal felling and false declarations are said to be the two major types of illegal practices found in the forest sector in Cameroon (*http://www.idrc.ca/en/ev-28727-201-1-DO_TOPIC.html*). The importance of illegal logging has increased with the implementation of the new forest code. In fact, the more the forest activities are regulated, the more the number of infractions increases (Karsenty, 2006).

Although neglected by forest industries, the national need of wood covers by the informal sector represents some 300 000 m^3/year of timber (Koffi Yeboa, 2005). This sector is growing more and more and its economic impact is crucial at all levels including production, processing, distribution and employment (MINEFI, 1998; 2004). The evolution of the production and exportations of sawn wood in Cameroon (all exploited timbers) from 1995 to 1997 for both formal and informal sectors is illustrated in table 2.

Table 2. Evolution of the production and exportations of sawn wood in Cameroon from 1995 to 1997 (x 1000 m^3) (MINEFI, 2004).

Products	1995/1996	1996/1997
Production of the formal sector	436	460
Production of the informal sector	245	260
Total production	681	720
Local or domestic consumption	420	445
Exportations	261	275

The informal sector contributed for 505,000m^3, which represents 35.6% of the national production of sawn wood for the two exercises (1995/1996 and 1996/1997). The formal sector contributed for 64.5% with 896,000 m^3. Knowing that the logging companies prefer to produce their wood for the foreign market (536,000 m^3 for the exportation of the two periods), it is clear that the remaining 360,000 m^3 is not enough to satisfy the domestic demand which is about 865,000 m^3. Different reasons explain the proliferations of illegal logging or sawing sector in Cameroon. The main reasons include: the lack of motivations among the logging companies, the lack of clearance in the management of funds that have to be given to local communities, the complexity of the conditions required for allocating small permits and the economic crisis.

Timber companies export products according to the buyerôs requirements.

3.4.3.2. Along transport routes

Along the transport routes, technical control consists of verifying relevant documents and their conformity with the product transported. The problems observed here include the lack of sufficient and qualified personal, the lack of material of control, the lack of motivation for the forest agents, the competence conflicts with other administration. Following the structural economic adjustment undertaken in the late 1990, the Cameroon government has stopped the recruitment of forest officers in the forest administration. This had a negative impact in the forest control and monitoring activities. In many forest posts and check points settled along the road, there are one, two or three forest agents who are currently doing control. This number is not enough to ensure the control of log trucks all days and nights (24 hours/24). Also, many of the agents affected in those posts are too old now and do not get sufficient material for staying

awake and resisting to cold all night long. Due to the lack of motivation, following the reduction of the salary, most of the forest agents are sensitive to any corruption activities. Many of them do not record data from checking in their register book, as required by the forest administration. So many of these register books cannot be used, for further verifications. One cannot try to retrace the timber volume trade transported to Douala, through data recorded in those books (Betti 2007). Another problem largely observed along the roads is that of conflict of competency with other administrations such as police forces. These persons use to stop cars for checking forest products (Betti 2007).

3.4.3.3. At the points of export

The Cameroon wood is exported from the ports of Douala, Kribi, Limbé, Tiko. The first and main problem observed here is the lack of synergy between the custom officers and the forest officers. Often, the custom officers, who are posted at the end of the exportation chain, refuse to consider the specific bulletins dressed by the forest officers. Also, they used to refuse that the forest officers check the final container and consigns the transport document ñconnaissement in frenchò. In this condition, some products are exported without the visa of the forest officers (Betti 2008).

The second problem in export is at the level of the chief of post N°1. Normally, the chief of forest and wildlife post n°1 must transmitted all specific bulletins to the Trade Wood database. This is not always the case, since some specific bulletins do not exist or disappear. Such behaviour which is certainly link to corruption is detrimental to the monitoring, and checking of statistical data on the trade wood (Betti 2008).

The third problem is that of the non existence of COMCAM in other ports. Only COMCAM Doula has work correctly till date. COMCAM Limbé, Kribi, Tiko have not been functioning in fair manner. COMCAM Kribi has just started working (Betti 2008).

The fourth problem observed in the control of timber products is that of the proliferation of the ñcriquesò. ñCriquesò are informal points of export, found in many localities settled along the frontier Cameroon ï Nigeria, in the south province of Cameroon. These are unsafe sites, where forest officers cannot undertake any control mission (Betti 2007, 2008).

The fifth problem is that of lack of connection between the two forest database systems belonging to the Ministry of Forestry and Wildlife. As we can see, specific CITES requirements for *Pericopsis elata* are the responsibility of MINFOF which is the Cameroonian Management Authority for CITES. MINFOF records information on trade in timber through two database systems for the collection of revenue and to support law enforcement: SIGIF at Yaoundé and COMCAM at Douala. The problem is that, there is no connection between the two database systems. In Yaoundé, SIGIF records data on a log by log basis, while in Doula, COMCAM records data on sawn wood by sawn wood basis. Such a system cannot allow to monitor the circulation of timber in the whole country, and to make a linkage between the logs volume and the processed volume (Betti 2007, 2008).

The sixth problem is that of lack of such a system for monitoring domestic trade in wood products. Till date, the forest administration has never developed a fair system for controlling and monitoring domestic trade, which cannot help to get a global trade volume of wood in the country (Betti 2008).

In 2001, the Scientific Review Group (SRG) convened under EU legislation, on which member States' Scientific Authorities are represented, formed a negative opinion on the conservation effects of imports of *Pericopsis elata* from Cameroon, resulting in an effective suspension of imports. The grounds for this decision, which was based on a proposal from Belgium, were doubts as to the legal provenance of much of the timber being exported. This decision was reversed following consultation with Cameroon. The SRG was sufficiently reassured to allow imports to resume, pending the outcome of the Significant Trade process. During 2002, various fines and withdrawal of permission to export have been imposed for activities relating to trade in *Pericopsis elata* in contravention with the provisions of CITES (CITES 2003, MINEF, 2002).

3.4.4. Achievements, challenges and perspectives

Although the control and monitoring system put in place in Cameroon faces many problems, there are some perspectives which need to be outlined here. The IITO/CITES training workshop held at Kribi in early April 2008, provided the Cameroonian Minister of forestry and wildlife, the opportunity to introduce the Cameroonian forest sector in its assets in terms of achievements, challenges and perspectives. The most important are the implementation of the Forest and

Environment Sectorial Program (PSFE), the certification of some forest concessions and the implementation of the FLEGT process.

The PSFE is a national program for sectorial development, elaborated by the Cameroon Government and opened to the funding of all donors, including international or bilateral aids, the civil society, and NGOs. It aims to develop a coherent framework for all interventions which contribute to the realisation of the objectives of the forest and wildlife policy of the country.

Through the PSFE, the Cameroon Government wants to get a guide that will allow him to ensure a fair monitoring and an efficient control of the forest and environmental activities by strengthening a global dynamic to the isolated efforts made by projects. The PSFE aims to ensure that those projects be coherent with the objectives of sustainable development of the country.

The PSFE was developed in 2003 (MINEF 2003) for a period of 10 years, distributed in two 5 years phases. The first 5 years phase was estimated at 66,148 millions of FCFA (1 FCFA = 650 euros).

The implementation of the PSFE is done on a participative basis, with the forest administration being the main interlocutor. The architecture of the program distinguishes three main levels: (1) the national level of the global management, (2) the national level of component management, (3) and the provincial level of implementation. At any level, a program Committee defines the orientations, the programmes, and the Annual work plans (AWP).

The Forest and Environment Sectorial Program is made of 5 components including: (1) environmental management of forest activities, (2) management of production forests and valorisation of the forest products, (3) biodiversity conservation and valorisation of faunal or wildlife resources, (4) community management of forest and wildlife resources, (5) institutional building, training, and research.

The Component 2, dealing with the management of production forests and valorisation of the forest products is the one that largely interests us in this document. This component is composed of five sub-components including: (1) zoning the remaining national territory (mainly the northern part of the country), (2) management of production forest, (3) valorisation and processing of the timber resources, (4) valorisation and processing of the Non timber forest products (NTFP), and (5) forest control, monitoring and forest tax enhancement.

Under the pressure of the ecologist movements, le external market becomes more and more reluctant on products coming from natural forests, and mostly non managed forests. By 2010, it is obviously possible that only products harvested in managed forest will enter the international market.

Although the Principles, Criterion, and indicators (PCI) for the sustainable management of forest are not yet approved by all parties in Cameroon, the efforts made by the Government in the forest sector can be useful for the forest certification. In fact, the Cameroon forest law together with the measures undertook to enhance the sustainable management of forest resources as underlined in this document, are a suitable framework to reach the forest certification target. The challenge here is that of implementing strictly those measures in the field. Six out of the forests concessions which are exploiting the *Pericopsis elata* timber species in Cameroon have already been certified by ICILIA or FSC.

Cameroon is currently engaged in negotiations with the European Union to reach a Voluntary Partnership Agreement (APV/FLEGT) to improve the governance and transparency of the timber trade between the two partners. At the core of the Action Plan are Voluntary Partnership Agreements with timber-producing countries that wish to eliminate illegal timber from their trade with the EU. These agreements will involve establishment of a licensing scheme to ensure that only legal timber from producing countries (ñPartner Countriesò) is allowed into the EU. Unlicensed consignments from Partner Countries would be denied access to the European market under the scheme. Several meetings have been organized between representatives of the two parties (Cameroon and European Commission). The main area of discussions include: the nature of products that will be concerned by the FLEGT, the origin of those products, the chain of custody, the system of licences issuance, audit, the institutional framework, the forest governance. The final document of agreement will be signed soon and the commencement of the FLEGT process is planned for next year 2010.

Chapter 4. Management plans data

4.1. Structure of management plans

Elements of the management plan are précised in the arête *n° 0222/A/MINEF/ 25 may 2001*. This Arête sets the procedures of the elaboration and approbation of management plans, and the procedures for monitoring and control of the implementation of the management plans for the production forests, in the permanent domain.

The article 5 of the arête stipules that, the management plan is a document which aims to fix the forest logging activity in the permanent forests, through a fair planning of harvests in space and time, and by enhancing silvicultural interventions, as to ensure a sustainable and equilibrium logging activity. This document is composed of five main sections including: (1) description of the natural milieu of the forest concession, (2) mapping, (3) management inventory, (4) affectation of soils and use rights, (5) Calculation of the forest possibility (stock).

The above sections contain following information.

1) Description of the natural milieu of the forest concession: it describes the biophysical characteristics of the forest, the socio-economic environment, and the history of the forest, based on appropriated studies.
2) Mapping:
    a. stratification of the forest territory at the 1/50 000 scale
    b. the produced map may contain following information: the final stratification realized beyond the management inventory, affectation of soils or delimitation in series, and the delimitation of five-year blocs (logging management units) in annual logging units.
3) Management forest inventory
    a. the list of tree species to assess obligatory are contained in the technical files (sheets) published by the forest administration. For those timber species, the inventory counts, measures and identifies all stems with diameter at Breast High

of over 20 cm. Stems are classed in 10 cm diameter classes (20-30, 30-40, 40-50, é).

b. Data analysis is done with a special computer package, validated by the forest administration. The package currently used by the Cameroonian forest administration is the TIAMA package (Computer treatment applied to forest management).

c. The sample rate for the management inventory should not be less than 1% for a forest concession less than 50,000 ha, and not less than 0.5% for a concession more than 50,000 ha (not less than 50,000 ha).

4) Affectation of soils and use rights: this consists of identifying and mapping the soil uses within the forest concession.

5) Calculation of the forest possibility.

A total of 28 management plans (table 3) of forest management units (FMU) existing in the area of distribution of Assamela in the East Region of Cameroon were analysed. These management plans belonged to 17 timber companies including: SEFAC, J. PRENANT, CFE, CIBC, SEBC, SAB, STBK, SCIF, CAMBOIS, PALLISCO, SIBAF, ING, TTS, SFDB, ALPICAM, FILIERE, Bois and KIEF (Table x).

Table 3. Data found in the documents of the management plans

FMU	Company	Author of Management Plan	Density (stems/ha)	Volume/ ha	Potential exploitable volume	Stems distribution by diameter classes	Bonus	Reconstitution rate	Potential volume of logging compartments	Potential volume of annual logging units	Total no. of variables
10008	**SEFAC**	**ABAH BARAK**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	0	2
10045	**J. PRENANT**	**THANRY et ONF International**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	0	2
10002	**CFE**	**CFC**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	0	3
10003	**CFE**	**CFC**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	0	3
10004	**CFE**	**CFC**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	0	3
10012	**SEFAC**	**LF VEKO**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	0	3
10015	**CIBC**	**THANRY et ONF International**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	0	3
10001	**CFE**	**CFC**	**1**	**1**	**1**	**0**	**0**	**1**	**0**	0	4
10007	**SEBC**		**1**	**1**	**0**	**1**	**0**	**1**	**0**	0	4
10011	**SAB**		**1**	**1**	**1**	**0**	**0**	**1**	**0**	0	4
10005	**STBK**	**La Forestière de Mouloundou**	**1**	**1**	**0**	**1**	**1**	**1**	**0**	0	5
10010	**SEFAC**		**1**	**1**	**1**	**1**	**0**	**1**	**0**	0	5
10022	**SCIF**	**Groupe SIMO**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	0	5
10038	**CAMBOIS**	**Forest Resource Management**	**1**	**1**	**1**	**0**	**0**	**1**	**1**	0	5
10041	**PALLISCO**	**PALLISCO et Nature +**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	0	5
10042	**PALLISCO**	**PALLISCO et Nature +**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	0	5
10044	**PALLISCO**	**PALLISCO et Nature +**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	0	5
10018	**SIBAF**		**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	6
10020	**ING**		**1**	**1**	**1**	**0**	**1**	**1**	**0**	**1**	6
10023	**TTS**	**AMBIANTE**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	6
10029	**SFDB**	**LF VEKO**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	6
10030	**PALLISCO**	**PALLISCO et Nature +**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	6
10031	**ING**	**Compagnie Camerounaise du Bois**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	6
10063	**ALPICAM**	**HFC et ONF International**	**1**	**1**	**1**	**0**	**1**	**1**	**1**	0	6
10064	**FILIERE BOIS**		**1**	**1**	**1**	**0**	**1**	**1**	**0**	**1**	6
10026	**ALPICAM**	**ALPICAM et ONF international**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	7
10037	**KIEF**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	7
10039	**PALLISCO**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	7
Total UFA			28	28	19	16	12	25	5	2	

4.2. Data analysis

PALLISCO was observed to have the highest number of forest management units containing Assamela (5 out of 28). CFE and CEFAC have 04 and 03 FMU containing Assamela respectively. 20 out of the 28 management plans contained precision on the author of the document. CFC and PALLISCO were the companies that drafted the highest number of management plans, 04 per company (Figure 2). It is interesting to precise that PALLISCO drafted its management plans in partnership with Nature+, a non-governmental organisation (NGO).

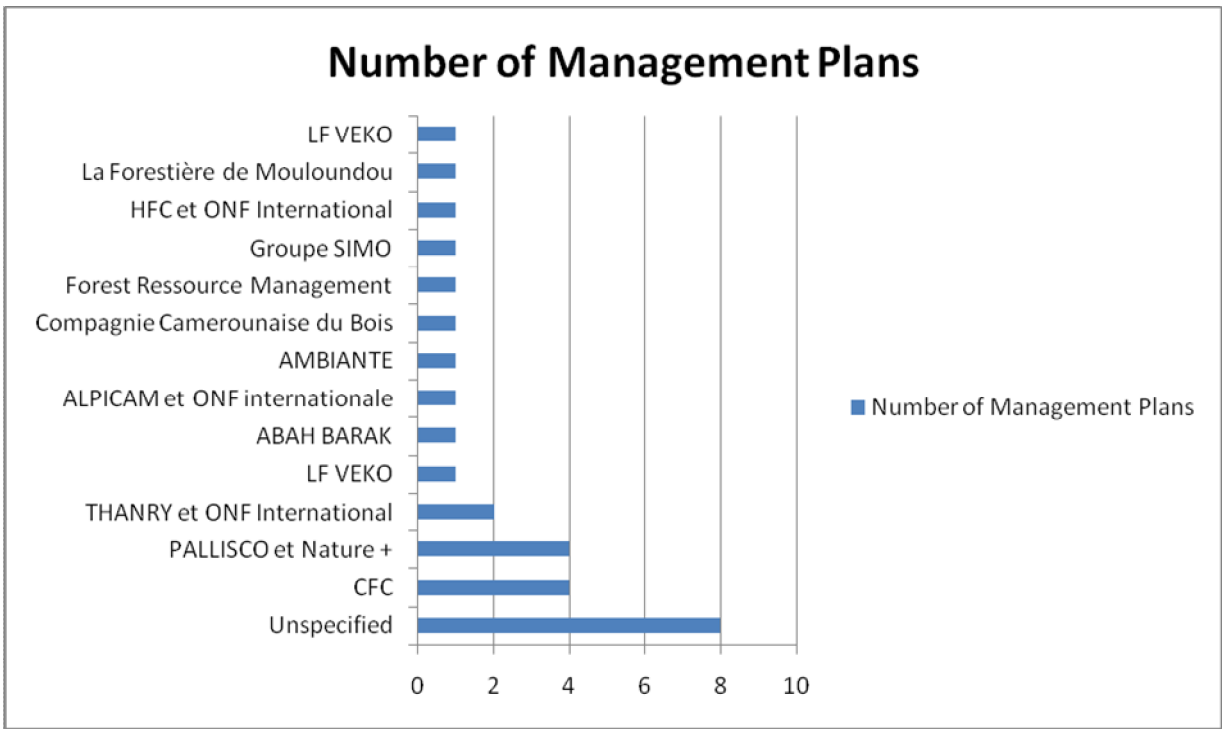

Figure 2: Number of management plans written per author

A total of 08 variables were analysed in each management plan in relation to Assamela. These variables included: density (stems/ha), volume per hectare, potential exploitable volume (stems above MED found in the exploitable zone of the FMU), stems distribution by diameter classes, bonus, reconstitution rate, potential volume of logging compartments and potential volume of annual logging units (table 4).

Table 4: Number of variables taken into account by authors for 28 forest management units studied.

Number of variables	Frequency	Percentage	Cumulative %
2	2	7.14	7.14
3	5	17.86	25.00
4	3	10.71	35.71
5	7	25.00	60.71
6	8	28.57	89.29
7	3	10.71	100.00
Total	28	100.00	

No management plan featured all the eight variables, two management plans belonging to Alpicam (FMU 10-026) and KIEF (10-037) featured data on seven variables. Forest management units with the least number of variables taken into account were 10-008 (SEFAC), 10-045 (J.Prenant), 10-002 (CFE), 10-003 (CFE) and 10-004 (CFE). Variables that were mostly taken into account in management plans were stock density (100%), volume per ha (100%), reconstitution rate (89%) and the potential exploitable volume (68%). Averagely reported variables included stem distribution by diameter classes (57.1%) and bonus (42.9%). Variables least reported were potential volume of logging compartments (18%) and potential volume of annual logging units (7.1%). The percentage represents the proportion of (Figure 3).

Figure 3: Frequency with which authors take into consideration specified variables in management plans

Table 5: Cross-Table of authors of management plans and the number of variables considered

Author of Management Plans	Number of variables						Total number of management plans
	2	3	4	5	6	7	
LF VEKO		1					1
ABAH BARAK	1						1
ALPICAM et ONF internationale						1	1
AMBIANTE					1		1
CFC		3	1				4
Compagnie Camerounaise du Bois					1		1
Forest Ressource Management				1			1
Groupe SIMO				1			1
HFC et ONF International					1		1
La Forestière de Mouloundou				1			1
LF VEKO					1		1
PALLISCO et Nature +				3	1		4
THANRY et ONF International	1	1					2
Unspecified			2	1	3	2	8
Total number of management plans	2	5	3	7	8	3	28

The above analysis shows lack of coherence in the information or data contained in the management plans of logging concession exploiting Assamela in Cameroon. In this regard, the specificities enshrined in the Arrête 222 are not scrupulously respected in the establishment of management plans.

4.3. Management plans containing Assamela

Are authorised and production volumes in accordance with the volume outlined in the management plans of each company? The volume of Assamela in each FMU in relation to volume produced. Why do companies have merchantable Assamela in their management plans but do not produce? In the Lobeke National Park area, 358 trees of Assamela (volume 5149 m^3) were approved for exploitation in five forest management units but 178 trees (volume of 2652.097 m^3) were exploited in 2006. This implies 180 approved trees (volume 2494.903 m^3) where left unexploited (Tieguhong 2009). Interesting statistics drawn was that the harvestable stems per ha was 0.05 trees per ha but the actual harvest was 0.02 stems per ha (Tieguhong 2009).

Chapter 5. Authorized volumes of Assamela by company per year

5.1. Frequency of authorized volume

Are timber companies in Assamela production zone all having authorized volumes every year? The results from this study showed that from the year 2002 to 2007, 40 companies got authorized volumes of Assamela at least once. On a yearly basis, the number of companies that got authorizations varied from a minimum of 19 (2003-2004) to a maximum of 27 (2006-2007). Among these companies, 11 (27.50%) got a quota every year, (14) 35% got a quota only once in five years. Over the same period, 08 (20%), 03 (7.5%) and 04 (10%) got authorized volumes in four, three and two years respectively (Table 1). The 11 companies that got authorizations every year included: Pallisco, ALPICAM, SEFAC, SEBC, SFCS, CAMBOIS, CFC, STBK, FB, GreenValley and SCIFO. These companies could be branded as those that greatly influence the production and commercialization of Assamela in Cameroon (table 6).

Table 6: Frequency of getting authorized volumes by timber companies between 2002 and 2007.

Concessionnaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
118 (PALLISCO)	1	1	1	1	1	5
175 (ALPICAM)	1	1	1	1	1	5
189 (SEFAC)	1	1	1	1	1	5
198 (SEBC)	1	1	1	1	1	5
268 (SFCS)	1	1	1	1	1	5
276 (CAMBOIS)	1	1	1	1	1	5
311 (CFC)	1	1	1	1	1	5
321 (STBK)	1	1	1	1	1	5
420 (FB)	1	1	1	1	1	5
546 (GREEN VALLEY)	1	1	1	1	1	5
680 (SCIFO)	1	1	1	1	1	5
1080 (Ing F)	1	1	1	1		4
1200 (CRD)	1	1	1	1		4
196 (SAB)	1		1	1	1	4
214 (SFID)	1		1	1	1	4
253 (CIBC)		1	1	1	1	4
297 (SEBAC)	1		1	1	1	4
412 (SFDB)		1	1	1	1	4
426 (ASSENE)	1		1	1	1	4
1072 (SFEES)			1	1	1	3

Concessionnaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
212 (KIEFFER)	1	1		1		3
277 (CFE)	1	1	1			3
1100 (NK)	1	1				2
348 (SFF)			1		1	2
352 (APRODE/AP)			1	1		2
498 (TAGNE)			1	1		2
1112 (NE)			1			1
1201 (CRM)					1	1
1202 (CMY)					1	1
150 (J.PRENANT)			1			1
215 (SCTB)			1			1
328 (GEC)					1	1
363 (SODETRAN)					1	1
372 (SOKADO)	1					1
457 (SAFIE)				1		1
487 (ELOUNGOU)					1	1
586 (BUBINGA)		1				1
6003 (MARELIS)	1					1
693 (HABITAT 2000)					1	1
757 (TTS)					1	1
Total	22	19	27	24	26	118

Getting authorized volumes every year might not translate into high volume attributed to any given Timber Company over the five years period under study. Table 2 gives a detail account of companies and corresponding volumes obtained from 2002 to 2007. The results showed that the total volume of Assamela attributed to 40 companies from 2002 to 2007 was 230955 m^3. Absolute volume attributed per year was found to vary with the lowest volume of 40658 m^3 attributed in 2004-2005 while the highest volume of 50224 m^3 was in 2006-2007. With regards to respecting annual attributable raw volumes according to CITES quota for Cameroon, which is 45000 m^3, the results tend to show the non-respect of the authorised quota for 2003-2004, 2005-2006, 2006-2007. Authorised volume surpassed CITES quotas for 2003-2004 and 2006-2007 production years by 11.5% and 11.6% respectively. The question that arises is: why are there increases of authorised volume from one year to another, although with the clear knowledge of the annual quota for Cameroon? Table 7 shows the Authorized volumes for period 2002-2007 for all concessionaires producing Assamela in Cameroon.

Table 7: Authorized volumes for period 2002-2007 for all concessionaires producing Assamela in Cameroon (m^3)

Concessionaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
1072 (SFEES)			213	213	5290	5716
1080 (Ing F)	2422	995	360	22		3799
1100 (NK)	846	846				1692
1112 (NE)			2108			2108
118 (PALLISCO)	346	566	299	697	914	2822
1200 (CRD)	667	870	1568	1219		4324
1201 (CRM)					498	498
1202 (CMY)					22	22
150 (J.PRENANT)			19			19
175 (ALPICAM)	2483	4615	2345	5060	1456	15959
189 (SEFAC)	1285	213	853	3724	2949	9024
196 (SAB)	93		548	935	202	1778
198 (SEBC)	932	2354	1017	1188	531	6022
212 (KIEFFER)	42	30		1327		1399
214 (SFID)	231		132	11	84	458
215 (SCTB)			1504			1504
253 (CIBC)		1485	497	3250	3340	8572
268 (SFCS)	3753	4430	2494	2309	2880	15866
276 (CAMBOIS)	2756	3360	1449	1683	1758	11006
277 (CFE)	1577	3368	3610			8555
297 (SEBAC)	645		1008	1316	151	3120
311 (CFC)	9611	13656	2480	6601	4185	36533
321 (STBK)	4329	5859	10741	10894	12505	44328
328 (GEC)					3600	3600
348 (SFF)			175		101	276
352 (APRODE/AP)			153	153		306
363 (SODETRAN)					1705	1705
372 (SOKADO)	360					360
412 (SFDB)		3838	2120	1259	963	8180
420 (FB)	3852	497	1716	323	2648	9036
426 (ASSENE)	747		244	223	578	1792
457 (SAFIE)				100		100
487 (ELOUNGOU)					153	153
498 (TAGNE)			272	272		544
546 (GREEN VALLEY)	3327	874	1921	2486	2634	11242
586 (BUBINGA)		39				39
6003 (MARELIS)	250					250
680 (SCIFO)	3899	2284	812	176	24	7195
693 (HABITAT 2000)					838	838
757 (TTS)					215	215
Grand Total	44453	50179	40658	45441	50224	230955

However, it is important to note that statistically, this yearly variation was minimal with no significant difference among the total annual authorized volumes at 5% level (Appendix 1). It was considered relevant to prioritize the timber companies by the proportion of total volume of Assamela attributed over the five year period under study. It was found that only 20 timber companies accounted for nearly 94% of total volume attributed and that the top five companies accounted for nearly 54%. The top five companies were accordingly STBK (19.19%), CFC (15.82%), ALPICAM (6.91%), SFCS (6.87%) and Green Valley (4.87%) (Table 8). This result was graphically presented as observed in Figure 4.

Table 8: Twenty companies with the highest volume (m^3) of Assamela attributed from 2002-2007.

Company	Authorized volume (m3)	Authorized %	Cumulative %
321 (STBK)	44328	19.19	19.19
311 (CFC)	36533	15.82	35.01
175 (ALPICAM)	15959	6.91	41.92
268 (SFCS)	15866	6.87	48.79
546 (GREEN VALLEY)	11242	4.87	53.66
276 (CAMBOIS)	11006	4.77	58.42
420 (FB)	9036	3.91	62.34
189 (SEFAC)	9024	3.91	66.24
253 (CIBC)	8572	3.71	69.96
277 (CFE)	8555	3.70	73.66
412 (SFDB)	8180	3.54	77.20
680 (SCIFO)	7195	3.12	80.32
198 (SEBC)	6022	2.61	82.92
1072 (SFEES)	5716	2.47	85.40
1200 (CRD)	4324	1.87	87.27
1080 (Ing F)	3799	1.64	88.92
328 (GEC)	3600	1.56	90.48
297 (SEBAC)	3120	1.35	91.83
118 (PALLISCO)	2822	1.22	93.05
1112 (NE)	2108	0.91	93.96
Total	217007	93.96	-

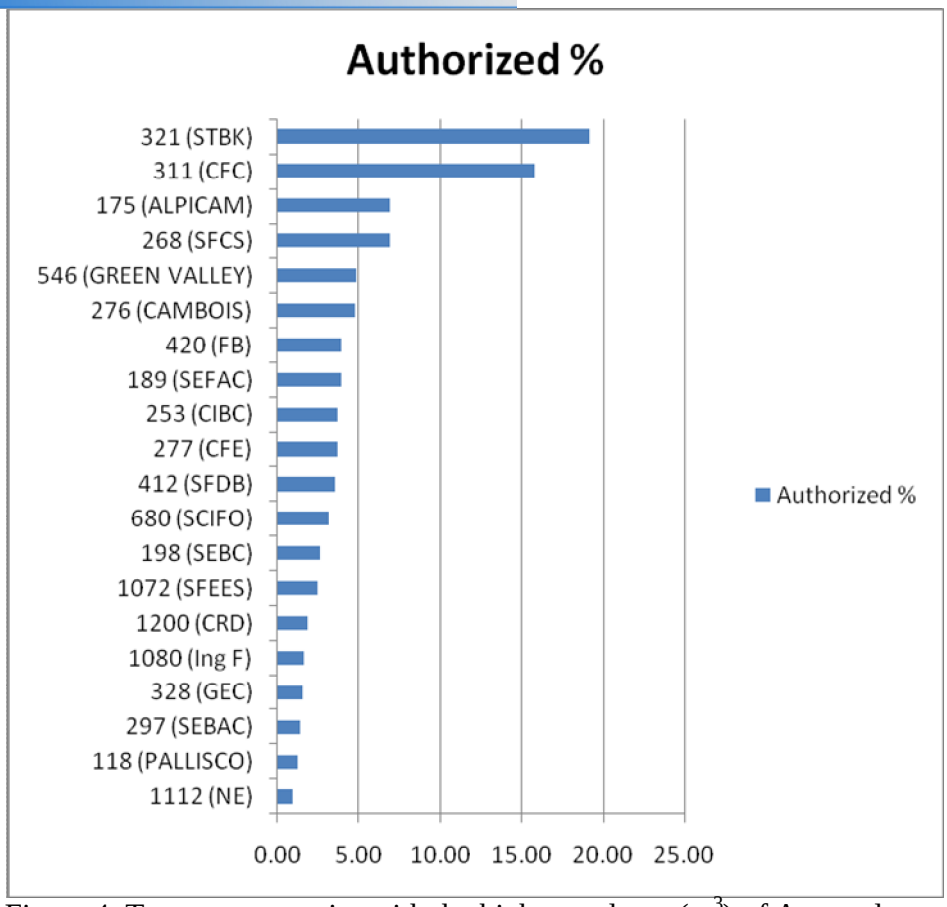

Figure 4: Twenty companies with the highest volume (m^3) of Assamela attributed from 2002-2007

Over the five years period (2002-2007), the results on the volume of Assamela authorized for harvesting per year per company varied from a minimum of 11 m^3 to a maximum of 13656 m^3 with mean of 1957.25 m^3 and Standard Deviation (SD) of 2506.86 m^3. The number of companies with authorized volumes also varied from year to year with 22, 19, 27, 24 and 26 companies in 2002-2003, 2003-2004, 2004-2005, 2005-2006 and 2006-2007 respectively (Table 9). The fact that the SD was about twice the mean volume authorized per company per year implied that some companies actually dominated in accessing rights to higher volumes of Assamela.

Table 9: Characteristics of authorized volume (m^3) of Assamela per year (2002-2007)

Year	Number of companies	Minimum	Maximum	Sum	Mean	Standard Deviation
2002-2003	22	42	9611	44453	2020.59	2221.41
2003-2004	19	30	13656	50179	2641.00	3191.85
2004-2005	27	19	10741	40658	1505.85	2074.51
2005-2006	24	11	10894	45441	1893.38	2556.05
2006-2007	26	22	12505	50224	1931.69	2619.24
Total	118	11	13656	230955	1957.25	2506.86

5.2. Produced volumes by company per year

How many timber companies produce Assamela every year? Are timber companies consistent in production from year to year? From 2002 to 2007, 30 companies were observed to have produced Assamela in at least one year. On a yearly basis, 15, 22, 21, 19 and 17 companies produced Assamela in 2002-2003, 2003-2004, 2004-2005, 2005-2006 and 2006-2007 respectively. Among these companies 36.67% produced every year, 10% each in four and three years, 16.67% in two years and 26.67% in one year only (Table 10).

Table 10: Frequency of timber companies producing Assamela between 2002 and 2007.

Concessionaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
118 (PALLISCO)	1	1	1	1	1	5
175 (ALPICAM)	1	1	1	1	1	5
189 (SEFAC)	1	1	1	1	1	5
253 (CIBC)	1	1	1	1	1	5
268 (SFCS)	1	1	1	1	1	5
276 (CAMBOIS)	1	1	1	1	1	5
311 (CFC)	1	1	1	1	1	5
321 (STBK)	1	1	1	1	1	5
412 (SFDB)	1	1	1	1	1	5
420 (FB)	1	1	1	1	1	5
546 (GREEN VALLEY)	1	1	1	1	1	5
188 (SIBAF)	1	1	1	1		4
198 (SEBC)	1	1	1	1		4
297 (SEBAC)		1	1	1	1	4
1080 (Ing F)	1	1	1			3
214 (SFID)		1	1		1	3
426 (ASSENE)		1	1	1		3
1201 (CRM)				1	1	2

Concessionaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
196 (SAB)		1	1			2
312 (SFIW)	1	1				2
348 (SFF)		1		1		2
363 (SODETRAN)				1	1	2
1072 (SFEES)					1	1
1111 (TRC)			1			1
215 (SCTB)		1				1
277 (CFE)		1				1
320 (MP)			1			1
328 (GEC)				1		1
680 (SCIFO)			1			1
693 (HABITAT 2000)					1	1
Total	15	22	21	19	17	94

Actual volumes produced vary from one company to another and from year to year. Over the five year period from 2002 to 2007, a total volume of 81267 m^3 of Assamela logs were produced by 30 timber companies with the least annual volume of 14201 m^3 in 2003-2004 and the highest of 18477 m^3 in 2005-2006 production year (Table 11).

Table 11: Produced volume (m^3) for period 2002-2006 for all concessionaires producing Assamela in Cameroon

Concessionaire	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
1072 (SFEES)					71	71
1080 (Ing F)	265	863	699			1827
1111 (TRC)			6			6
118 (PALLISCO)	84	82	449	422	1576	2613
1201 (CRM)				292	206	498
175 (ALPICAM)	464	343	1080	1053	528	3468
188 (SIBAF)	1341	2317	4464	1193		9315
189 (SEFAC)	81	486	1967	1156	1275	4965
196 (SAB)		203	198			401
198 (SEBC)	1228	93	164	192		1677
214 (SFID)		67	13		79	159
215 (SCTB)		519				519
253 (CIBC)	364	280	229	388	68	1329
268 (SFCS)	2603	582	1718	1216	640	6759
276 (CAMBOIS)	1194	1050	1410	1103	1212	5969
277 (CFE)		722				722
297 (SEBAC)		884	647	59	356	1946
311 (CFC)	2276	879	1777	2603	1747	9282
312 (SFIW)	747	436				1183
320 (MP)			4			4
321 (STBK)	475	890	609	5267	5856	13097
328 (GEC)				7		7
348 (SFF)		29		9		38
363 (SODETRAN)				580	561	1141
412 (SFDB)	1731	750	178	71	237	2967
420 (FB)	554	1841	48	1837	1477	5757
426 (ASSENE)		120	12	29		161
546 (GREEN VALLEY)	941	765	1653	1000	561	4920
680 (SCIFO)			230			230
693 (HABITAT 2000)					236	236
Grand Total	14348	14201	17555	18477	16686	81267

Further analysis and ranking showed that 20 companies produced over 98% of the total production from 2002-2007. Among these companies, five produced more than half (54%) of the total volume. These companies included STBK (16.12%), SIBAF (11.46%), CFC (11.42%), SFCS (8.32%) and CAMBOIS (7.34%). Top 17 companies produced over 1100 m^3 over the five year period (Table 12). Figure 5 clearly depicts the production of Assamela logs by the top 20 timber companies in Cameroon.

Table 12: Twenty companies with the highest volume (m^3) of Assamela procdued from 2002-2007

Company	Production (m^3)	% produced	Cumulative %
321 (STBK)	13097	16.12	16.12
188 (SIBAF)	9315	11.46	27.58
311 (CFC)	9282	11.42	39.00
268 (SFCS)	6759	8.32	47.32
276 (CAMBOIS)	5969	7.34	54.66
420 (FB)	5757	7.08	61.75
189 (SEFAC)	4965	6.11	67.86
546 (GREEN VALLEY)	4920	6.05	73.91
175 (ALPICAM)	3468	4.27	78.18
412 (SFDB)	2967	3.65	81.83
118 (PALLISCO)	2613	3.22	85.04
297 (SEBAC)	1946	2.39	87.44
1080 (Ing F)	1827	2.25	89.69
198 (SEBC)	1677	2.06	91.75
253 (CIBC)	1329	1.64	93.38
312 (SFIW)	1183	1.46	94.84
363 (SODETRAN)	1141	1.40	96.24
277 (CFE)	722	0.89	97.13
215 (SCTB)	519	0.64	97.77
1201 (CRM)	498	0.61	98.38
Total	79954	98.38	-

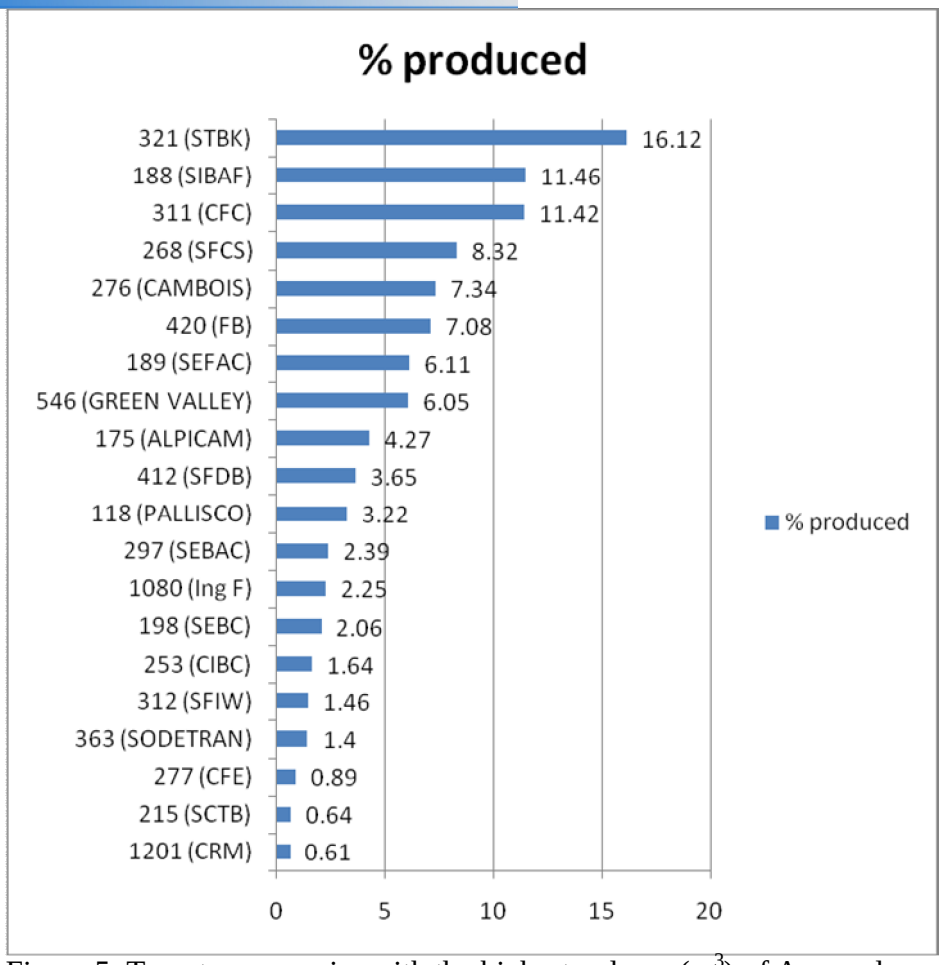

Figure 5: Twenty companies with the highest volume (m^3) of Assamela produced from 2002-2007

As earlier mentioned, the production of Assamela varied among producers from year to year. The lowest production of m^3 was registered by a company in 2004-2005 and the maximum of 5856 was registered in 2006-2007 production year. The mean production per year per company was 864.54 m^3 with SD of 1027.62 m^3 (Table 13). The huge SD over the mean implied that some companies were actually dominating in the production of Assamela in Cameroon.

Table 13: Characteristics of produced volume (m^3) of Assamela per year (2002-2007)

Year	Number of companies	Minimum	Maximum	Sum	Mean	Standard Deviation
2002-2003	15	81	2603	14348	956.53	773.09
2003-2004	22	29	2317	14201	645.50	567.38
2004-2005	21	4	4464	17555	835.95	1067.78
2005-2006	19	7	5267	18477	972.47	1253.51
2006-2007	17	68	5856	16686	981.53	1377.08
Total	94	4	5856	81267	864.54	1027.62

Although the annual absolute total volume of Assamela was observed to be different from one year to another, ANOVA level one test showed that there were no significant differences among the yearly productions at 5% level of significance (Appendix 2).

5.3. Authorisation versus production

Are the companies with authorised volumes the corresponding producers? Are there timber companies without authorized volumes that produce? The analysis here showed that only one company produced all the annual volumes authorised between 2002 and 2007. 14 companies that had authorized volumes did not produce while 25 companies actual produce part of their authorized volumes during the same period. In reality only 35.19% of the authorized volume of 230955 m^3 was actually harvested between 2002 and 2007. The remaining 64.81% was either not harvested or harvested but not reported for assorted technical, material, or illegal reasons. The proportion reported as harvested (35.19%) could be interpreted as a low production rate despite the fact that during the same period, four companies were found to have harvested 10508 m^3 of Assamela without having authorization. These companies included SIBAF, TRC, SFIW and MP (Table 14). Other possible legal or illegal sources of Assamela could include community forests and sale of standing volumes, the use of waybills of community forests, false declaration associated with difficulties in the identification of Assamela, buying wood from other companies with or without partnership contracts etc.

Table 14: Total volume (m^3) of Assamela authorized, produced & remaining for all concessions from 2002- 2006

Concessionaire	Authorized	Produced	Remaining	% produced	% remaining
201 (CRM)	498	498	0	100.00	0.00
118 (PALLISCO)	2822	2613	209	92.59	7.41
363 (SODETRAN)	1705	1141	564	66.92	33.08
420 (FB)	9036	5757	3279	63.71	36.29
297 (SEBAC)	3120	1946	1174	62.37	37.63
189 (SEFAC)	9024	4965	4059	55.02	44.98
276 (CAMBOIS)	11006	5969	5037	54.23	45.77
1080 (Ing F)	3799	1827	1972	48.09	51.91
546 (GREEN VALLEY)	11242	4920	6322	43.76	56.24
268 (SFCS)	15866	6759	9107	42.60	57.40
412 (SFDB)	8180	2967	5213	36.27	63.73
214 (SFID)	458	159	299	34.72	65.28
215 (SCTB)	1504	519	985	34.51	65.49
321 (STBK)	44328	13097	31231	29.55	70.45
693 (HABITAT 2000)	838	236	602	28.16	71.84
198 (SEBC)	6022	1677	4345	27.85	72.15
311 (CFC)	36533	9282	27251	25.41	74.59
196 (SAB)	1778	401	1377	22.55	77.45
175 (ALPICAM)	15959	3468	12491	21.73	78.27
253 (CIBC)	8572	1329	7243	15.50	84.50
348 (SFF)	276	38	238	13.77	86.23
426 (ASSENE)	1792	161	1631	8.98	91.02
277 (CFE)	8555	722	7833	8.44	91.56
680 (SCIFO)	7195	230	6965	3.20	96.80
1072 (SFEES)	5716	71	5645	1.24	98.76
328 (GEC)	3600	7	3593	0.19	99.81
1100 (NK)	1692	0	1692	0.00	100.00
1112 (NE)	2108	0	2108	0.00	100.00
1200 (CRD)	4324	0	4324	0.00	100.00
1202 (CMY)	22	0	22	0.00	100.00
150 (J.PRENANT)	19	0	19	0.00	100.00
212 (KIEFFER)	1399	0	1399	0.00	100.00
352 (APRODE/AP)	306	0	306	0.00	100.00
372 (SOKADO)	360	0	360	0.00	100.00
457 (SAFIE)	100	0	100	0.00	100.00
487 (ELOUNGOU)	153	0	153	0.00	100.00
498 (TAGNE)	544	0	544	0.00	100.00
586 (BUBINGA)	39	0	39	0.00	100.00
6003 (MARELIS)	250	0	250	0.00	100.00
757 (TTS)	215	0	215	0.00	100.00

Concessionaire	Authorized	Produced	Remaining	% produced	% remaining
1111 (TRC)	0	6	-6	#DIV/0!	#DIV/0!
188 (SIBAF)	0	9315	-9315	#DIV/0!	#DIV/0!
312 (SFIW)	0	1183	-1183	#DIV/0!	#DIV/0!
320 (MP)	0	4	-4	#DIV/0!	#DIV/0!
Grand Total	230955	81267	149688	35.19	64.81

Other questions that arose from the above analysis included:

- Why are some companies that were not authorised volumes found to top in production data?
- Why do companies ask and get authorised volumes of Assamela but do not produce?

The answers to these questions require further field research and a more vivid illustration of the situation of the total volume of Assamela authorized, actually produced and remaining for all logging companies between 2002 and 2007 is shown in Figure 6 below. To know the wood conversion rate for factories producing Assamela, the calculation of the total Assamela production volume from 20 logging concessions and three sales of standing volume titles (UFA 10 063, 10 013, 10 003, 10 021,10 008, 10 064, 10 008, 10 064, 10 010, 10 023, 10 038, 10 054, 10 056, 10 030,10 031, 10 038, 10 039, 10 041, 10 042, 10 044, VC 10 01 153, VC 10 03 115, VC 10 01 116) in the east province of Cameroon yielded 15083.93 m3 (factory wood entry) with factory wood output of 6476.64 m3 giving a timber recovery volume of 43%. For this volume, the factory wood entry tax amounted to 55 932 657.10 CFA F.

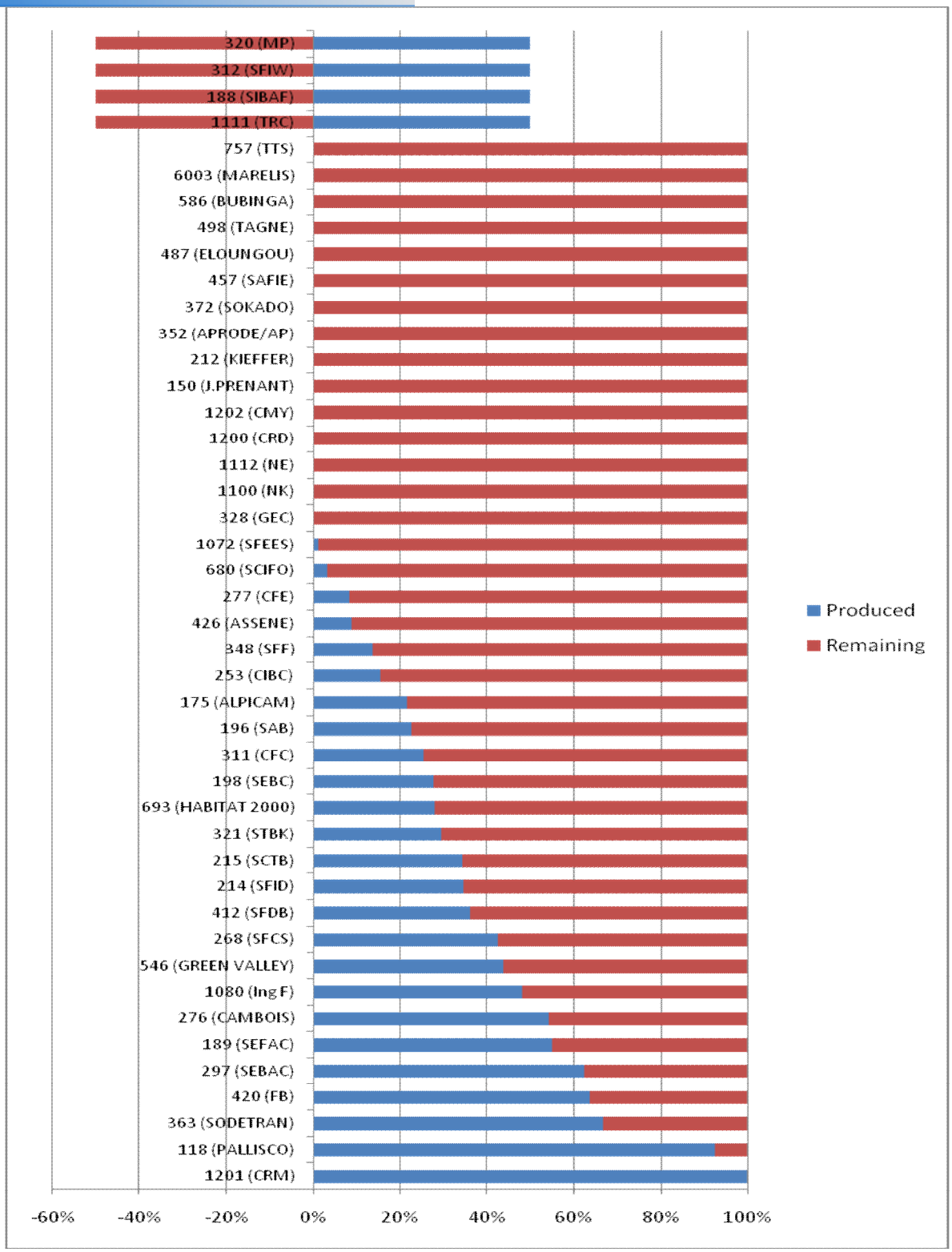

Figure 6: Proportion of timber authorized, produced and remaining (%) for concessionaires (2002-2006)

Chapter 6: Export and importing countriesôstatistics

6.1. Export data at Douala Port II

According to data gathered at the control post at the Douala Port II, Assamela is among the major primary processed and exported timbers (sawn wood) in Cameroon with total export volumes of 6197.99 m^3 and 4084.96 m^3 in 2007 and 2008 respectively. 13 companies exported timber in 2007 while in 2008 12 companies exported (Table 15). The implication of this result is that less than half of the companies that get quotas or that actually produce Assamela gain access to export markets with their products. This suggests an immense number of inter-company trade transactions within the country before exports because timber companies do not generally sell their products within national frontiers.

Table 15: Volumes of Assamela exported by Timber companies in 2007 and 2008

Company	**Volume exported in 2007 (m^3)**	**% volume exported in 2007**	**Volume exported in 2008 (m^3)**	**% volume exported in 2008**
ALPICAM	191.022	2.84	113.918	2.79
CFC	1112.347	16.55	644.794	15.78
CIFM	585.528	8.71	342.572	8.39
EFIH	14.159	0.21	0	0
GREEN VALLEY	594.147	8.84	451.175	11.04
GRUMCAM	290.787	4.33	0	0
IBC	21.730	0.32	133.012	3.26
SEBAC	0	0	144.010	3.53
SEBC	270.603	4.03	136.223	3.33
SEFAC	903.614	13.45	179.648	4.40
SIM	25.609	0.38	105.176	2.57
SFID	143.548	2.14	219.309	5.37
STBK	2296.576	34.18	785.278	19.22
TTS	270.323	4.023	829.841	20.31
TOTAL	**6719.993**	**100**	**4084.956**	**100.00**

For a better illustration of the trends for companies exporting Assamela, STBK was the leading exporting company in 2007 with over 34% while in 2008 TTS lead the export market with over 20%. Exports by CFC and CIFM showed some relative consistency over the two years. Minor exporters of Assamela included ALPICAM, SFID, SIM, IBC and EFIH (Figure 7).

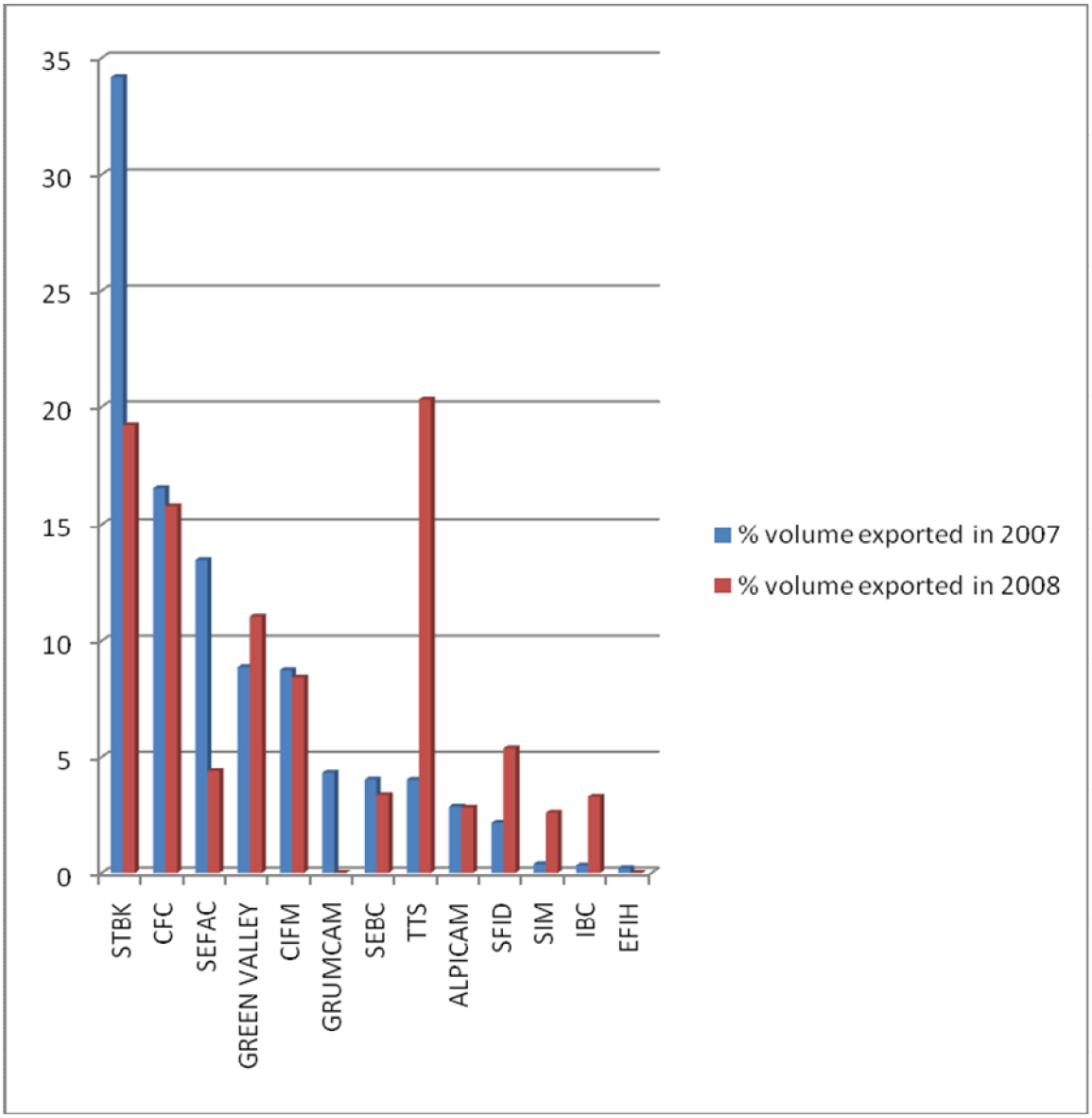

Figure 7: Volumes of Assamela exported by Timber companies in 2007 and 2008

6.2. Importing countries data at Douala Port II

Between 2007 and 2008 16 countries imported Assamela from Cameroon, 15 countries imported about 6720 m^3 in 2007 while only nine countries imported 4085 m^3 in 2008 (Table 16).

Table 16: Volumes m^3 of Assamela Imported by country for 2007 and 2008

Importing country	Volume imported in 2007 (m^3)	% imported in 2007(m^3)	Volume imported in 2008 (m^3)	% imported in 2008 (m^3)
Belgium	4167.712	62.02	2168.880	53.10
Canada	81.879	1.22	0.00	0.00
Dubai	90.922	1.23	0.00	0.00
Spain	268.183	3.99	0.00	0.00
United States	275.965	4.11	40.145	0.98
France	243.880	3.63	664.014	16.26
Greece	95.030	1.41	0.00	0.00
Italy	1108.713	16.50	673.732	16.49
China	132.883	1.98	52.359	1.28
Lebanon	20.707	0.31	0.00	0.00
Morocco	49.316	0.73	65.973	1.62
South Africa	20.362	0.30	202.400	4.95
Savannah	74.152	1.10	0.00	0.00
Tunisia	68.320	1.02	0.00	0.00
Turkey	21.968	0.33	141.384	3.46
Romania	0.00	0.00	76.009	1.86
Total	**6719.993**	**100.00**	**4084.896**	**100.00**

Four countries in the European Union (Belgium, Italy, France and Spain) accounted for the import of over 80% of Assamela in 2007 and 2008 from Cameroon. Belgium alone imported 62% and 53% of Assamela from Cameroon in 2007 and 2008 respectively. Countries such as Canada, United States of America, China and Dubai are interestingly importing reasonable quantities of Assamela wood from Cameroon. The presence of South Africa, Tunisia and Morocco in the market chain of Assamela suggests its importance in intra-African trade in timber products (Figure 8).

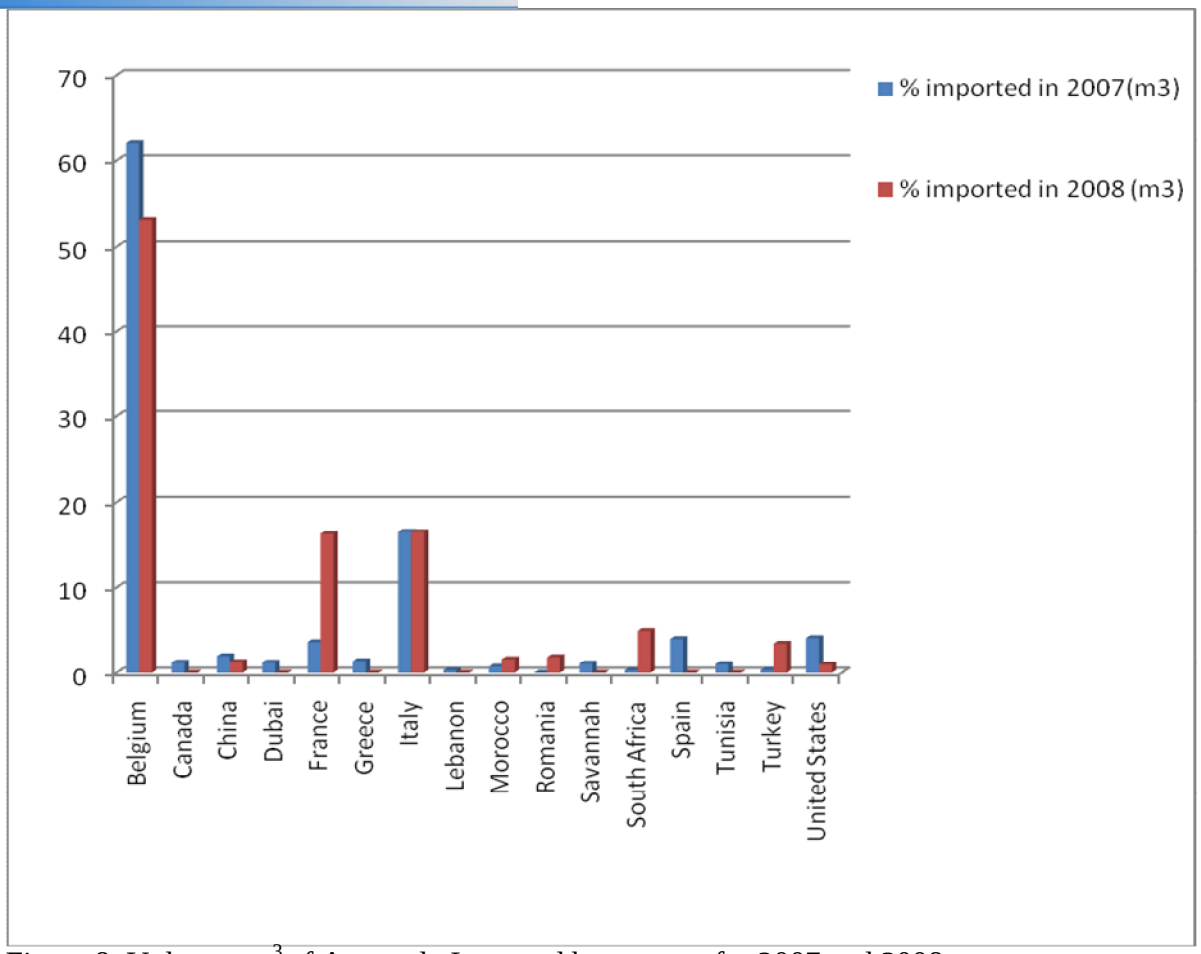

Figure 8: Volumes m^3 of Assamela Imported by country for 2007 and 2008

6.3. Export data reported by COMCAM

From Comcam data, the number of timber companies that exported Assamela in 2005, 2006, 2007 and 2008 were 20, 13, 12 and 13 respectively. Timber companies such as SCTB, PROPALM, Patrice-Bois, INGF FTB ETS DIC & CIE CFE and FIPCAM that used to export Assamela in 2005 and 2006 did not export it in 2007 and 2008 (Table 17).

Table 17: Volume of Assamela exported by timber companies from 2005 to 2008 (m^3)

Timber companies	2005	2006	2007	2008
APICAM	30	465	221	150
CFC	481	627	1149	368
CIFM	138	140	701	479
CFE	100	0	0	0
EFH	0	0	14	0
FIPCAM	18	0	0	0
FTB	34	0	0	0
GREEN VALLEY	609	591	616	451
GRUMCAM	248	243	290	36
INGF	372	135	0	0
J.PRENENT&CIE	34	0	0	0
PATRICE-BOIS	129	0	0	0
PROPALM	117	0	0	0
SCTB	129	45	0	0
SEBC	245	88	270	136
SEBAC	0	0	0	144
SEEF	0	0	0	22
SEFAC	635	1053	945	179
SFID	307	487	144	219
SIBAF	558	0	0	0
SIM	128	265	26	210
STBK	2286	1505	2391	877
ETS DIC &CIE	62	0	0	0
TTS	576	539	270	851
Total	7238	6181	7037	4122

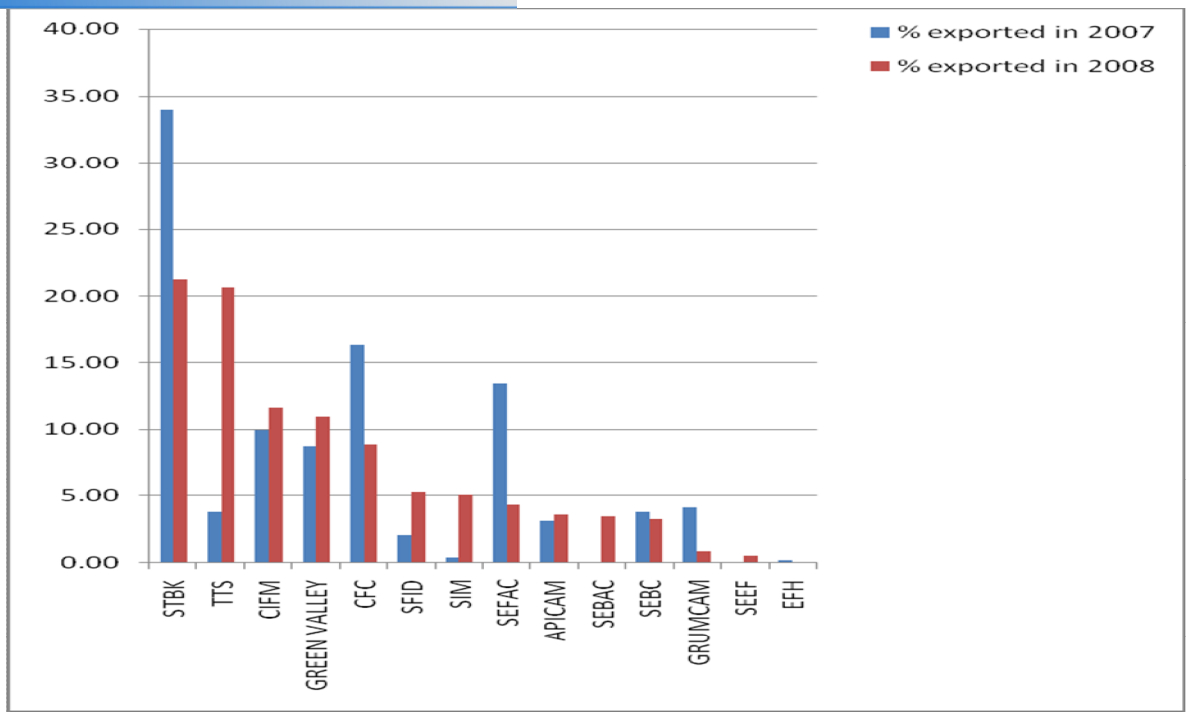

Figure 9: Exporters of Assamela from Cameroon in 2007 and 2008

Still from Comcam data, the number of countries that imported Assamela from Cameroon in 2005, 2006, 2007 and 2008 were 16, 12, 14 and 09 respectively. Countries that imported in 2005 and 2006 but not in 2007 and 2008 included Germany, Canada, Cyprus, Croatia, Japan, Malaysia and the United Kingdom. Countries that imported in 2007 and not in 2008 included United Arabs Emirates, Greece, Holland, Lebanon and Turkey (Table 18). The results showed a narrower market outlet for Assamela in 2008.

Table 18: Volume of Assamela imported by country from 2005 to 2008 **(m^3)**.

Importing countries	**2005**	**2006**	**2007**	**2008**
South Africa	74	94	20	245
Germany	80	0	0	0
Belgium	3242	4093	4190	2175
Canada	82	39	0	0
China	35	20	132	52
Cyprus	55	0	0	0
Croatia	21	0	0	0
United States Emirates	0	17	91	0
USA	94	331	486	76
Spain	60	57	63	36
France	1163	437	524	45
Greece	98	54	128	0
Holland	0	0	69	0
Italy	2020	982	1240	672
Japan	22	0	0	0
Lebanon	0	25	21	0
Malaysia	0	32	0	0
Morocco	129	0	25	44
Romania	0	0	26	76
United Kingdom	23	0	0	0
Turkey	38	0	22	0
Total	7238	6181	7037	4121

Belgium consistently led the import market of Assamela in 2007 and 2008 with over 50% of imports, followed by Italy with over 16%. France, Spain and United Arabs Emirates imported around one percent each in 2008 (Figure 10).

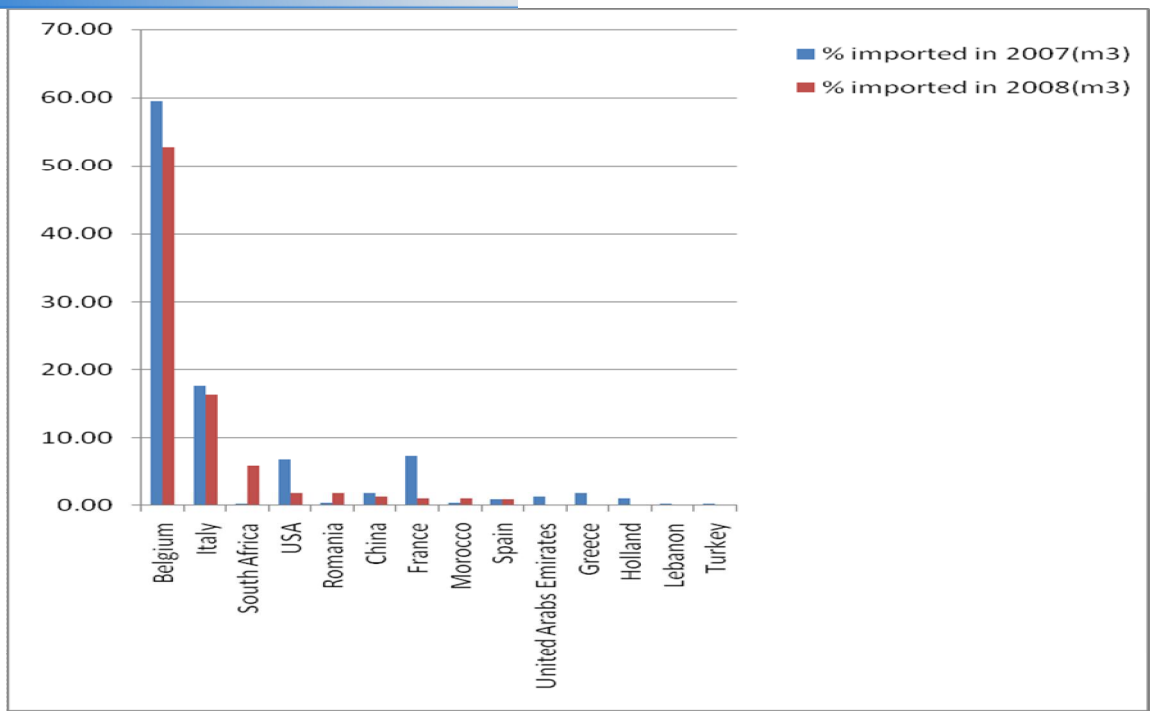

Figure 10: Importers of Assamela from Cameroon in 2007 and 2008

Comparison of Douala Port II and COMCAM data

Twelve variables were selected to compare the data collected at Douala Port II and COMCAM for base years 2007 and 2008. Results showed that data collection and entry at the two government controlled offices were the same for only 25% of the variables with some minor to major variations in 80% of them involving exported and imported volumes for 2007 and 2008 (Table 19).

Table 19: Comparison of data collected at Douala Port II and COMCAM

Variables	**Douala Port II**	**COMCAM**
Total volume exported in 2007 (m^3)	6719.99	7037
Total volume exported in 2008 (m^3)	4084.96	4122
Total volume imported in 2007 (m3)	6719.99	7037
Total volume imported in 2008 (m3)	4084.96	4121
Total number of exporting companies in 2007	13	12
Total number of exporting companies in 2008	12	13
Total number of importing countries in 2007	15	14
Total number of importing countries in 2008	09	09
Highest exporting company (%) in 2007	STBK (34%)	STBK (34%)
Highest exporting company (%) in 2008	STBK (19%)	STBK (21%)
Highest importing country (%) in 2007	Belgium (62%)	Belgium (60%)

Conclusion and recommendations

This study aimed at examining the status-quo of Assamela production and management in forest management units (FMUs) in order to inform policy makers on options towards sustainability. The authors of management plans for FMUs did not follow the same structure in writing management plans. This rendered data collation and analysis on concessions and their practices difficult. Where some data was supposed to be available, accessibility was difficult. This was associated with the dispersion and poor handling of hard copies of waybills, factory entry and output registers. Reports on the activities of community forests were not available and where available not consistent for statistical analysis.

The electronic versions of most activity reports for present and past years were not available. The chief of service in charge of certification at MINFOF does not have access to statistical data on the volume of Assamela transformed per year. This put to question the reliability of the certification of timber from a CITES listed species such as Assamela. Many problems were observed on the chain of control of timber products from the forest till the exit ports at Douala. In fact, many products reach the exit ports without control, and even at the ports, accessibility is difficult for the forest officers who encounter many problems with custom agents. There is no linkage between the main databases (SIGIF and COMCAM), which gather statistical data on forest products. The first one deals only on logs, while the second is limited to sawnwood. The regional forest service of MINFOF, face several problems: absence of a secretariat, computer facilities of SIGIF are obsolete and Internet connect is no longer working, insufficient personnel, lack of vehicles, lack of job specification and tenure, lack of technical materials (GPS, compass, etc).

The function of the forest control and monitoring team is mainly to ensure the legal role of the forest administration, however and according to the contemporary situation, this function does not work well, which impacts negatively on the sustainable development of the forest sector. A national strategy on the control of forest and wildlife products was elaborated in 1999, but with limited results in a context where almost all the forest agents make controls (or search for infractions). The new view of the control strategy as outlined in the fifth sub-component of Component 2 of PSFE suggests to:

- (1) clarify the role of each service according to its position. It is not interesting to multiply the control actors. Most important is to facilitate the responsibility and the monitoring of each actor on a specific task. In this basis, the role of each service should be clarified as follow: (i) orient the forest control posts on the monitoring and the struggle against the illegal logging, since they are suitable to ensure a permanent monitoring of the national territory, (ii) withdraw the ñcheck pointsò mission from the forest posts, and develop a specific network, like the one already put in place by the Forest Revenues Enhancement Program (PSRF), to ensure safety in strategic points using the new control technologies, (iii) confirm the Provincial Delegate as the main coordinator of the control, (iv) enhance the services of the forest department on control and monitoring tools.

- (2) move towards a planning control system, which is based on a database system. If the actual system of control is not working correctly, it is because many complementary functions (services) to the above services are not working. This leads to the isolated control activities, with a weak efficiency and lack of transparency. To solve these problems, it is important to build a control chain which will permit to activate the process of leading, treatment, monitoring, and classification of files and trials (process verbal in French). This system should be built on: (i) a database system which will allow to follow all necessary steps, from the trials till the contentious, (ii) an inter-action with the Forest Revenues Enhancement Program (PSRF) Forest Revenues Enhancement Program (PSRF) in terms of transmission of fines or penalties, (iii) development at the provincial level of simple mechanisms for planning and monitoring-evaluation/coordination, (iv) an improvement of the forest logging database (SIGIF) in terms of integrating data on sawn wood, (v) an inter-action between the two forest databases: SIGIF (logging) and COMCAM (trade database), (vi) institutionalisation and the dissemination of the two databases at the provincial levels.

In addition to those actions of PSFE, we recommend in this document that:

(1) a global database on timber products be developed in Cameroon, which will comprise information on four sub-components: logging, transport, processing and trade (domestic/export). Another classification could distinguish timber from various sources including permanent and non-permanent forest domains.

(2) provision of computer and other logistics are major perquisites for data collection and analysis, which must be provided as soon as possible,

(3) Short technical training (three months) of forest officers on statistical data collection and analysis need to be taken seriously;

(4) Training on wood identification at the level of checkpoints involving forest and custom officers, especially for what concerns CITES listed wood species. Moreover, dissemination of information related to CITES listed species should form one of the modules for this training;

(5) The elaboration of managements for all forest concessions should rigorously follow the guidelines of the arête 222.

(6) A sensitisation meeting need to be organised between forest and custom structures involved in the control of timber products and finances in the country. Foresters need to be present at the exit point of export (point dœembarquement in French).

(7) The service in charge of norms in the forest sector (normes dõintervention en milieu forestier) that plays the role of the CITES Management Authority seems to be heavily loaded with many tasks. This service could be raised into a special unit with sub-services in charge of control of inventories, logging, processing, transport and trade to enhance coherent and timely information gathering and analysis.

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Appendices

Appendix 1: ANOVA for year variation of attributed volume of Assamela

ANOVA

Quantity authorised

	Somme des carrés	ddl	Moyenne des carrés	F	Signification
Inter-groupes	14587464	4	3646866.0	.572	.684
Intra-groupes	720682448	113	6377720.8		
Total	735269912	117			

Appendix 2: ANOVA for year variation in produced volume of Assamela

ANOVA

Quantity produced

	Somme des carrés	ddl	Moyenne des carrés	F	Signification
Inter-groupes	1653646.2	4	413411.543	.381	.822
Intra-groupes	96555465	89	1084892.9		
Total	98209111	93			

Appendix 3: Resource Persons contacted

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Appendix 4: Translation of some technical terms

Termes en français	**Equivalent in English**
Lettre de voiture pour le transport des bois dôouvre (grumes) (LVG)	Waybill for the transportation of logs
Carnet de chantier (DF10)	Field register
Lettre de voiture pour le transport des bois débités (LVD)	Waybill for the transportation of sawn wood
Carnet dôentrée du bois à lôusine de transformation	Factory wood entry register
Carnet sorti lôusine	Factory wood output register
Table de peuplement	Density (stems/ha),
Table de stock	Volume per hectare
Taux de reconstitution	Reconstitution rate
Possibilité en terme de volume	Potential exploitable volume (stems above MED found in the exploitable zone of the FMU)
Distribution des effectifs par classe de diamètre	Stems distribution by diameter classes
Bonus	Bonus
Contenance des blocs quinquennaux	Potential volume of logging compartments
Volume par assiette de coupe	Potential volume of annual logging units
convention dôexploitation	Logging convention
Plan meridional	Forest zoning plan
bornage	Installation of boundary stones