CRITICAL STUDY OF GUIDANCE FOR A NATIONAL PRUNUS AFRICANA MANAGEMENT PLAN-CAMEROON

By

Tieguhong Julius Chupezi, PhD

Under the Supervision of

Dr Jean Lagarde BETTI, Regional Coordinator of the ITTO – CITES Program in Africa

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1 CHAPTER 1. INTRODUCTION

1.1 Context

The forests of the Congo Basin in general and those of Cameroon in particular, contain a diversity of ecosystems with high flora diversity (higher plants) of 7000 species, of which 300 are woody. For centuries, some Cameroonians have been living in forests, using the land and forest resources to meet their subsistence and other needs. To these people, the forest comprises the source of arable land, food, medicine, material culture and items for many other material and spiritual benefits, that are generally called Non-Timber Forest Products (NTFP). To take into account the important rule that NTFPs play in the life of all Cameroonians, the government has made significant efforts by implementing various programmes and policies to support their sustainable management. To this, Cameroon is considered as one of the most advanced country in terms of forest sector policy in Central Africa (Tieguhong & Betti, 2008; Betti, 2007; Karsenty, 2006; Carret, 2000). After the World Summit on Sustainable Development, held in Rio de Janeiro (Brazil) in 1992 (MINEF, 1996) Cameroon produced and started implementing a coherent forest code in the sub-region. Cameroon has developed various programmes like:

- Programme for sustainable management of the natural resources, which has been supported by the Global Environmental Facility (GEF) of the World Bank since 1992 (GEF Country Portfolio Evaluation: Cameroon (1992-2007);

- Forest and Environment Sectorial Programme (FESP), developed by the government of Cameroon (MINEF, 2003) with the assistance of its development partners. The FESP is used as a new tool to bring responses to the implementation of the 1994 Forest Law.

Among the major NTFPs identified in Cameroon, *Prunus africana* has been subjected to special considerations because of its inclusion in Annex II of the list of the Convention on international Trade in Endangered Species of Wild Flora and Fauna (CITES). Indeed, 'the Significant Trade Review' conducted as part of a monitoring mechanism for species listed in the CITES appendices led to the conclusion that Cameroon was a country where *Prunus africana* faced a situation of 'urgent concern'. This situation has been criticized by the Scientific Review Group (SRG) of the European Commission, and which has unfortunately been aggravated by suspension of *Prunus africana* exports to European Union member countries, further disrupting the consolidation of achievements in the sector. To seek solutions to specific problems of the management of *Prunus africana,* the Cameroon government with the assistance of its partners produced the document titled "Guidance for a National *Prunus africana* Management Plan Cameroon" in 2009 and the ITTO/CITES project produced another document titled "Non-Detrimental Findings Report on *Prunus africana* (Hook.f.) Kalkam in Cameroon" in 2010. The main purpose of these documents was to show the extent to which *Prunus africana* is being managed in Cameroon, sustainably or otherwise.

1.2 Problem

Despite multiple efforts by the forest administration of Cameroon to ensure the sustainable management of *Prunus africana,* its natural population is drastically reducing due to poor knowledge on the resource base and unsustainable methods of collecting its barks. In November 2008, the non-detrimental findings (NDF) report on *Prunus africana* in Cameroon was presented at the international workshop organized by CITES experts in Mexico. The main finding in the report showed that *Prunus africana* was not only vulnerable as earlier indicated by IUCN in Cameroon but actually endangered, according to IUCN criteria on the red list (Betti, 2008). This fact justifies the measure taken by the European Union against the importation of *Prunus africana* from Cameroon.

Since 2007, the Food and Agriculture Organisation of the United Nations (FAO) and its partners, the Centre for International Forestry Research (CIFOR), the World Agroforestry Centre (ICRAF), and the Netherlands Development Organisation (SNV), under the overall patronage of the Central African Forestry Commission (COMIFAC) have collaborated with the forest administration of Cameroon, private sector, research organizations and communities involved in *Prunus africana* commercialization in West, Northwest and Southwest regions of Cameroon to elaborate the guidelines for the management of *Prunus africana* in the country. This has been conducted within the framework of a four-year European Union funded project (GCP/RAF/408/EC) titled "mobilisation and capacity building for small and medium enterprises involved in non-wood forest products (NWFP) value chains in Central Africa."

According to some precedent studies proposals have been made that *Prunus* a*fricana* should be managed like timber resources (Betti, 2007a, b; Akagou and Betti 2007) following a clear demarcation of the main *Prunus* a*fricana* production zones into *Prunus* a*fricana* Allocation Unit (PAU). So far six PAU have been defined.

In this study, five key questions are raised and effort made to answer them based on the the contents of the document "Guidance for a National *Prunus africana* Management Plan - Cameroon".

- What are the keys elements to consider in the sustainable management species?
- Is the methodology used to define these guidelines reliable?
- Are the guidelines covering all aspects of sustainable management of *Prunus africana?*
- Which points are not missing? and
- Which points need to be further developed?

1.3 Objectives

The purpose of this study is to make critical study of the document "Guidance for a National *Prunus africana* Management Plan - Cameroon".

1.4 Content of report

This report is divided into three main parts including:

- keys elements to consider in the sustainable management of CITES species;
- Presentation of the document "Guidance for a National *Prunus africana* Management Plan- Cameroon";
- Critical analysis of the "Guidance for a National *Prunus africana* Management Plan-Cameroon";

2 CHAPTER 2. KEY ELEMENTS TO CONSIDER IN THE SUSTAINABLE MANAGEMENT OF CITES SPECIES

A tabulation is made of the key factors that affect the management /or conservation of a given species in its area of occurrence as was defined by IUCN (IUCN's check list), following the main requirements indicated for making non-detriment findings (NDF). The table is composed of 26 parameters distributed in 7 groups including: biological characteristics, status at the national scale, management of harvests, control of harvests, monitoring of harvests, incentives and advantages of harvests, and protection against harvests. Parameters properly taken into account in the management plan in terms of information furnished are counted against the number for each parameter group. Data used to qualify the parameters are based on the literature and the results contained in the document "Guidance for a National *Prunus africana* Management Plan-Cameroon.

(1) Biological characteristics. This group is composed of four parameters including: the life form or biological form, or morphological type, the regeneration capacity, the efficiency of the scattering (dissemination) mechanisms of the species, the habitat type;

(2) Status at the national scale. 5 parameters: national distribution of the species, abundance (density) of the species at the country level, population trends at the country level, data quality available to describe the abundance and the population trends of the species, main threats for the species;

(3) Management of harvests. 5 parameters: illegal logging or trade, management history or framework, management plan, objective of the harvests in the management plan, quotas;

(4) Control of harvests. 4 parameters: harvests in protected areas, harvests in the forest management units (production forests), harvest in the free access areas or forests, reliability on the management of harvests;

(5) Monitoring of harvests. 2 parameters: methods used to monitor the harvests, reliability of the monitoring of harvests;

(6) Incentives and advantages of harvests. 3 parameters: the utilization compared to other forms of threats, incentive to the conservation of the species, incentives to the conservation of the habitat;

(7) Protection against the harvests. 3 parameters: proportion of the country that is integrally protected, efficiency of the integral protection measures, regulation of the harvesting effort (Betti, 2008).

3 CHAPTER 3. PRESENTATION OF DOCUMENT « GUIDANCE FOR A NATIONAL PRUNUS AFRICANA MANAGEMENT PLAN, CAMEROON »

3.1. Context

The management of NTFP has been long a major concern for the officials in institutions in charge of forests in Cameroon. While 'timber' management was addressed in the improved forest regulatory framework of the 1990s, notably with the creation of Forest Management Units (FMU), NTFPs have not really found a suitable field of expression. Neither the institutional framework in place, nor the reforms, nor even practices in NTFP value chains have had all the key issues treated as compared to other domains in the forest sector.

Among the major NTFPs in Central Africa, Cameroon supports some of largest populations of *Prunus africana*, a multiple-use tree used traditionally for timber, firewood and medicine. It is very important to understand how policies and legislation have regulated and promoted *Prunus africana*. With such understanding, it becomes possible to determine how the species can be managed. The Scientific Review Group (SRG) of the European Union revealed that the population of *Prunus africana* is overexploited (the consequence of its inclusion in Annex II of CITES), and thus decided to suspend its importation from Cameroon. This called for some special attention at all levels and commanded various discussions and studies, one of which led to the production of the document "Guidance for a National *Prunus africana* Management plan, Cameroon". The main drive for the production of the document was to set out a pragmatic plan for the sustainable exploitation and use of *Prunus africana* in Cameroon. The document proposes institutional, technical, legal and operational procedures for the sustainable management, harvesting and monitoring of *Prunus africana* in the short and long term.

3.2. Methodology

The methodology used in producing this plan was based mainly on bibliographic search and inspired by three main documents:

- The 'Guidelines for Management Plan'(Muńoz *et al*., 2006);
- The International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSWC-MAP) (Medicinal Plants Specialist Group, 2007);
- The report on the Sub-Regional Directive for the Sustainable Management of plant-based NTFP in Central Africa (FAO, 2008).

3.3. Prunus Africana populations and inventories in Cameroon

The research was carried out on the populations of *Prunus africana* in Cameroon, comprising inventories, plot monitoring, rapid assessments, regeneration study and surveys. This work was carried out in four of the six major landscapes where Prunus is found in Cameroon. Data was sought on the local quantities and status of *Prunus africana* population in Cameroon, including density, tree size, stocking levels, phenology, post-harvest regeneration and mortality rate of

Prunus africana trees in their areas of distribution. The data was important for determining *Prunus* allocation units where harvesting could be permitted.

3.3.1. Mount Cameroon

The results of the different methods of *Prunus Africana* inventory revealed that:

- The number of *Prunus africana* was counted, their diameters measured, height estimated, bark recovery following past exploitation assessed, and natural regeneration assessed (Southwest Regional Forest Service (SWRSF), 1992). The density was estimated at 5.5 stems/ha. The number of Prunus trees, their sizes and bark thickness reduced with altitude;

- Systematic inventory of *Prunus africana* on the Mount Etinde, Limbe Botanic Garden (LBG) in 1992 showed a patchy characteristic of the species between 1800-2400m altitudinal band, and a density of 17 stems/ha. Below this range, the density drastically dropped to 3.5 stems/ha and became negligible below 900m altitude (MCP, 1996);

- *Prunus africana* regeneration assessment by the LBG-MCP and the University of Wales Bangor, UK in 1994-5 showed that the density of regeneration is high in fallows but this regeneration is hampered by high herbaceous competition. In the primary forest, the density of regeneration was low and further limited by insect attack. The zone under the crown of clustered *Prunus africana* parents in the secondary forest constituted the most suitable environment for natural regeneration.

- ONADEF inventory on stratified sampling, with a 1% sample size, covering 48,603 ha showed a density of 0.76 stems/ha and 66% rate of destructive harvesting with 22% mortality rate. Further analysis led to the calculation of the sustainable exploitable quota, which was 298 tons/year (ONADEF, 1996);

- Many others studies were conducted by MCP-GTZ (Acworth, 1997 and 2000) and the conclusions are known.

3.3.2. Adamawa

During a survey of the Adamawa region (*Prunus* inventory in Adamawa, ONADEF, 2001), three *Prunus* sites were distinguished. A total of 145,500 ha were sampled, within a density of 8.22 stems/ha and 0.99 stems/ha found in two areas. Quotas of 493.6 tons/year and 8.8 tons/year were recommended for these areas for the 10 years of exploitation following the inventory (Pouna & Belinga, 2001).

Prunus rapid assessment in the gallery forests of Samba Pelmali Boudanga near Nyamsoure, 2008; revealed that among 261 *Prunus* trees observed, the density of exploitable trees were 21.8 stems/ha with the quota of 28.8 tons/year during 10 years (MINFOF, 2008).

A botanical survey of Tchabal Mbabo, Adamawa in 2004; took into account differentiation according to habitat characteristics (abundance, spatial distribution and value). The survey identified 10 IUCN globally threatened montane plants species including *Prunus africana*. Extensive *Prunus* escarpment forests were noted.

3.3.3. Northwest

Rapid assessment survey of Emfveh Mii and Ijim community forests by Whinconet/SNV (2007) was made in an area of 2.5 ha (Nsom *et al*. 2007). The density of exploitable *Prunus* trees was 15.6 stems/ha, the health of trees exploited was poor and very little regeneration and fruiting recorded. Most of the trees were harvested unsustainably.

Prunus inventory on Kilum-Ijim mountain by CIFOR (2007-8); in an area of 480 ha. Observations were made on 8743 *Prunus* trees in the wild. Exploitable stems were at density of 3.5 stems/ha and a quota of 31.5 tons was recommended for the next 10 years, taking into account the percentage exploited found in the Meuer and Whinconet reports. Numerous large and small-scale regeneration and planting activities over the last 20 years were noted.

Simple Management Plan and Management Agreement of BIHKOV FMI, 2009. Apiary and Nature Conservation Organization assisted the forest management institution to revise its simple management plan and inventory on 2040 ha of forest, divided it into 12 management compartments. Density was in general 1.15 stems/ha. 10 compartments were severely affected by poor exploitation resulting in die-off of many trees over 60 cm DBH and destruction caused by goat grazing and wild fires were common. The FMI tried to use different strategies to stop these two activities but failed.

Prunus plot inventories and monitoring to assess the effect of bark harvest on populations in Kilum (Stewart, 2009). This was a long-term ecological monitoring assessment during visits in 1998; 1999 and 2007 in Cameroon, following plots totaling 2.5 ha with high densities (37 and 48 stems/ha) over 9 years. A decrease in populations or especially a decrease in size classes of young trees was noted. Harvest and fire had significantly reduced the crown area since the 1998 (largest trees being affected), grazing also reduced the number of seedlings in plot. After harvest, 50% of medium and large trees died.

3.3.4. Littoral-Bakossi Mountains

Prunus inventory on Mount Manengouba by CIFOR (2007-8): Forest stratification, ACS and four main transects were used in 6237 ha to observe 11,783 *Prunus* trees in the wild. Exploitable trees were found at a low density of 1.9 stems/ha and a quota of 29.6 tons/year was recommended for the next 10 years. Few plantations were found in the area (Foahom *et al*. 2009).

3.4. Prunus africana harvest units

This part introduces a practical permit system with sustainable quotas in defined harvesting zones based on the ecological distribution, with the procedural and technical steps outlined and the roles and responsibilities of all the stakeholders clearly specified.

- Current permit allocation system and zones

Exploitation permits for special forest products are granted annually by quota system whereby an exploiter is allowed to exploit a quantity of product (in tons) within an area-usually a whole region and sometimes within several regions or throughout the national territory. The quota is not inventory based. Permits are awarded for one year, nonrenewable by ministerial decision.

MINFOF sends the CITES Secretariat an annual report of the exports for the previous year and quotas set for the following year in Cameroon. The current permit system for *Prunus* and NTFP in general, has, however, several major weaknesses: absence of system of traceability, permits are not granted based on the inventories conducted in parts of the country, unsustainable exploitation has occurred even in zones designated purely for community use, difficulty of forestry services to monitor the activities of multiple exploiters in the same area and no person bears responsibility for destructive practices, there is no incentive for a permit holder to protect a site or its *Prunus* resources in the long term, the current system does not enhance good governance processes, permits are in practice costly and difficult to obtain especially for smaller and new companies wishing to enter the market. Recommendations are proposed for *Prunus* allocation units that are given through a new permit (Permit Allocation Units) system. The Permit Allocation Units (PAU) is inspired by the Forest Management Unit model used in Cameroon for timber concessions. However, the granting procedure is different. The procedure proposed is for PAU to grant long-term exploitation rights for exploitation of *Prunus* only within specified territory, according to an inventory and subsequent management plan for Unit. The operator PAU or the 'permit holder' or 'concessionaire', is then given an annual authorization to exploit a given quantity of *Prunus* based on compliance with the management plan, as demonstrated by annual reports provided by the operator and monitoring by MINFOF.

3.5. Inventory norm

It summarizes the current state of knowledge and practice relating to inventories. It provides the basis for developing an inventory norm, which is essential to clarify and revise the current regulatory framework. The most pertinent of different studies concentrating solely on Cameroonian *Prunus*, were conducted as part of MCP (Acworth, 1997; Underwood, 2000). Field trials of ACS were conducted as part of 2000 Mount Cameroon inventory and provide an excellent guide to inventory techniques and how to conduct an inventory in the field, the underlying sampling theory and methods of estimation.

3.6. Bark yield calculations

An accurate calculation of bark yield is an essential part of each inventory and the subsequent management plan for PAU; also for estimating yields from private owners. This section provides answers to questions such as 'how much of the desired raw material (quality & quantity) does the species produce under natural conditions?' and 'what is the regeneration rate of harvest populations and individuals?' These calculations and figures form the basis for the harvest and inventory norms. Seven studies have been conducted on bark collected in Cameroon from different classes of tree size. This provides a good basis for yield calculations. Overall yield results shows that yields are variable, due to differences in the exploitable height, the technical ability of the exploiter to climb and peel bark from the tree, the technique of harvest, tools used and care taken during harvest, and the rotation and recovery periods left between exploitation passes. Sustainable yield equation of Prunus bark an inventoried site can be predicted based on estimates of the natural population, the average yield per tree and the length of time between successive debarking to allow total recovery of the bark and maintain tree health (Acworth et al. 1999, Underwood & Burn 2000).

3.7. National quota

The national annual quota for commercial, large-scale exploitation of any part of *Prunus africana* in any given year will be the sum of all quotas from the approved PAU management plans for specific *Prunus africana* Allocation Units and the addition of all registered planted *Prunus africana*. This equation does not include small-scale traditional, subsistence and own use exploitation of Prunus bark.

3.8. Harvest norm

This section summarizes the current state of knowledge and practice on harvesting and its effect on tree health and mortality. This provides basis for developing harvesting standards, which are essential to clarify and revise the current regulatory framework.

The forest administration is reported as prescribing rules for sustainable bark harvesting of medicinal plants in general, and of *Prunus africana* in particular in 1986 and 1992 (Ndibi, 1997; Ondigui, 2001; Ministry of Agriculture, 1992; 1986). The law of 1994 (Republic of Cameroon, 1994) requires the Provincial Chief of Forestry to attach a technical report for Special Forest Products specifying the method of harvesting and the quantities of each species to be exploited. The technique for exploitating *Prunus africana* is not specified.

In two of main harvest areas of Cameroon, more links have been found between unsustainable harvesting and high mortality rates.

Consultations with stakeholders during *Prunus africana* Platform meetings indicated major problems to be redressed by harvest norms: nonexistence or unsure status of legal harvesting norm, non-respect of harvesting best practice, inexperienced and untrained harvesters, bark 'stealing' in Community Forest (CF), lack of 'ownership' of *Prunus africana*, inadequate or no monitoring and control systems to track or penalize poor harvest techniques, etc. These data underpin the need for a careful reconsideration of harvesting norms within a more rigorous management regime.

3.9. Roles of management and scientific authorities

The authorities responsible for *Prunus Africana* in Cameroon are the MINFOF and ANAFOR. This section outlines their current roles and organizational structures, and sets out a plan for improving their roles. Others actors and their role in the management plan are also highlighted.

MINFOF is under the authority of the Minister charged with the responsibility of elaborating, implementing and evaluating MINFOF policy. MINFOF supervises ANAFOR, the National School at Mbalmayo, the Wildlife School at Garoua and acts as liaison with the Food and Agricultural Organization of the United Nations on Forestry matters. Structures for management forests and NTFP are situated within the central administration and the decentralized services. The central administration is made up of General Secretariat and Four Departments. These departments are directly concerned with *Prunus africana* management. The department of forestry is charged with processing permits for both wood and non-wood products. This department pays vey little

attention to scrutinizing applications for special permits under which NTFP fall, thus the flawed system in issuing *Prunus africana* permits has led to chaos and wanton destruction. A way out should be transfer the responsibility for processing NTFP (special) permits to sub-Directorate of Promotion and Transformation of NTFP. This Department should have an interest in sustainable management of NTFP in order to keep it active. This recommendation is in line with the FAO guidelines for the management of NTFP.

Given these departments and operational responsibilities as the CITES Management Authority, MINFOF should be responsible for:

- Introducing the inventory norm and harvesting norm as ministerial decisions;
- The PAU procedure and allocation of PAU;
- Issuing PAU approvals, registering private owners and issuing annual permits;
- Monitoring exploitation;
- Controlling *Prunus africana*-monitoring forms and physically monitoring the transport and export at critical points;
- Imposing sanctions for infringements;
- Maintaining the COMCAM database with *Prunus* data from monitoring forms;
- Annual Special Forestry Product reporting;
- Annual Reporting to CITES-prepared jointly with ANAFOR-to CITES;
- Preparation of a Ministerial Decision elaborating the procedural collaboration between MINFOF and ANAFOR during permit allocation and monitoring;
- Assistance from MINFOF local services to Community and Council Forests applying for' PAU for inventory, control and monitoring.

ANAFOR is scientific authority which responsibilities concerning CITES are outlined in Article 3 of its statute, granted by the MINFOF. Decision of 2 March 2006 appointed ANAFOR to the role of the Scientific Authority in Cameroon for questions concerning threatened species of wild flora. Article 3, 4 and 5 of the decision invoke the Scientific Authority as the body responsible for delivering an opinion at each stage of the management of a registered species under Appendices 1, 2 and 3 of CITES. Taking into account its inexperience as a Scientific Authority, its technical and institutional weakness, inadequate budget, insufficient staff and its low capacity and skills relevant to CITES and Appendix II plants, it is currently difficult for ANAFOR to be effective as the Scientific Authority. To address these weaknesses, ANAFOR has requested ITTO to strengthen its role as a Scientific Authority, which should fill a major capacity gap. The Scientific Group of Examination (GES) and the committee for plants in Geneva recommended to the permanent committee to inform Cameroon to respect article IV which relate to the operation of Scientific Authority, which must validate the export quotas on the management of this species to guarantee

its survival. This situation has been problematic for the Scientific Authority which needed to set up emergency actions in response to the pressures caused by the *Prunus* trade suspension.

ANAFOR responsibilities for *Prunus africana* are:

- Scientific advice on PAU management plan approvals;
- Scientific verification of calculations used for quantities available from registered private owners;
- Scientific advice on monitoring of annual PAU reports and registered owners monitoring forms;
- Allocation of means via its annual budget for annual field visit monitoring of quotas, bark harvesting and trend in supply;
- Preparation of the harvesting norm and inventory norm for ministerial decisions;
- Coordinate the *Prunus africana* platform and disseminate information;
- Remain up to date on current scientific studies, research and projects on *Prunus africana* relevant to PAU, evaluate research and its application to the national *Prunus africana* management plan;
- Act as coordinator of network of CITES-related plant specialists. Focus should be on species in Appendix II such as *Prunus africana* and *Pericopsis elata*;
- Stimulation of specific program on agroforestry and regeneration of *Prunus africana*.

Others actors in the *Prunus africana* chain are CIFOR that studied and analysed the market chain for *Prunus africana* from the Northwest and Southwest regions, from harvesting to production, commercialization, use and consumption.

It has been argued that one reason for the failure to manage *Prunus africana* sustainably in Cameroon is the fact that there has been very poor coordination and linkages between the actors in the chain and a lack of access to relevant information on state of *Prunus africana* in both Cameroon and the international market (Ingram, 2008a; Whinconet, 2005; Nsom, 2007).

3.10. Transboundary management

This section responds to the concerns of CITES about transboundary trade in *Prunus africana* between Cameroon and Nigeria. The CITES secretariat therefore recommended that the management authority of Cameroon collaborate with the management authority of Nigeria to enhance the monitoring of trade in *Prunus africana* between Cameroon and Nigeria. MINFOF sent a letter to the CITES management authority, in Nigeria, requesting collaboration. The Cameroon authorities await an official response. Contacts were also made with conservation and research organizations active in the transboundary mountain areas to establish the extent of data on *Prunus africana* in Nigeria and any transboundary trade. Noted that commercial trade in

Prunus africana to Nigeria was unlikely as Nigeria is not listed by CITES as being an exporting country. Therefore, if there was any trade, it was likely that *Prunus africana* is exploited locally in Nigeria for medicinal use. This data confirms that existence of Prunus in Nigeria but does not confirm transboundary trade into Cameroon.

3.11. Control, traceability and monitoring system

This part sets out how to trace, monitor and control the exploitation of *Prunus africana*. The appraisal of current monitoring and traceability have grown over the last decade about the unsustainable exploitation of *Prunus africana* bark, to the extent that MINFOF admits that 'the exploitation of pygeum has not been monitored and controlled well by its local services' (MINFOF). A number of proposals have been made to improve monitoring and traceability (Ingram, 2007; Whinconet, 2005; Meuer, 2007; MCP, 2000). Unsustainable exploitation has very rarely attracted sanctions, prohibitions have been short-lived and often harvesting has continued and fines have been very small compared to profit from illegal harvesting, with experience indicating that both traditional and administrative sanctions and controls have always not acted as barrier to illegal or unsustainable harvesting (Whinconet, 2005). MINFOF introduced a circular letter in the same period as the EU which introduced its suspension of imports, effectively halting trade and exploitation, so the circular has never been pure into practice. Its does appear to provide a good basis for a more effective monitoring and control system.

3.12. Production facilities

Cameroon currently has the following facilities for treating and exporting *Prunus africana* (Ntsama, 2008; Awono, 2008):

- Bark-first stage drying: it is practiced by some community forests (CF) in the North West This involves cleaning and sun drying Prunus barks. The ASSOFOMI office in Oku and ASSOKOFOMI office in Fundong have been used for drying, Private individuals have used their owner houses or sheds;

- Bark treatment: involves drying to a moisture content of 50% or less, by cutting the bark into chips about 10-20cm, spreading on plastic mats and sun drying, or spreading on racks in warehouses. This treatment is done by MOCAP (Buea), Africaphyto (Douala), Agrodenree (Douala), Afrimed (Bafoussam, Douala);

- Bark powder (powder at less than 10% moisture content): involves processing the bark by machine into a powder. Many structures like CEXPRO (Douala), AFRIMED (Yaounde, Bafoussam) were involved;

- Chemical extraction: Africaphyto (Douala) has only exported bark and not extract. The extraction capacity is used for small-scale tests and not for export;

- Extract processing facilities are not existed in Cameroon since the closure of Plantecam in 2000.

3.13. Regeneration and domestication

This section summarizes the status of initiatives to domesticate *Prunus africana* and the status of regeneration in natural forests, and subsequently makes recommendations for local and national level actions.

- **State of knowledge**

The CIFOR inventory and baseline study highlighted the hitherto unreported, large scale of domestication and reforestation activities. Data provided by stakeholders in 2008 and 2009 indicates that more than 1,6 million *Prunus africana* (SNV, 2007; Ndam, 2000; Cunningham and Mbenkum, 1993; Nkuinkeu, 1999; Tientcheu, 2007). Prunus propagation and domestication techniques are known both to indigenous farmers and to science (Tchoundjeu, 2002; 2004; Tsobeng, 2008). In areas such as Fundong, Oku and Buea, many simpler propagation techniques are also well mastered and disseminated, due to the work of number of projects, research institutes and on farm extension organization.

But many actors indicate that the resource is becoming scarcer, it is still available in the wild, despite dire warnings of unsustainable exploitation and programs to promote *Prunus africana* domestication and planting. The lack of controls or sanctions on illegally harvested *Prunus* means there is a low incentive for domestication. The EU suspension of *Prunus africana* imports in November 2007 and this management plan are expected to change the attitude of actors to create a more favourable climate to invest in domestication and regeneration on PAU and on private land.

- **Genetic diversity**

The genetic diversity of *Prunus africana* is important given that the major medicinal extract is known to vary according to geographical source and that genetic similarity corresponds to geographical distribution. Studies have shown that there is considerable phenotypic, genotypic, and chemical variation among and possibly within countries, and that extracts vary with this variation (Hall, 2000; Muchugi *et al.*, 2006; Dawson, 2001; Avana, 2004). This variation offers scope for selecting improved cultivars superior to the ones currently being planted. Dawson and Powell (1999) assessed the genetic variation of *Prunus africana* in Cameroon from four sites and the aim was to assess genetic variation within and among populations of *Prunus africana* in the areas where the species is most heavily exploited in Cameroon. They concluded that the differences may reflect the geographical and ecological isolation of Mount Cameroon and show a direct relationship between genetic and geographical distance. A greater variation was found between the Adamawa Prunus compared to Mount Cameroon and Mount Oku Prunus.

- **Domestication**

Tree domestication is the process whereby species are adapted from their natural state for wider cultivation. The procedure involves the identification, production, management and adoption of high quality germplasm. Participatory tree domestication focuses on low technology and local knowledge. It depends on market trends and the preference of farmers.

Planting activities have resulted to at least 1.610.000 *Prunus africana* trees being planted in multiple sites across the North west and South west between 1976 and 2008, in an area of at least 625 hectares (Ingram, 2008b). In 1995, 6 years after two of the major projects and NGO had started promoting the tree in the Northwest; at least 4250 farmers had planted *Prunus africana* trees. The majority of trees supported by projects were planted in Community Forest Communal spaces, with non-project supported being planted on farms and in family compounds. This stock represents both an important genetic source and a critical stock for regeneration and demonstrates the previously unrecognized scale of domestication and planting outside of natural forests (Foahom *et al*., 2009). A number of project-based initiatives, which promoted domestication include: ANAFOR, MCP, ICRAF, Limbe Botanic Garden (Darwin initiative), HELVETAS, Fonta Rural Training Centre, Trees for the future, MESG, Shishong, VCP, PAPSEC, etc. *Prunus* nurseries appear more common in the Northwest than in other regions and are often run by enterprises, but also by Community Forest based nurseries and NGO.

- **Regeneration**

Regeneration, reforestation or enrichment planting refers to the replacement and replanting of trees that have been dwindling or lost in natural forests. The main regeneration activities have occurred in the Northwest in response to concerns about over-exploitation in kilum-Ijim (Parrott, 1989; Cunningham, 1993) and resulting loss of highly important biodiversity and forest livelihoods. This has resulted in approximately 15.000 Prunus trees being planted within CF and as boundary markers.

4 CHAPTER 4. CRITICAL ANALYSIS OF THE GUIDELINES

Twenty six parameters divided into seven groups were used to make critical analysis of the content of the Guidelines document. It was found that only 11 (42.3%) of the 26 parameters were fully taken into account in the document. Weaknesses were observed in relation to the level of research, coverage of studies and reliability of government actions in place, in terms of controls, monitoring and providing incentives to conservation and habitat protection (Table 1). More profound analysis showed that more information though not exhaustive was available on biological characteristics than all the other groups of parameters. Indeed, information on the control and monitoring of harvests was simply not reliable (Figure 1).

Table 1: Parameters present or absent in the Guidelines for Prunus management and suggestions for improvement

Grouping of Parameters	**Number of parameters considered**	**Number of parameters in Guidelines**	**Missing parameters in the Guidelines**	**Suggestions for improving Guidelines**
Biological characteristics	4	3 (life form, dissemination mechanisms, habitat type)	Regeneration capacity with respect to back reconstitution rate	Research to confirm or refute past results for the southern and northern regions
Status at the national scale	5	3 (national distribution, available data on abundance, main threats to species)	Density of the species at the national level, Population trends at the national level	Description based on three of the six zones, Update inventory need to be carried out
Management of harvests	5	2 (management history, quotas)	Illegal harvesting or trade data, management plan, objectives of harvest in management plan	Research on sources of products sold, putting in place management plans
Control of harvests	4	0	(harvest in PAs, FMUs, free access forests, reliability of management)	Further research in the 15 Permit Allocation Units (PAU)
Monitoring of harvests	2	1 (method of monitoring harvests)	Reliability of monitoring harvests	More stringent measures put in place

Grouping of Parameters	Number of parameters considered	Number of parameters in Guidelines	Missing parameters in the Guidelines	Suggestions for improving Guidelines
Incentives and advantages of harvests	3	1 (utilization compared to other threats)	Incentives to conservation of species & habitat	domestication & sustainable harvest methods
Protection against the harvests	3	1 (regulation of harvesting effort)	Proportion of country protected, efficiency of protection measures	Further research and respect of quotas
Total	26	11	-	-

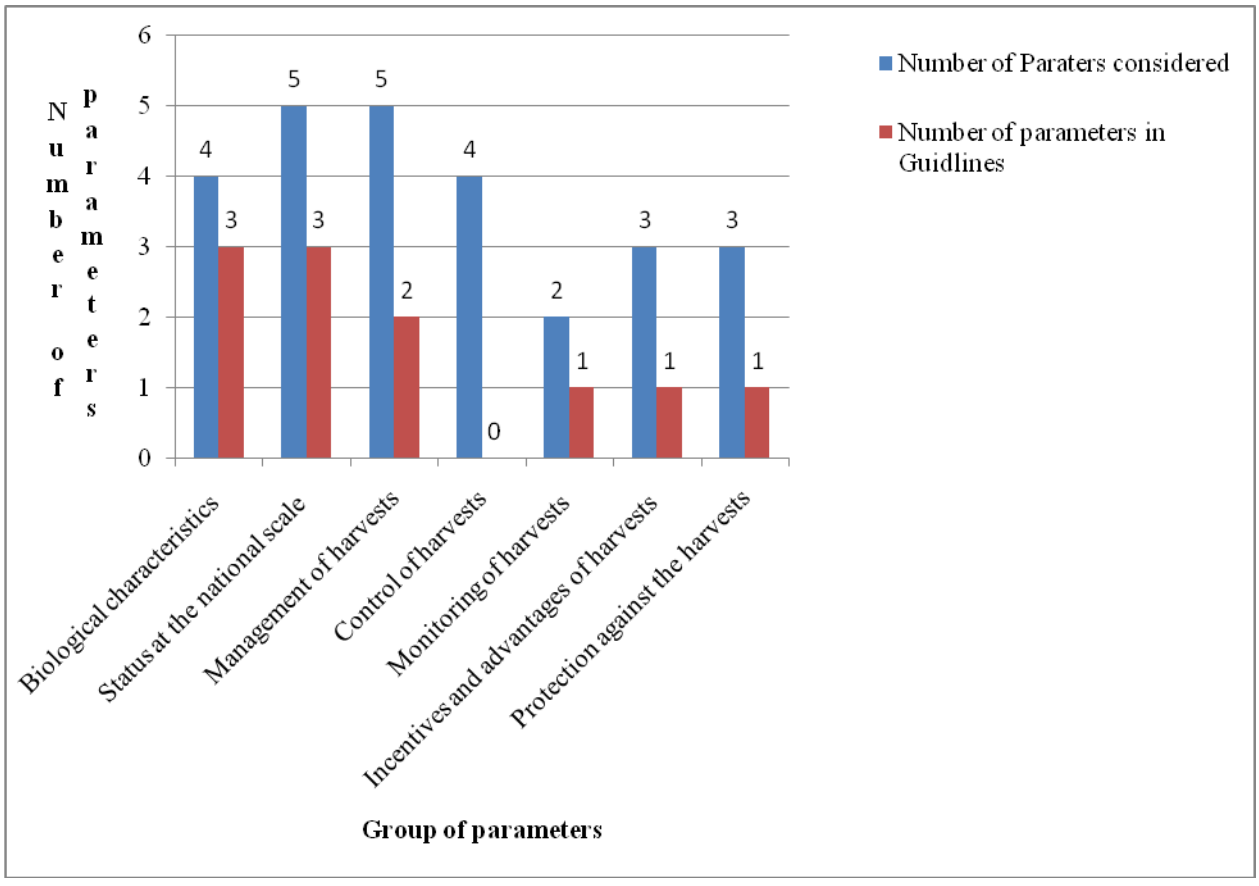

Figure 1: Parameters considered and those fully analyzed in the Guidelines for Prunus management

5 CHAPTER 5. STAKEHOLDERS' PERCEPTION

This section of the report is based on the survey of the opinions of economic operators involved with the *Prunus africana* value chain under the ITTO/CITES project on the sustainable management of *P. africana* in Cameroon. This survey has as goal to provide the scientific authority (ANAFOR) with scientific information that will enable it to formulate the non-detrimental findings report of this species. During this exercise, efforts were made to discuss with economic operators to raise responses to key questions related to the concerns of the scientific authority of CITES in Cameroon. Institutions such as ANAFOR, ICRAF and CIFOR were consulted for deliberations on past and current works on Prunus africana. The main objective of this exercise was to appreciate the preoccupations of different actors.

The main actors in the Prunus africana value chain included national partners as well as international organizations involved in the production to consumption system of the species. The economic operators could be grouped into two big categories. There are the operators who respect the regulations by being in possession a license (Agreement) and the permit of exploitation. Most of those in this category are transformers and the exporters of the product. On the other hand, there are illegal operators who do not possess any authorization or permit to operate. These are the dealers and the local populations that always exploit the forest resources in their locality. However, it is conceivable that the 1994 law came to dedicate the decentralization of forest management especially with the creation of community and communal forests. Taking advantage of this, local populations grouped themselves and created community forests, which allowed them to come out and to deal directly with legal operators. This resulted in a drastic reduction in inequality in trade transactions between producers and exporters.

According to some legal economic operators, it is necessary to possess an authorisation that gives access to the profession, thereafter a special permit that gives access and the right to exploit the resource. The permit indicates the quantities to harvest, the locality and the modes of harvest. With an exploitation permit, the holder contacts the chief of the village of the zone of harvest, followed of the prospecting. The debarking is done in short strips of 60 cm from soil until the first thick branch. Trained debarkers are generally in groups of ten or less. The carriers of the products from the forest to the village are recruited among the local populations manual labour. Waybills are used to convey the products to points of transportation or export in the city. Exportation requires the following documents: certificates of export and of origin.

The opinions of local populations differ substantially as they hardly possess exploitation permits and do not seem to acknowledge the necessity of getting authorizations to exploit resources that they have been custodians for decades. To them, the permit system is a major problem and holders are simply people with given them piecemeal payments and symbolic entitlements. The administration in charge of the forests on its part are representatives that are hardly present in the field due to difficulties linked to logistics but they do control waybills in highways as products are conveyed from the zone of production to the zone of exports.

Problems

Among the problems faced by economic operators is the absence of standard norms of exploitation and processing of the non woody forest products in general and those of *Prunus africana* in particular. The illegal operators exploit *Prunus* by peeling off the barks in an unsustainable manner and most often after the other operators had operated on the same trees. Their methods of exploitation are detrimental to the survival of the trees because they exploit from the root up to the branches. Besides, the absence of a system of traceability constitutes a major bottleneck to trace the origin of a giving non wood forest product from the zone of production to the units of transformation. The cost of engaging in the business may be higher than onlookers can tell. Although the cost of production has not been properly determined, some economic operators estimate that about 40% of the selling price may constitute profit.

Some recommended solutions

- Sensitization of the different stakeholders including the local populations, the administration and the economic operators on the notions of sustainable management and the respect of the forestry law;
- Instituting *Prunus* allocation units (PAU) that are similar to the practice of forest management units (FMU); Putting in place a reliable traceability system for the *Prunus africana* value chain;
- Putting in place an integrated control system by both the administration and local populations and ensuring that only the opposite sides of the bark of *Prunus* trees are harvested;
- Implication of all stakeholders in, the administration; the organisms of research; the populations; the economic operators; the legislator;
- Promotion of the domestication of *Prunus africana* to take of pressure from natural forests in the long run giving increasing demand associated with increasingly aging populations in Europe and America;
- Creation of industrial transformation units that are capable of transforming the raw material (barks) into finished and semi-finished products.

6 CHAPTER 6 PERSPECTIVE OF A SUITABLE TAX SYSTEM PROMOTING THE TRADE AND CONSERVATION OF PRUNUS AFRICANA IN CAMEROON

6.1. Introduction

When someone is talking about forest products, he is thinking firstly to timber resources, and secondly to wildlife resources/or hunting. Non timber forest products (NTFP) of plant origin known as "hidden products" have for long time been neglected due to their informal character (Betti, 2007c; d). In Cameroon," hidden products" are of great importance for both city and rural people. They constitute an important source of revenues and they contribute to the alimentation and health of many persons. Hence, this category of forest products constitutes an effective tool for struggling against poverty.

Recent degradations of forests following the non sustainable use of "hidden products" have drawn attention of the international community. The Convention on biological diversity (CBD) for example recommends states to better integrate the management of NTFP in the national policy and forest regulations. But if the forest laws of numerous of countries in the Congo Basin including Cameroon are well elaborated and applied for what concerns the timber, the wildlife and recently the community forestry, those related to "hidden" products remain globally vague and problematic.

This section aims to analyse the policy and the tax system related to "hidden products" including Prunus africana, with a view to better organise the sector and enhance the forest revenues on those products in Cameroon. The work is a summarize of two complete studies financed by the Food and Agriculture Organization (FAO) within the project GCP/RAF/398/GER (Betti, 2007c; d).

6.2. Management of special products including Prunus africana in Cameroon

In Cameroon, NTFP of plant origin or "hidden products" can be classified in two categories according to the interest attributed to a given product: special products and others. Special products are wild plant products from which the Cameroon forest administration collects taxes (regeneration tax) from their exploitation. Those products (special) have been selected mostly for their economic value (Betti, 2007 c; d).

Any physical (individual) or moral (trade company/Group) person who desires to do any forest activities for commercial use must get the forest agreement according to the modalities fixed by the forest law, article 41, section 1 to be précised (MINEF 1996). If the forest agreement gives access to the profession, the title/or permit gives access to the forest resource. Once he got his agreement, the person/or society who wants to exploit special products must apply to request a special permit to the forest administration. The special permit indicates for the beneficiary (company), the nature of products attributed and their quotas and zones. Hence for example, in 2006, the trade company "EQUATO BOIS" obtained to harvest in all the ten regions of

Cameroon, 6, 075.0 tons of five products including: *Diospyros crassiflora* (500.0 tons), *Pausinystalia johimbe* (100.0), Arabic gum (200.0), Charchoal (4,250.0), Rattan (200.0), *Funtumia* (775.0), and *Rauvolfia* (70.0). Among the valid permits of a given year, there are permits that was renewed because the holder has not work (exploit) or has partially work during the precedent year, and there are also permits that are totally new (Betti, 2007c;d).

The exploitation of "special products" in Cameroon is regulated by the Ministry of Forestry and Wildlife (MINFOF) and by the Ministry of Finance and Budget (MINFIB). The MINFOF manages the resource while the MINFIB collects forest taxes. The MINFOF works through two main departments: the Directorate of Forests (DF) and the Directorate of Promotion and Processing (DPP). The DF works for the management of the resource including the knowledge through the forest inventories, the attribution of agreements and permits, the control and monitoring. The DPP works for the promotion, processing and exportation of the forest products (Betti, 2004). The MINFIB gathers forest taxes through the Forest Revenues Enhancement Program (FREP) and customers. There exists some "special products" for which the quotas are decided and granted by an Inter-ministerial Commission (IC). Those products are called "special products of a particular interest": *Prunus africana* belongs to this category of products. Before the ban, the national quota of *Prunus africana* was settled at 2 000 tons/year. The IC is composed of representatives of other administrations (ministries) including the Prime Ministry (PM), the Ministry of Agriculture and Rural Development (MINADER), the Ministry of Environment and Nature Protection (MINEP), the Ministry of Economy and Planning (MINPLADAT), the Ministry of Scientific Research and Technological Innovation (MINRESI), ... The IC is chaired by the Director of Forests, and may holds its meeting by the month of November which precedes the year for which the quotas are granted. For example, quotas for the year 2006 were decided during the IC's meeting organised in November 2005. The IC's decision is based on two groups of reports: the activity reports provided by the Regional Delegation of the MINFOF and the activity reports of the trade companies. Regional Delegate of MINFOF should report activities of trade companies that happened in their territorial area, they also indicate special products that can be found in their zone. Their report does not mention the densities of those products. Trade companies report their activities conducted in different regions. They also reports problems observed during the year, mostly for what concerns the evacuation of their products. Finally, trade companies indicate the products and corresponding quotas they request for the incoming year. The application file of the trade company is composed of the forest agreement, the receipts showing that the applicant has paid integrally the forest taxes, the disbursement of a lump sum of 150 000 FCFA for the file analysis. Only trade companies who have paid their taxes regularly will be selected for the new year. The report of the IC is then addressed to the Minister of Forestry and Wildlife who signs and delivers the special permits (Betti, 2007c).

For other products, that do not go to the IC, the Minister of Forestry and wildlife can decide to grant them to exploiters without using the "avis" of the IC. Such a permits are known as "de gré à gré permits".

One of the problems outlined by trade companies of *Prunus* is related to the administrative procedures. The Administrative procedures for issuing special permits are lengthy and complicated. These procedures are not adapted to the local context. Special permits are issued for

one year. Really, the holder of this permit works for only three to four months during the year, since he cannot work in the rainy season. Some time, the IC has delays and holds its meeting by the month of January. In that case, the permits are issued by February or March of the same year. By November, the holder of the special permits is requested to submit his annual activity report to the forest administration. This means that the months of January and December which are considered as dried months are not effectively exploited by the trade company.

6.3. Trade and forest taxes related to Prunus africana

Table 2 presents the quotas (tons) of *Prunus* barks attributed by the inter-ministerial Commission for quotas for the period 2004 – 2007 (Betti, 2008).

A total of 33 companies have been authorized to exploit *Prunus africana* between 2004 and 2007. Some 6 544 tons of barks were granted to those companies, with the year 2005 being the most important in terms of the quantity of bark (2000 tons).

Table 2. Attribution of quotas (in tons) in *Prunus* to different trade companies by the Inter-ministerial Commission of Quotas from 2004 to 2007 (Betti, 2008).

COMPANY	YEAR-2004	YEAR-2005	YEAR-2006	YEAR-2007	TOTAL
ETS EFFA JBP & Cie	50	50			100
ETS ERIMON	50	75	50		175
ETS ESSAM & FILS		10			10
ETS ESSAMA	10				10
ETS FONGANG & FILS	30	100	50		180
ETS IK NDI & BROS Enterprise	50	50			100
ETS KAMDEM	30				30
ETS KOPGUEP	50	50		44	144
ETS MEDOU NJEMBA & FILS	50	50	40		140
ETS NAH & SONS	50				50
ETS NFORKEMBA	20	5			25
ETS NGAH DIMA DAMIEN	50	50			100
ETS NGAKO & FRERES	50	50			100
ETS NGUENANG EMMANUEL	50	50	20		120
ETS SOCAMBA	20	20			40
ETS TAY & FRERES	20	20			40

COMPANY	YEAR-2004	YEAR-2005	YEAR-2006	YEAR-2007	TOTAL
STE AFRICA PHYTO INTERNATIONAL	50	200		160	410
STE AFRIMED	500	500	520	550	2070
STE BOIS & METAL DU CAMEROUN			50		50
STE CATRACO	100	100	10		210
STE CEXPRO	100	100		200	400
STE CRELICAM	20				20
STE GENERALE DES PRODUITS				300	300
STE ITTC	100	100		50	250
STE MARCO				20	20
STE MOCAP		100			100
STE MPL	100				100
STE MUKETE PLANTATION		100	10		110
STE PHARMAFRIC			170	170	340
STE PRODEGON				20	20
STE SACO	50	50			100
STE SGPA	150	150	340		640
STE SIFAM	20	20			40
TOTAL	**1770**	**2000**	**1260**	**1514**	**6544**

As it can be observed in figure 2, the number of companies decreases from 2004 (25 companies) to 2007 (9). Many companies which have not paid their taxes for the previous years were eliminated by the Commission.

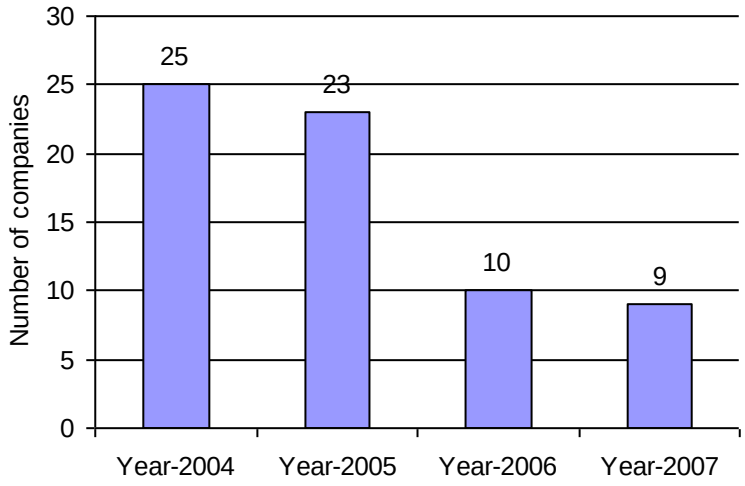

Figure 2. Distribution of number of companies per year

The main tax paid by the exploiters of special products is call "the regeneration tax" which is equal to 10 FCFA/kg of product (1 $ = 460 FCFA). Other taxes are paid at the exit ports to custom officers, and are known as exit taxes or royalties. For *Prunus africana*, the regeneration tax paid per year before the ban was 20 000 000 FCFA. It is clear that this amount is too small to promote any regeneration or conservation of the product at the scale of the country. In the other hand, the price of one kilogram of dried bark of *Prunus* varies from 100 – 200 FCFA in the forest/village to 1 000 – 1 500 FCFA at the level of Douala port (Personal communication of the General Director of PHARMAFRIQUE, one of the most important trade company for *Prunus* in Cameroon). This means that trade companies buy their *Prunus* at low prices (100 – 200 FCFA) from villagers, pay the regeneration tax at low prices (10 FCFA), and sell their product at high prices (1000 – 1 500 FCFA) to foreign companies. The final price is more than 100 times the regeneration tax. Trade companies are therefore the group who makes enough profit on trade of *Prunus africana*.

The system of management of revenues gathered from both timber and NTFP used in Cameroon and in all central African countries, is that of shared quotas. Those revenues are mainly shared between the public budget and the forest administration. And inside the forest administration, the revenues perceived are themselves shared between the Special Forest Development Fund (FSDF) and the other forest administration's services. The funds allocated being mainly destined to sustain the exploitation of forest products. *Prunus* taxes include the harvesting and exporting taxes. The current fiscal scheme of NTFP used in Cameroon does not include the processing taxes. Also, all taxes perceived in the harvesting stage are related to the quantity of the product, and not to the surface area exploited. This explains the low contribution of the NTFP sector to the forest revenues.

Forest taxes can reduce the deforestation by acting as an "eco-tax". More the taxes on the volume are small, more the exploitation is intensified on a single product and more that exploitation extends to other marginal products. It is advised to re-inject the forest revenues to the regeneration of the forest or the resource exploited. The value of a fiscal reform is link to its capability to

contribute simultaneously to the protection of the forest resources and to the increasing of the forest revenues. Forest taxes can be grouped in two parts: the upstream taxes and the downstream taxes. The upstream taxes include harvesting taxes and the area taxes. The downstream taxes comprise the processing and exporting taxes (Betti, 2007c). For *Prunus* the area taxes and the processing taxes do not exist. The harvesting tax is represented by the regeneration tax. The upstream taxes are generally weak (small), difficult to gather, and often present a low recovery rate. They require a high number of control agents spread in the whole country. The downstream taxes however are generally high, easy to implement (a limit number of custom agents posted in exit ports and a limit number of check points in factories are enough). Those taxes often show high recovery rates. They are degressive according to the degree/level of processing. This means that, the more the product is processed, the less the tax will be. The taxes of the processed products are less than those of the raw products. In Cameroon for example, in the timber sector, the regeneration tax is = 2.5% of the mercurial value of the timber, while the exit royalties are = 17.5% of the same mercurial value. Also, the exit royalties for the logs represents the 2/3 of the total timber taxes. Anyway, applying totally the timber scheme on NTFP is non-sense, since there are not enough processing factories in the sector of NTFP in central African countries (Betti 2007).

Cameroon's policy moved from a system of a free utilization in the years 1996s to a system of tax capitation on NTFP today (Betti, 2004; 2007c). Figure 3 illustrates the evolution realized in the recovery of the regeneration tax on special products in Cameroon from 1999 till 2006, before the ban on *Prunus* products.

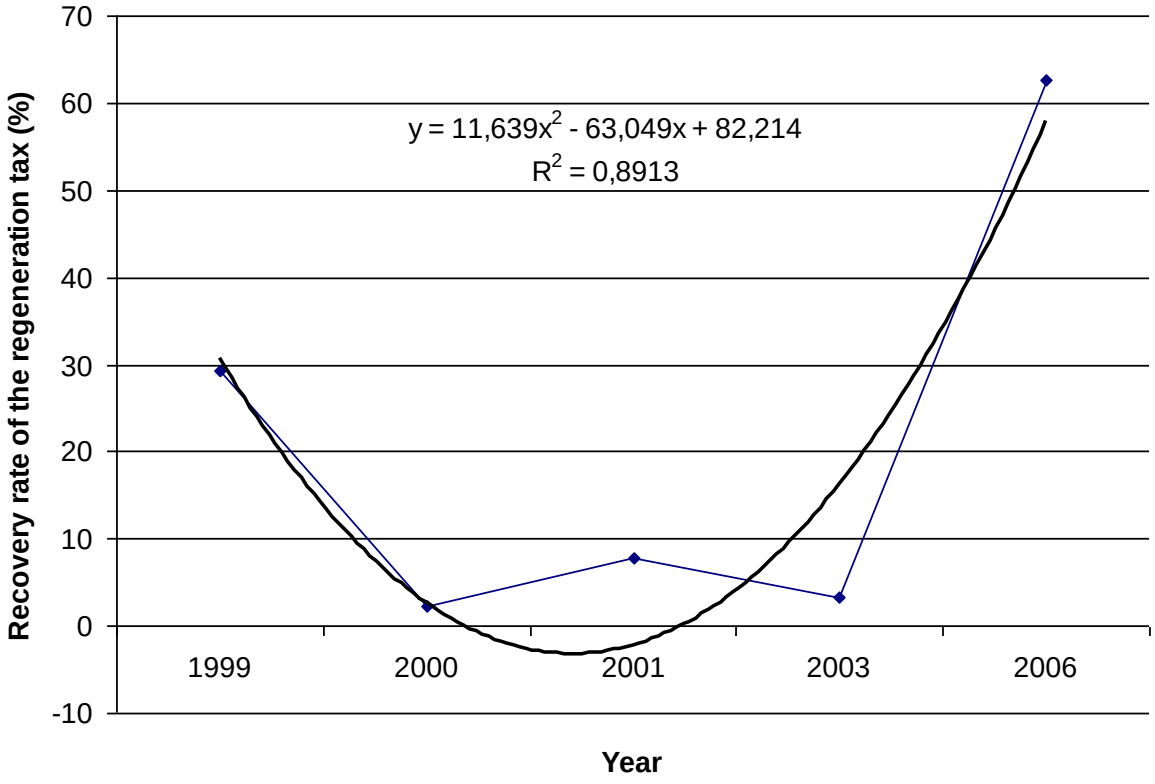

Figure 3: evolution of the recovery rate of the regeneration tax perceived on special products by the Cameroon Government between 1999 and 2006 (Betti 2007 c).

Those data show not only the progress realized in the recovery of the revenues gain from special products, but also the motivation of special product exploiters (many new comers) to continue to invest in the special products sector. The motivation of exploiters can be link to the concessions made by the Government, namely the celerity in the treatment of files, the attribution of the "gré à gré" permits, and acceptance of requests formulated by societies which did not totally disbursed the tax of regeneration due to their inactivity.

In Cameroon, the creation of the Forest revenues enhancement program (FREP) in 1999 allowed the Government to better recover the regeneration tax on NTFP. Since 2007, the forest administration works in implementing two main tools namely the note book for way bills and the note book for monitoring the stock of special products. The introduction of these tools aimed to ensure the control of the NTFP exploitation (Betti, 2007 c).

In spite of those innovations and progress, there are still some problems that negatively impact the sustainable exploitation of *Prunus* and other NTFP in Cameroon. The glaring development challenge here is the total involvement of the forest administration in the knowledge of the resource, the revision of the regeneration tax, the fixation of permits in given areas, the attribution of permits through a competitive basis, the organization of the sector of NTFP as to allow enough usage rights to local communities, to allow those communities to sell their products at the council level to small companies, and to dissuade big companies to stay at the processing and export levels. If improved as described here (Betti, 2007 c; d), the Cameroon system can be advised for generalization within the space of the Commission on central African forests (COMIFAC).

CONCLUSION AND RECOMMENDATIONS

It was necessary in this study to make a "critical analysis of the document "Guidance for a national P*runus africana* management plan-Cameroon" to see if the document contains the key elements to consider for the sustainable management of CITES species as well to show gaps where they do exist and how to better develop them.

The document contains most of the key elements required for guiding the sustainable management of CITES species. However, the management of *Prunus africana* itself in Cameroon is just started and embryonic. Main weaknesses in the contents of the document include:

- The methodology that is based mostly on literature reviews and analysis of past data, lacks updated field data needed to give the best interpretation of current situation
- The absence of updated field data (qualitative and quantitative data) on *Prunus africana* makes it difficult to establish trends in the population of the species and to properly evaluate harvesting quotas per area.

Some suggestions are noticed:

- There is need to carry out inventories, add and compare updated field data with data from past researches;
- Information on artificial stands of *Prunus africana* is poorly documented to reflect the level to which individual farmers are planting the species; more research is needed to document the incentives for farmers to continuously plant the species in their own plots rather than relying on wild populations that are fast dwindling.
- There is need to frequently up date data on the availability of *Prunus africana*, say every five years;
- There is need to elaborate and implement of *Prunus africana* Allocation Units (PAU) as recommended by GTZ and CIFOR;
- Efficient control, traceability and monitoring need to be ensured by the forestry administration and NGOs;
- The fiscality issues need to be reformed. The current regeneration tax should be increased; 10 FCFA/kilogram is too small to ensure the conservation (regeneration and forest patrols for control) of *Prunus africana* in Cameroon.

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