4.1 Chainsaw milling in the Congo Basin

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Forestry in the Congo Basin

Forest management in the Congo Basin[1] takes place in a context of widespread poverty. It is estimated that over 73% of people in the region live below the poverty line, most of them in rural areas where forest predominates (de Wasseige et al. 2009). Over the last two decades, forest policies have been used as a powerful lever to reduce poverty among the population, while also contributing to the development of the economy and the management of biodiversity.

In 2007, the large-scale industrial forestry sector in Central Africa produced nearly 8.4 million m^3 of timber. Gabon, with nearly 3.4 million m^3, is the largest producer, followed by Cameroon (about 2.3 million m^3). The smallest producer is the Democratic Republic of Congo (DRC), with 310,000 m^3 of formal timber production (de Wasseige et al. 2009).

NEITHER NATIONAL STRATEGIES NOR PUBLIC POLICIES HAVE BEEN DEVELOPED TO GUIDE THE CSM SECTOR THROUGH FORMAL, TRANSPARENT AND EQUITABLE GROWTH.

The forest legal framework in the Congo Basin has improved in recent decades, with a large increase in the number of forest management plans. Nonetheless, the vast majority of policy reforms targeted large-scale, export-oriented forestry operations, while neglecting small-scale chainsawn timber, which is mostly sold in the domestic timber markets but also exported regionally. Although small-scale logging titles that authorize rural citizens to harvest few trees for their personal, non-commercial needs are included in all the legal frameworks in the region, they are generally not adapted to the current needs of chainsaw millers. As a consequence, the domestic timber sector remains largely informal. Despite its importance, chainsaw milling (CSM) — and its economic, ecological and social impacts — is unaccounted for in national and international statistics.

Small-scale logging in Central Africa: previous appraisals

In Cameroon, the amount of wood illegally harvested by individuals or small enterprises and sold mostly on the informal domestic market was estimated at about 250,000 m^3

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roundwood equivalent (RWE) in 1996 (Enviro-Protect 1997). Plouvier et al. (2002) analyzed several markets in Yaoundé and Douala and estimated the national CSM production at about 1 million m^3 RWE.

Although recent estimates are not available for other countries of the region, several indications show that CSM production is significant. In Gabon, for instance, rural citizens still use family logging authorizations, which were abolished by the 2001 forest code, to harvest and trade timber around their villages. Given the number of people employed by the forestry sector as sawyers, fellers and prospectors, who have thus acquired the necessary skills, rural Gabon offers a large operational capacity and availability of resources for the production of informal timber. The law allows small-scale operators to apply for legal logging authorizations, but the administration has been very slow to implement the granting of such titles; only in mid-2009 were the first requests reviewed by the administration.

In DRC, forest resources are managed in a socio-economic and political post-conflict situation. The last decade, characterized by widespread insecurity, has prompted the vast majority of people to turn to subsistence and informal activities. The volume of logs produced by the informal sector is inherently difficult to quantify. Nonetheless, it is an important sector in DRC, as evidenced by the number of rafts that can be seen on the rivers, sawnwood planks found in many markets, and axe-cut logs in Kinshasa. Djiré (2003) estimated that artisanal loggers produce between 1.5 and 2.4 million m^3, five to eight times the official industrial timber production.

In the Republic of Congo, the law allows for special permits for small-scale loggers to exploit timber and non-timber forest products. In the case of timber, special permits allow the harvesting of three trees for domestic purposes and five trees for commercial uses. The latter is allowed only in areas where people have difficulty obtaining supplies of industrial scraps. The difficulty of acquiring this permit, especially in rural areas, pushes many operators to remain in the informal sector, which causes the administration to establish checkpoints and mobilize patrol teams. The informal timber market in Brazzaville seems to have declined considerably after the intensive activity observed in the early 1990s, mainly due to the establishment of the checkpoints and to the provision of large amounts of scrap lumber in Brazzaville and Pointe Noire (Ampolo 2005).[2]

Methodology

Given the lack of information on CSM in the Congo Basin — and on its social, economic and ecological dynamics — it is imperative to conduct systematic studies in order to effectively reform the forest sector. This article summarizes the preliminary results of ongoing research that started in 2008 in four Central African countries: Cameroon, the Republic of Congo, DRC and Gabon. The project focused on sawn products sold in the domestic market. These are sourced all over the region using both legally produced timber, such as scraps from industrial sawmills or small-scale logging titles, and illegally produced timber, which comprises the vast majority of the chainsaw production.

A three-step approach was adopted in the four countries. First, a sample of outlets located in all districts of the main cities was monitored on a weekly basis. The wood sold and purchased in each outlet was recorded in a comprehensive manner one day a week. These data were extrapolated to the other days of the week, then to the total number of outlets selling timber in the city. Second, timber entering the cities was monitored weekly (day and night), following the same frequency and method of extrapolation. Third, informal sawyers in the rural areas and timber sellers in cities were interviewed to analyze their activities and quantify their costs and margins (Table 1). Surveys started between March and November 2008 and are ongoing.

Table 1. Sampled cities and outlets

	Cameroon	Congo	Gabon	DRC
	Bertoua, Douala, Yaoundé, Limbe, Kumba	Brazzaville, Pointe Noire	Libreville	Kinshasa
number of outlets	882	127	210	200
number of outlets followed	177	77	30	20
number of supply routes followed	*	*	6	*
number of surveys in rural areas	340	*	212	*

* information not provided

Socio-economic impacts at the local scale

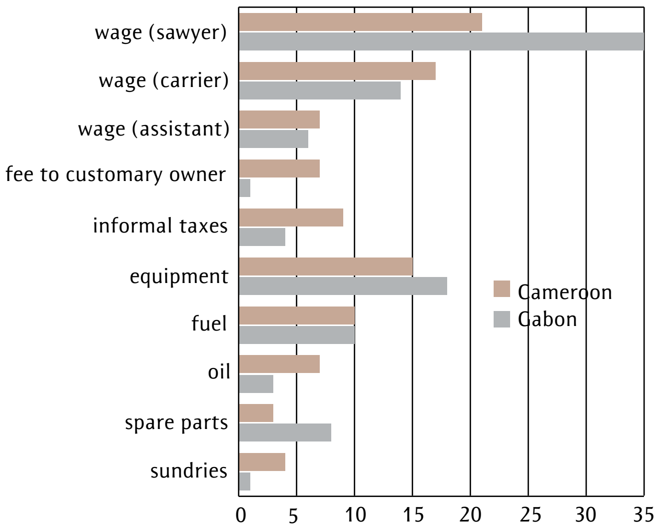
About 550 surveys were conducted till November 2009 in rural Cameroon and Gabon. CSM appears to be profitable. In Cameroon, profits for chainsaw loggers averaged about US$15.5 per m^3, while operating costs were about US$44.3 per m^3 of roundwood. The profit margin was about 26%. In Gabon, the profit was around US$26.5 per m^3, with operating costs estimated at around US$48.6 per m^3 of roundwood. The profit margin was 35%. Given the total volume of sawnwood sold on the domestic market, the financial gain generated by the informal sector — aggregating local wages, fees and profits — is estimated around US$51.1 million per year for Cameroon and US$3.1 million for Gabon (around Libreville only).

There are different modes of operation and/or marketing of sawnwood in rural areas. There is a significant difference between semi-professional sawyers moving out of urban centres with orders for timber species and products and rural loggers in need of cash who harvest timber without knowing who their final customer will be.

Although the difference between these two methods is negligible in Gabon, it is very important in Cameroon. Semi-professional millers, with better equipment, financial backing and political sponsors, have a profit margin of about US$18.2 per m^3, while that of freelance rural sawyers tends to be zero. The latter are frequently subjected to external pressures, including the seizure of all their wood.

CSM's contribution to rural economies is largely ignored in official statistics and policies. In fact, some costs incurred by sawyers in harvesting locations make up the largest part of the annual revenues of rural people living nearby. In Cameroon, for example, almost 50% of operating costs are payments to the local workforce while 7% of the total cost is remuneration to the customary owner of the felled tree. In Gabon wages make up 55% of the total cost, while compensation to the customary owner is lower than in Cameroon (Figure 1).

Figure 1. Chainsaw milling costs as % of total costs, Cameroon and Gabon



CSM is also a source of income for people outside the village economy, such as government officials and local elites, as they require informal payments from chainsaw millers and timber sellers. These payments average about 4% of the total operating cost in Gabon and 9% in Cameroon (Figure 1). This may represent a small transaction cost for chainsaw millers, given the overall positive impact of harvesting activities on the village economies. However, informal payments — which indicate how much millers are willing to pay — may also be considered as revenue losses by the state. If extrapolated to the overall volume of informal production, they total about US$13.1 million in Cameroon and US$2.4 million in Gabon.

Chainsaw millers and timber sellers listed administrative harassment and abuse of power by various authorities as the most important problems they encountered (Table 2). There are roughly the same concerns in Cameroon and Gabon. Importantly, Table 2 also shows that only a small fraction of interviewees (13 and 10% in Gabon and Cameroon respectively) noted difficulty in accessing a legal title as a problem. The vast majority of chainsaw millers harvest without a legal title (in Cameroon, about 85% of all interviewees admitted to never using a legal timber authorization during their career), and the lack of title is clearly not a major concern for operators in either country. This may be one reason for the increase in CSM over the past decade.

Table 2. Problems reported by chainsaw millers and timber sellers (% of total interviews)

	Gabon	Cameroon
administrative hassles	41	71
technical (mechanical) problems	17	13
difficulty in access to a legal title	13	10
abuse of power (businessmen, client, worker)	10	41
lack of infrastructures	8	11
relations with customary owners	5	22
lack of capital	3	7
scarcity of the resource	2	11

*Interviewees could indicate more than one problem, i.e., totals add up to more than 100 percent.

Timber sales from chainsaw milling

In Cameroon, average annual sales in July 2008–June 2009 totalled about 990,000 m^3 of sawn timber. Total consumption was estimated at about 860,000 m^3, as about 130,000 m^3 were sold to other markets. Percentages varied among cities, but most timber was sourced from CSM operations in the forest; about 27% was sourced from industrial sawmills.[3]

In Cameroon, sawn timber sold on the market and sourced directly from CSM operations was estimated at about 662,000 m^3, more than 2 million m^3 RWE. This suggests a twofold increase from the 2002 values estimated by Plouvier et al. (2002). Most notably, domestic timber sales were larger than industrial production and exports of sawn timber, which decreased from 580,000 m^3 in 2008 to 360,000 m^3 in 2009.

In Gabon, about 70,000 m^3 of lumber is consumed in Libreville per year. This estimate is supported by outlet sales and by monitoring the flow of supplies to the city by roads and waterways. Compared to the total official industrial production (about 3.3 million m^3 in 2007) informal sector production is more modest than in Cameroon represents about 23% of the industrial production and exports of sawnwood — about 300,000 m^3 — in 2007. Per capita timber consumption in Gabon (about 1.1 million inhabitants in the Libreville area) and Cameroon (about 12 million inhabitants in the southern part of Cameroon) is similar.

Preliminary data collected in the Republic of Congo show annual timber sales of about 78,000 m^3. Formal national production was about 1.3 million m^3 in 2007, with about 210,000 m^3 of exported sawnwood. Small-scale informal production thus represents about 35% of industrial production. Per capita timber consumption in Congo (2.5 million inhabitants in Pointe-Noire and Brazzaville areas) is about half that of Cameroon and Gabon.

Preliminary estimates for the DRC show that the city of Kinshasa alone consumes about 350,000 m^3 of informal sawnwood per year (Lescuyer, Eba'a Atyi and Cerutti 2009). Official figures show that industrial sawnwood exports amounted to about 30,000 m^3

in 2007. Although official figures are notoriously incomplete in DRC, data collected in Kinshasa for this study show that informal timber production for domestic markets is far higher than formal production.

Table 3. Formal and informal production of sawnwood (m^3)

sawnwood m^3	Cameroon	Gabon	Congo	DRC
	Yaoundé, Douala, Bertoua	Libreville	Pointe-Noire, Brazzaville	Kinshasa
annual consumption, domestic market: ▪ *industrial scraps* ▪ *chainsaw milling*	860,000: *198,000* *662,000*	70,000: *n/a* *n/a*	78,000: *n/a* *n/a*	350,000: *n/a* *n/a*
annual domestic consumption per capita	0.055	0.636	0.031	0.035
annual formal production/ export (2007–08)	580,000	300,000	210,000	30,000

As shown in Table 3, chainsaw timber production in the Congo Basin, albeit largely informal, is much more important than suggested in the regulatory frameworks and official data. In Cameroon and the DRC, and to a lesser extent in Gabon and Congo, CSM volumes and dynamics call for recognition by and better integration in forest policies.

The informal timber sector provides thousands of jobs. In Pointe Noire, Brazzaville and Libreville, approximately 1,000 people derive their income directly from timber sales; in the cities sampled in Cameroon, about 4,000 people sell timber. These estimates only consider the last, and easiest to quantify, link in the chain from harvesting to transport to selling. They do not include the thousands of jobs provided in rural areas for harvesters, carriers, holders and many others. In Cameroon alone, the total number of people employed by CSM is estimated at about 45,000, about four times the number provided by the industrial timber sector. CSM is an important source of revenue for rural people and provides urban consumers with cheap timber. Its long-term influence on national economies depends on the availability of these timber resources; a rough analysis of the ecological impacts of low-scale milling, at least in Cameroon, indicates that it must be better regulated to become a sustainable source of development at the country level (Lescuyer, Eba'a Atyi and Cerutti 2009).

Products and prices

Selling prices vary with the quality, type and origin of product, and by timber species. In Cameroon, average prices for ayous[4] planks and formworks (21% of total sales) were about US$34.0 and US$31.4 per m^3 RWE (Table 4).

The prices of products in the domestic market (Table 4, column e) average about 80% lower for timber sourced from CSM than FOB prices — which are linked to the international market — applied for the industry in Cameroon (Table 4, columns f and g). There are several reasons for these differences:

- First and foremost, the quality of the product required by the international market is higher, and specifications stricter.
- Domestic timber is not charged with formal taxes — stumpage, sawmill entry, export fees — so its production costs are lower.
- There is much more competition in the domestic market, with thousands of chainsaw millers able to source the market, than in the industrial one, where only a handful of logging companies specialize in a few products and species.
- Timber is much cheaper for chainsaw millers, as the commercial value of trees is underestimated by customary owners.

Table 4. Selling prices of the most used products per species

a. source	b. product	c. species	d. sales (%)	e. selling price (US$/ m^3 RWE)	f. FOB price (US$/ m^3 RWE 2009, Cameroon)	g.% of export price (E/F)
chainsaw milling	plank	ayous	4.7	34.0	183.4	18
	formwork	ayous	16.3	31.4	183.4	17

Conclusion and recommendations

Chainsaw lumber production in the forestry sectors of the countries of the Congo Basin has been under-researched and neglected by official policies. As a consequence, data about the sector, and its impacts on rural and national economies, are often excluded from official statistics.

All Congo Basin countries are involved in the FLEGT/VPA process[5] that requires all wood commodities — for export or domestic consumption — to be legally produced and tracked. This puts a massive pressure on states to recognize, legalize and organize the informal sawnwood sector.

Preliminary results of this project show that the domestic timber market has boomed in recent years, with an overall annual production — about 1.2 million m^3 of processed products — similar to industrial production, and with important impacts on local economies, rural livelihoods and governance.

Many challenges lie ahead, in formalizing and improving the sector's contribution to national economies. Neither national strategies nor public policies have been developed to guide the sector through formal, transparent and equitable growth. This forces thousands of people to produce and sell illegal timber, because of the lack of a legal framework for their activities, and because many vested interests (decentralized civil servants, urban businesspeople, military forces) challenge the development of a national formal timber market. Although illegality is not considered to be a problem by most chainsaw millers and even constitutes a source of income for corrupt civil servants, the states of Central Africa would see a great economic benefit if CSM was formalized.

The adoption and decentralized distribution of logging authorizations is a necessary first step. Ad hoc legal frameworks should be adapted to the needs of local actors, rather than to those of central administrations. Second, reform should aim at professionalizing chainsaw millers, while concurrently providing workable incentive schemes for civil servants, in order to decrease corrupt practices. Effort is urgently required by government to issue and implement effective sanctions for civil servants who participate in corrupt practices, in order to improve the overall governance of the sector.

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Endnotes

1. The Congo Basin is usually considered to include Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon and Democratic Republic of Congo (DRC). This article focuses only on Cameroon, Congo, Gabon and DRC.
2. Except for a few case studies carried out in the Batéké highlands, no data at the national level confirm or refute this finding.
3. Estimates for Cameroon and Gabon are based on 12 months of data collection; estimates for Congo and DRC are based on six months data collection, extrapolated to 12 months.
4. Ayous, also known as obeche, is timber from *Triplochiton scleroxylon*.
5. This is the Voluntary Partnership Agreement (VPA) on Forest Law Enforcement, Governance and Trade (FLEGT).

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