



4.8 Chainsaw milling and national forest policy in Liberia

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Background

In the past, chainsaw milling (CSM)¹ was used to convert commercial forest harvest residues (e.g., large branches and rejected logs). However, the operators felled and milled trees independent of the commercial timber contract holders. CSM used to be a small-scale activity, but started to expand during and after the civil war (1990–2003), when formal concession logging became erratic. The international ban on export of timber products in 2003 and the subsequent cancellation of concession agreements by the government in 2006 as a result of malfeasance in their management, collapsed the export-oriented industry and created further gaps in the local timber supply.

CSM has gradually become widespread in virtually all regions of Liberia and currently provides the only source of lumber to the local market to support national reconstruction efforts after the recent war. Many people, including ex-combatants, are involved in CSM. The practice has major socio-economic impacts in Liberia. Some of the affected forest areas overlap some of the important biological hotspots in West Africa. In order to consider these issues more holistically and concertedly, the Forestry Development Authority (FDA) commissioned a comprehensive study on chainsaw milling in Liberia in 2009.²



CSM, IF UNCONTROLLED,
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THAT WILL JEOPARDIZE THE NATION'S
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EXPORT INDUSTRY.

Institutional and legal framework

The FDA has a mandate to formulate forestry policy, manage forest resources, monitor the management of concessions, and facilitate the collection of revenue from forest activities. The National Forestry Reform Law (NFRL 2006) and the Ten Core Regulations (FDA 2007) constitute the principal laws and regulations governing commercial forestry. The NFRL provides four types of contracts and permits (Table 1).

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Table 1. Forest contracts and permits

type of forest contract/permit	description
Forest Management Contracts (FMCs)	for forest areas of 50,000–400,000 ha for 25 years, to be managed for long-term sustainable timber production
Timber Sales Contract (TSCs)	for forests of 5,000 ha or less in off-reserve areas for three years that are destined for conversion to agriculture, awarded to companies having at least 51% Liberian ownership
Forest Use Permits (FUPs)	intended for non-timber forest uses (e.g., tourism and harvesting of NTFPs)
Private Use Permits (PUPs)	for regulating commercial forest activities on private land

The NFRL makes provisions for benefit sharing with regards to commercial logging revenues and requires a social agreement, which defines community benefits and access rights, to be developed for every forest contract.

Chainsaw milling is considered illegal, as it does not fall under any of the contracts and permits established by the NFRL. By extension, the collection and payment of fees related to CSM is also illegal. The FDA collects fees for the issue of official waybills, however, allowing chainsawn lumber to be transported to Monrovia and thus giving the practice a quasi-legal status. Chainsaw milling is also banned under FDA regulation No. 26.

Chainsaw milling and supply chain analysis

In Liberia people use chainsaws to convert the logs from felled trees into planks on site. The planks are then hand-carried to the roadside for packing into vehicles and transport to markets. A milling team is usually composed of one chainsaw operator and an average of two helpers and five wood carriers. Some groups also employ cooks, bush managers or tree spotters. A study of the practice (Blackett, Lebbie and Marfo 2009) indicates that 67% of the workers come from local communities, 32% are other Liberians and only 1% are foreign. Most teams operate with a single saw.³ About 76% of the operators claimed to own their chainsaws; financiers (including wholesale buyers and traders in chainsawn lumber) owned 23% and communities owned 1%.



Chainsaw millers normally operate in partnership with traders and suppliers, although timber loads may be brought to Monrovia or other markets and offered on spec to timber traders. Planks are usually carried up to five kilometres (km) to the roadside for loading, but in a few cases are carried as far as 10 km. Trucks are generally loaded with about 500 planks or 24 m³. Timber is transported for an average of 178 km to Monrovia timber markets, but transport from as far away as 700 km has been reported.

Raw material sourcing

CSM in Liberia is carried out in different types of natural forests including virgin forest, logged-over forests and farmland with isolated valuable timber species. Most CSM occurs in forests that both millers and communities regard as community forests; a limited number of millers operate on private land. Sourcing of raw materials is based on local knowledge on both the market and forest resources and on the good relationships of traders and chainsaw millers with the communities concerned.

Communities negotiate with chainsaw millers and collect and manage fees; in some instances county authorities appoint Plank/Toll Committees to do this on behalf of the communities. Typically, chainsaw millers pay several fees:

- a registration fee of US\$25–42;
- an in-kind payment of 10 to 20 pieces of lumber for every 100 planks produced (these are usually used for community development projects);
- in-kind fees such as drinks or bags of rice; and
- a token fee of US\$8–12 for a forest manager or tree finder, if one is available in the community.

Community shares may sometimes be sold back to the millers to obtain cash to purchase other materials. Commonly, one or more chainsaw millers are given access to specified areas with little apparent control by the communities over how many trees are harvested or the activity's impact on the environment. Occasionally, the removal of large trees is permitted to facilitate agricultural development.

Timber production

In logged-over forests, chainsaw millers tend to start work in easily accessible parts of the forests until the valuable timber is exhausted. They then follow less accessible logging roads. From the roads, the chainsaw millers penetrate the forest on foot. The analysis done by Blackett, Lebbie and Marfo (2009) revealed that 80 percent of FMCs and 77 percent of TSCs lie within five km of a road. In some TSCs, 100% is accessible.

Blackett, Lebbie and Marfo (2009) calculated the conversion rate from logs to planks to be about 31%, although this rose to about 35% if only 14-foot (4.27-m) logs were considered. The Liberian timber trade prefers a standard length of 14 feet. About 86% of all boards produced are 51 mm thick, which minimizes the amount of processing required afterwards.⁴

The FDA estimates that the Annual Allowable Cut (AAC)⁵ in the forest areas will initially reach 750,000 m³. The Diagnostic Trade Integration Study (Tissari, Taplah and Kamara 2008) predicted that the AAC would rise to 1.3 million m³ by 2011 once the formal logging sector was re-established. The current total volume harvested by CSM is estimated to be between 280,000 and 650,000 m³ based on a recovery rate of 31%. Blackett, Lebbie and Marfo (2009) calculated that the total CSM harvest could amount to as much as 50% of the maximum predicted AAC. CSM, if not properly regulated, is a serious threat to the environment and biodiversity and to Liberia's aspirations to develop a major timber exporting industry.

Markets

The principal market for timber is Monrovia, where 74% of Liberia's urban population resides. Smaller amounts are consumed in other urban areas and rural areas. Total annual consumption and estimated volume traded has been assessed to be in the range of 86,900–201,300 m³ of sawn timber. However, low level export of logs resumed in December, 2009, and about 3,300 m³ of logs had been exported by mid-July, 2010. Full scale formal processing of timber is yet to commence.

Prices

The average market price of chainsawn lumber is US\$152 per m³, which is well below the average export prices quoted by the International Tropical Timber Organization (ITTO 2009) for West African logs and lumber which are US\$283 and US\$575/m³ respectively.⁶ These low prices are a disincentive for the export-oriented timber industries in Liberia to supply the local market.



The CSM sector pays no formal taxes. Blackett, Lebbie and Marfo (2009) calculated that the government was missing out on US\$65 in taxes for every cubic metre sold. This “subsidization” means that cheap timber prices come at the expense of forest sector revenues. It is not surprising that the CSM trade is highly profitable (the profit margin is calculated to be about 27%) and therefore attractive for business. The straightforward nature of CSM and lack of regulations also makes it very simple for people to participate.

Traders, species and sizes/volume traded

Traders depend entirely on rough-sawn planks produced by chainsaw millers. Nearly 75% of the trade is concentrated on six species.⁷ Very limited re-sawing is done; it is normally carried out by an independent sawmill or bench saw adjacent to timber trading markets.

Employment

An estimated 1,500 people are employed in the retail chainsaw lumber business; 3,850 work in CSM. In addition, a large number of intermediaries make a livelihood from trading. This employment is important in Liberia, where cash-earning opportunities are few and far between. Each worker supports a large number of other family members.

Drivers of chainsaw milling

There are several main drivers of CSM in Liberia:

- the 2003 ban on the export of timber products — along with the cancellation of concession agreements in 2006 and the cumbersome processes involved in the competitive bidding for forest contract areas — means that domestic needs can be met only by CSM, which is widespread due to its unregulated nature;
- the practice of collecting fees and issuing waybills by the FDA and the collection of fees by the local communities for what is an illegal activity has created the impression that CSM is a legitimate practice;

- the FDA's capacity for effective law enforcement is very limited;
- apart from the collection of waybill fees, the fiscal regime established for commercial logging is not applied to CSM —immunity from fees has made CSM extremely profitable, which is a strong incentive for people to invest in the sector, resulting in its rapid expansion;
- a strong market demand exists for post-war reconstruction materials; and
- CSM generates employment.

Impacts of chainsaw milling in Liberia

Socio-economic impacts

Benefits to communities and individuals

The lack of any structured distribution or management of benefits means that inequities are common. Communities and individuals receive direct benefits from CSM in the form of cash or in-kind payments from chainsaw millers or businessmen. Individuals benefit from wages, which average about US\$189 per month per person and can be as much as US\$93,000 per year per community. Communities may benefit indirectly from the removal of large trees from agricultural land. Farms created in this manner are two or three times larger than traditional slash-and-burn areas. Purchasing power is increased through the employment of local people. This in turn results in the emergence of small businesses in the vicinity of CSM.

Community conflicts

The large flows of benefits derived from CSM by both communities and county authorities are usually accompanied by inadequate accountability, misappropriation of funds, inequities in benefit sharing and thefts of agricultural produce, planks, and bush meat from traps, which account for more than 70 percent of conflicts in the community. Additional sources of conflict include delays in or refusal by chainsaw millers to make payments; harvesting trees without community authorization and domestic disruption caused by the high incidence of relationships between women from communities and chainsaw millers.



Environmental impacts

Forest structure

The structure of the forest is being adversely affected.

Chainsaw millers harvest nearly all trees of the desired species above 35-cm diameter at breast height (DBH); the regulated minimum felling diameter is 40-cm DBH for TSC areas and 60 cm DBH for FMC areas. Blackett, Lebbie and Marfo (2009) observed that the hiring of chainsaw operators has increased the traditional farm size by about two to three times. In some high forest areas, valuable species such as Tetra, Niangon and Abura tend to occur in groups or pure stands. These three species, together with Lovoa (*Lovoa trichilioides*), account for 75% of the species harvested. CSM's low-DBH felling limits — especially in areas where pure stands of the preferred species occur — will have an adverse effect on the future growth of forests.

Biodiversity and the environment

Chainsaw millers' lack of directional felling skills leads to widespread destruction of saplings, seedlings and important non-timber forest products such as rattan (although five-year-old sites in logged forest showed profuse regeneration, largely of pioneer tree species and vines, e.g., rattan, in the large gaps opened during logging). Blackett, Lebbie and Marfo (2009) observed several fallen branches and tree trunks in streams, obstructing water flow. Some of the tracks used most frequently showed signs of soil erosion. Accidental felling of defective trees used by tree-nesting mammals and birds will reduce the number and quality of nesting sites, create competition for the sites and potentially reduce the animals' reproductive capacity. Communities blamed chainsaw noise for causing wildlife to move away from the forest. Chainsaw millers rely on local hunters to supply them with bush meat and in some cases set their own traps, severely affecting the forest fauna.

Lessons and insights

If uncontrolled, CSM will have a serious socio-economic and environmental impact that will jeopardize Liberia's intention to establish a viable timber export industry. Large portions of FMC and TSC areas are vulnerable to CSM. Harvest levels constitute a significant proportion of the AAC and CSM targets high-value species that are also preferred by the formal industry. The sustainability of remnant forests is adversely affected by overharvesting and the lack of post-milling management, including limited monitoring of logging activities by either the communities or FDA staff. In addition, there are serious inequities in the sharing of the benefits from CSM.

At the same time, CSM in Liberia is currently the only source of lumber in the domestic market for post-war reconstruction. Additionally, the activity provides direct and indirect employment for many people.

Recommendations

Several actions are needed in order to ensure the effective regulation of CSM in Liberia:

- designate specific forest areas for CSM, control harvesting intensity and limit damage by the introduction of simple felling rules;
- implement a tax regime that places chainsaw millers and formal industries on par to ensure the payment of realistic prices for timber;
- improve the law enforcement capacity of the FDA and the communities;
- facilitate the organization of chainsaw millers and traders to align their activities with forest and fiscal policy; and
- introduce appropriate mechanisms and institutional arrangements for management and equitable distribution of fees.

Any action to regulate CSM will have to consider that there is currently no realistic alternative source of local timber supply and that many people (including the forest communities) depend on CSM for at least part of their income. It will also have to account for the fact that the law enforcement capacity of the FDA is extremely limited.



Of the possible options proposed by the FDA study,⁸ the one regarded as the most promising and consistent within the current forest policy framework involves lifting the ban and allowing CSM under permit. There is no explicit provision in the National Forest Policy that prohibits CSM; hence, it is possible to amend the policy and accommodate the practice within existing contracts and permits. Permits would be issued to communities, allowing them to negotiate with chainsaw millers for the right to harvest in the traditional areas. The communities would be empowered to assist the FDA as enforcement agents.

Incentives for the communities would include greater tree tenure rights in their traditional lands and improved understanding of the value of protecting their forest; assurance of equitable distribution of benefits, including allocation of a proportion of the stumpage paid by the millers; and the right to the share of any penalties from violations.

A registration scheme would be established for chainsaw millers, with only those registered permitted milling rights to designated forest areas. The scheme would include a code of conduct and the self-policing of members.

For more information

For more information, please see www.fao.org/forestry/site/29659/en.

Endnotes

1. CSM is also referred to in Liberia as pit-sawing.
2. The study was sponsored by IUCN, FFI and the World Bank. The results of the study form the basis of this article.
3. The maximum number of saws operated by a group was nine.
4. The thicknesses produced are generally 25 mm and 51 mm and widths are 203 mm, 254 mm or 305 mm.
5. The AAC is meant for forest areas being managed under sustainable forest management practices, i.e., only for FMCs.
6. Prices are influenced by high-value species such as Bubinga and Sipo, which are rare in Liberia.
7. These are Abura (*Hallea ciliata*), Framire (*Terminalia ivorensis*), Tetra (*Tetraberlinia tubmaniana*), Ceiba (*Ceiba pentandra*), Niangon (*Heritiera utilis*) and Lovoia (*Lovoia trichilioides*).
8. A multi-stakeholder consultation process is underway to discuss the options recommended by the study and solicit inputs from the public sector, civil society (including the forest communities) and the private sector (including the chainsaw millers) to the formulation of a legal framework that would align CSM with existing forest policy.

References

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