

Chainsaw Milling in Guyana

A synopsis of the issues

Rohini Kerrett, Forestry Training Centre Inc., Guyana

Marieke Wit, Tropenbos International, The Netherlands



Chainsaw milling has emerged as a significant component of the timber industry in Guyana. Despite its many benefits, there are major concerns about chainsaw milling: sustainability; under-utilization of timber resources; safety; and environmental concerns.

This synopsis paper presents an overview of the chainsaw milling sub-sector in Guyana. It is based on the results of a series of studies of the legal and institutional framework, socio-economic drivers and impacts of chainsaw milling. Both strategic and practical interventions are recommended to improve current practices — within the context of sustainable forest management — in order to optimize the benefits to communities that depend on chainsaw milling.



Introduction

Chainsaw milling (also called chainsaw lumbering) has emerged as a major component of the timber industry in Guyana. The activities of this sub-sector provided an estimated 40 percent of the fees — total royalties on logs and lumber — received by the Guyana Forestry Commission (GFC) in 2007 (Clarke 2009).

Chainsaw milling provides income and livelihoods for a large number of persons within and outside forested areas, and affordable lumber for the local market. Despite these benefits, there are major issues related to chainsaw milling: concern about continued availability of commercial stocks of forests; under-utilization of timber resources as a result of poor cutting techniques and practices; poor occupational health and safety practices; and level of compliance with approved environmental practices.

Policy-makers and other stakeholders in Guyana have responded positively to chainsaw milling's potential to foster the development of rural communities by supporting the development of Small Logging Associations that operate within State Forests. The GFC also supports community logging initiatives by Amerindians on communal lands.

Given the legal status of chainsaw milling, it is desirable to develop a suite of instruments to enhance the benefits of the practice and align it with other initiatives on sustainable forest management, such as the recently launched Low-Carbon Development Strategy.

What is chainsaw milling?

Chainsaw milling in the context of the project means the conversion of logs at stump into lumber using a chainsaw. The term "chainsaw milling" is used to denote both chainsaw milling (with attachments such as guiding bars) and chainsaw lumbering (without such attachments).

The forestry sector in Guyana

Tropical high forests cover some 16.4 million hectares (ha) or about 76 percent of the country's total land area (Table 1). Under the *Forest Act* of 1953, 13.6 million ha of the denser forest area were gazetted as State Forest. Amerindian and other lands, totalling some 2.4 million ha, are also forested and provide a means of livelihoods for many communities.

The GFC issues three main kinds of forest concessions:

- State Forest Permissions (SFPs) are granted for one or two years for areas smaller than 8,000 ha with the option to renew for an additional one or two years;
- Wood Cutting Leases (WCLs) are granted for periods of three to ten years for areas between 8,000 and 24,000 ha — a forest management plan is required, and there is an option to renew the concession; and
- Timber Sales Agreement (TSAs) are issued for periods of 25 or 30 years for areas exceeding 24,000 ha — a forest management plan is required, and there is an option to renew the concession.

Table 1. Key facts about forestry in Guyana

Land area	215,000 km ²
Population	0.75 million
Forest area	16.4 million ha (163,777 km ²)
State forest	13.6 million (m) ha: (State Forest Permission: 1.7 m ha; Wood-Cutting Lease: 0.07 m ha; Timber Sales Agreement: 4.2 m ha; State Forest Exploratory Permit: 0.6 m ha; Reserves: 1.5 m ha; Unallocated: 5.6 m ha)
Annual Allowable Cut	0.33m ³ /ha/year (max. of 20 m ³ per ha in 60-yr cutting cycle)
Yearly average logs and other roundwood production	357,000 m ³ *
Yearly average chainsawn lumber production	60,500 m ³ * (processed)
Yearly average sawmill lumber production	103,392 m ³ ** (processed)
Recovery efficiency, chainsaw milling	19–44%
Recovery efficiency, static sawmilling	47–65%
Deforestation rate	0%
Contribution to GDP	3.4%

*average yearly production for 2004–08; **average yearly production for 2002–06
Sources: GFC 2002, 2006, 2007, 2009; FAO 2009; Clarke 2009

The new Forest Bill approved by Parliament in January 2009 designates all the concessions listed as simply “forest concession agreements”.

Guyana’s commercial forests are characterised by high species diversity. The main commercial species have a low standing volume per unit area; this results in a low rate of extraction.

The country’s forests are considered to be largely intact, mainly because logging is selective and relatively low in intensity. However, in terms of remaining commercial productive capacity there are some marked geographical differences; the most accessible near-interior forests have lost their productivity for high-value species of marketable dimensions and quality.

The legal framework

The Guyana Forestry Commission’s general policy on chainsaw milling is that it is legal in SFPs in the country once all conditions are met, including licensing, tagging, declaration and royalty payment.

The new Forest Bill will become the central piece of legislation governing the forestry sector. The old Acts, including the *Forest Act* of 1953, will be repealed as soon as the bill is formally proclaimed as law. The new Forest Bill recognizes chainsaws as “primary conversion units” that must be registered each year.

The bill introduces the concept of Community Forest Management Agreements (CFMA). The purpose of a CFMA is to provide communities with a means of acquiring clear and secure rights to manage and benefit from their forests on a sustainable basis in order to help meet local needs, stimulate income generation and economic development, and enhance environmental stability.

CFMAs are granted for a maximum of two years. They can be applied for by any legally registered “community group”, which is defined as being comprised of persons living within and having strong ties with the community. The agreements are suitable for Small Loggers Associations who practise chainsaw milling.

Small Loggers Associations

In 2001, the GFC reaffirmed its commitment to poverty alleviation by implementing its Social Development Programme, in accordance with the 2001 National Forest Plan. The overall objective of the programme is to ensure that all communities located in or close to forests utilize their forest resources in an environmentally sustainable manner which yields economic and social benefits for everyone. In line with this policy, GFC supported the formation of Small Loggers Associations (SLAs). These associations allow members to obtain access to State Forests via State Forest Permissions; they provide other benefits as well. By the end of 2008, 25 community logging associations were registered with the GFC and had been issued 42 SFPs. Other community groups operate on titled Amerindian lands, outside State Forest lands.

All chainsaw operators within the community are encouraged to join SLAs. This gives them the right to operate on the association’s leased lands; it also conveys benefits in terms of access to authorities, support and markets.

Logging associations that harvest on titled Amerindian Lands are not required to pay fees to the GFC. These lands are governed by the relevant Amerindian Village Council and are subject to royalty payments to the council. The GFC does, however, monitor the removal of timber from Amerindian Lands.

Research conducted by this project found that SLAs were at various stages of development, and faced problems related to issues such as governance and capacity. The associations have between 20 and 90 members.

There is evidence of behavioural change among SLA members due to the availability of training opportunities and more intensive monitoring of forestry activities by the GFC.

Log tracking and quota system

The Guyana Forestry Commission monitors the origin of produce and the levels of harvesting within State Forests by means of a log-tracking system introduced in 2000.





The log-tracking system provides information about the location, magnitude and legitimacy of forest operations. The system is used to monitor all operations, including those on State Forests, Amerindian Lands and private property. It is linked to the State Forest Permissions (SFP) quota system, a protocol that controls the volume of produce harvested. Cutting levels of ten trees per ha (20 m³ per ha in a 60-year cutting cycle) are currently being applied to SFPs through the quota system.

The chainsaw milling sub-sector

Chainsaw milling has become widespread in small-scale logging operations for various reasons, primarily its simplicity, low capital requirement and mobility. It has thus become almost synonymous with the small-scale forestry sub-sector, although the two are not necessarily the same thing.

Chainsaw milling has several typical features:

- operators are often paid based on production, without a written contract;
- chainsaw operators do not receive any formal training;
- operators do not own concessions or get involved in marketing lumber;
- there is little if any consistent use of personal protection equipment, with grave implications for occupational safety and health; and
- there is a high turnover rate for operators.

To operate a chainsaw on an SFP, the permit holder must obtain an annual sawpit licence from the GFC. Trees are selected, felled, bucked to length and “ripped” to produce the desired dimensions of lumber. In most cases, lumber is removed on a trailer pulled by a small farm tractor; occasionally it is carried out to roadside by hand.

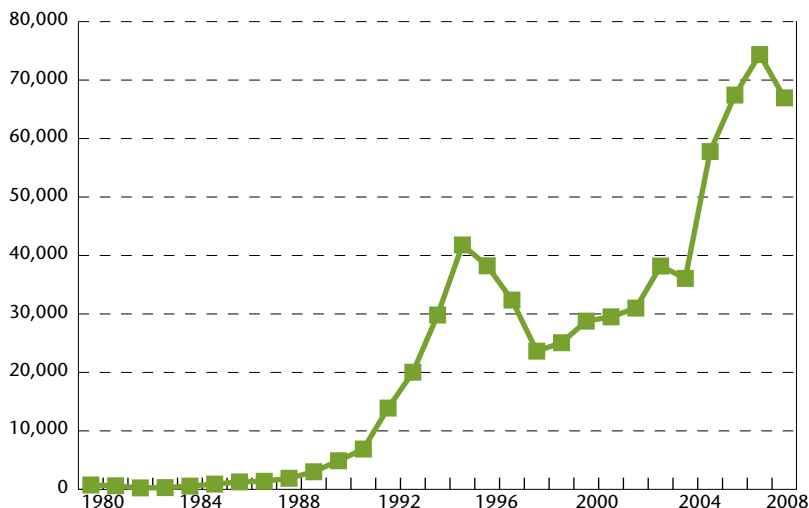
The short (two-year) length of tenure for SFPs constrains the practice of sustainable forest management. As a result, banks are hesitant to provide loans to logging cooperatives and community associations.

Concentrations of chainsaw milling activity can be found in several places:

- on SFPs around former bauxite mining communities, such as Ituni and Kwakwani;
- in and around Amerindian Lands, such as Kwebanna and Moruca;
- around non-Amerindian rural communities, such as Port Kaituma; and
- on SFPs and conversion areas leased by individuals and associations, mainly in the near interior.

Chainsaw operators service both the domestic and export market. Registered production shows that chainsawn lumber production has increased from 751 m³ in 1980 to a high of almost 75,000 m³ in 2007 (Figure 1). Chainsaw lumber production grew from an average of 0.5 percent of total primary timber production in the 1980s to approximately 18.5 percent in 2008.

Figure 1. Chainsaw lumber production (m³)



The small-scale sector pays higher area fees and royalties than the large-scale sector. Area fees vary by concession type; for SFPs they are US\$ 0.20 per ha. Thanks to successful lobbying, large-scale concessions pay only 60–90 percent of this rate (Hunter 2001), which is seen as unfair by small-scale concessionaires such as SLAs. Fixed royalty rates for logs are recalculated using a conversion factor for chainsawn lumber of 16 percent. Most chainsaw millers achieve more than

Source: GFC data

16 percent conversion (Mendes 2006), and therefore claim that they are unfairly assessed for higher royalty payments. Large-scale sawmillers are also charged royalties, but on logs, where conversion factors do not apply. Although SFPs cover 20 percent of all allocated State Production Forests, chainsawn lumber brings in up to 40 percent of estimated royalties (Clarke 2009).

Small-scale concessions are often located in worked-over or degraded forests, which means that the tree stocking is often poor. There are reports of small loggers cutting undersized logs or logs outside the concession boundary. Small loggers who engage in these activities incur fines; this constitutes a substantive part of the cost of the production of chainsawn lumber. Fines can accumulate to one million Guyana dollars (US\$ 5,000) in a year for some SLAs. In 2007 SLAs were collectively fined G\$10.6 million or US\$ 53,000 (GFC 2008).

Drivers of chainsaw milling in Guyana

The paucity of viable livelihood alternatives in rural areas without industry or other commercial activity acts as a powerful driver for the practice of chainsaw milling, as do the availability of the resource and the possibility of making a reasonable living from chainsaw milling.

There is scope for profits in chainsaw milling given the strong demand for lumber. Chainsawn lumber can supply domestic markets with timber more cheaply than sawmilled lumber because of the relatively high production cost of large concessions. It can provide a wider range of species than large-scale industry, which focuses on log and lumber exports from a few prime species.

Chainsawn lumber's profitability varies, depending on type of transport, fuel costs, costs for rations, price for lumber and distances to harvesting and selling locations. Simple economic analyses indicate that at least some actors in the trade chain can make a reasonable living from chainsaw lumber production. In three different chainsaw milling scenarios the gross margin percent was found to be 25.1, 15.2 and 2.3 to an SFP/lumberyard owner; an SLA member and contractor; and an Amerindian logging cooperative, respectively (Clarke and Mangal 2006).

Chainsaw milling operators' ability to easily obtain chainsaws through informal short-term financing options and hire purchase has allowed the practice to expand within communities. Chainsaw milling is also sustained by an enabling policy environment. The GFC supported the formation of SLAs to provide access to land through State Forest Permissions. The designation of areas as conversion forests — due to mining (bauxite, sand and gold), agriculture and hydro-electric development — is also a major factor that supports chainsaw milling.

The construction of roads, bridges, culverts and buildings in some remote communities has led to short-term chainsaw milling activities in these locations.

Impacts of chainsaw milling

The GFC reports that more than 27,000 people are directly employed in the forest sector (GFC 2007). Approximately 70 percent of them are employed on SFPs. It is estimated that approximately 70 communities in Guyana are involved in chainsaw milling. In some of these communities as many as 80 percent of the residents are actively involved in chainsaw milling.

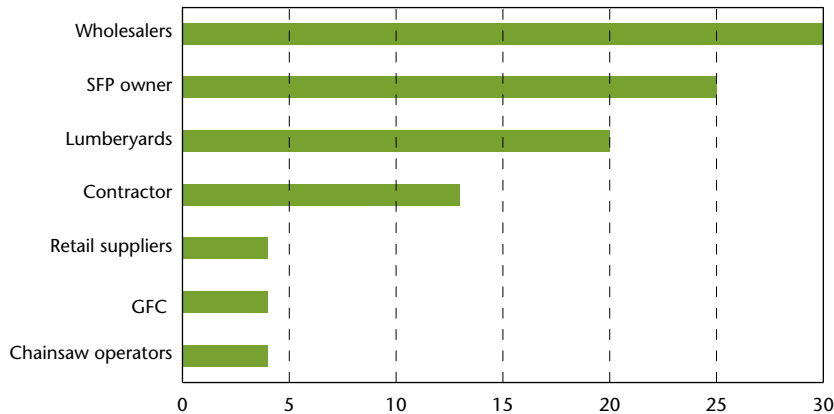
The proportion of financial benefits in the supply chain increases markedly from primary producer to retailer (Figure 2). The people directly involved in the production of chainsawn lumber earn less than five percent of the final retail lumber price. Wholesale suppliers of rations, equipment and parts receive a much larger proportion of the sales revenue.

There has been no specific study of the environmental effects of chainsaw milling, nor have any attempts been made to compare the environmental impacts of chainsaw milling with those of conventional logging. It can be speculated, however, that the lack of heavy machinery in chainsaw milling reduces the impact on soil, regeneration



and fauna. On the other hand, chainsaw operators are less likely to follow the Code of Practice or adopt reduced-impact logging techniques. In addition, the range of species typically cut in chainsaw milling can result in a greater opening of the canopy, especially in logged-over areas. There are also reports of chainsaw millers cutting undersized and protected trees (including trees in forest reserves and watercourse buffers) and converting them into lumber.

Figure 2: Distribution of chainsaw milling revenue (% of total)



Source: Clarke 2009

The extent of illegal logging in Guyana is debated. Depending on the definition applied, high figures can be reported. Based on GFC's definition, total illegal produce is considered to make up less than two percent of total annual timber production.

Violations of forest laws range from travelling with expired or no documents to cutting undersized logs, sourcing logs from outside concessions (poaching), harvesting protected species and false declaration of harvested volume.

Violations of the *Forest Act*, however, are not restricted to any particular sub-sector: they include small, medium and large operators.

Lack of access to forests with "marketable" trees is a significant problem for chainsaw millers and a principal driver of illegality among small-scale loggers. Many of the concessions awarded to small loggers become unproductive within a year.

Various conflicts are associated with chainsaw milling:

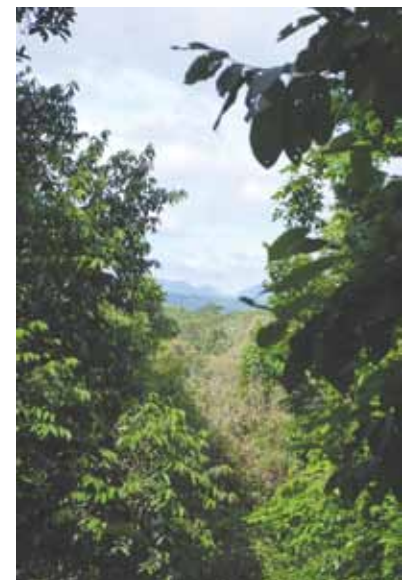
- operators not adhering to forest laws or forest management guidelines;
- the low prices offered for chainsaw-milled lumber by lumber dealers;
- the fact that chainsaw operators receive only partial payment for the lumber sold;
- revenues collected not clearly accounted for by logging associations;
- quotas for some SFPs not being able to meet the needs of members adequately; and
- orders for lumber restricted to a powerful few rather than shared between all members of the SLA.

Conclusions

The de facto policy of the government, as put forward by the Guyana Forestry Commission, is to acknowledge and accept chainsaw milling. This is demonstrated by the establishment of Small Logging Associations, State Forest Permissions, Community Forest Management Agreements, and a regulatory framework.

Chainsaw milling will need to increase its efficiency in conversion and achieve higher recovery rates. The industry will also need to improve its compliance with the Code of Practice and other forest management prescriptions. From the perspectives of optimum resource utilisation, rural livelihoods and economies — both local and national — there seems to be justification for supporting the small-scale forestry sector, which comprises mainly appropriate forms of logging.

This support is bounded by the capacity of Guyana's forests to sustain a yield that can support communities who depend on both chainsaw milling and industrial sawmills. The overall performance of the sub-sector appears inadequate to address the local livelihood requirements of chainsaw operators and dependent communities. The commercial depletion to date of accessible forests suggests that the current number of saws and operators cannot be sustained, at least not everywhere in the State Forest or on private lands. Alternative economic activities are needed to support long-term livelihood goals.



In addressing the issue of chainsaw milling in Guyana, the evidence gathered suggests that two general lines of action (and their interactions) need to be considered: strategic interventions and improvement of current practices.

Strategic interventions must start from a concept of chainsaw milling sub-sector vis-à-vis the mainstream forest sector, the role of forestry in regional development and potentially competing land uses. The Government of Guyana's Low-Carbon Development Strategy provides excellent opportunities to consider these issues within a broader framework.

A multi-stakeholder approach is crucial to address these issues. Dialogue between a wide range of participants is critically needed to discuss the impact of national strategies on individual costs and benefits of diverse actors in the forest sector, and to facilitate the most economically viable, efficient and equitable allocation and exploitation of the national forest estate.

There are numerous opportunities within the context of sustainable forest management to improve current practices in order to optimize benefits to communities that depend on chainsaw milling:

- improved functioning of SLAs, including matching the number of SLA members to the size and quality of the forest resource;
- improved SLA capacities and awareness about forest management, forest regulations, bookkeeping, leadership and organisational management, marketing and improvement of productivity and product enhancement;
- greater representation of the small-scale sector in trade associations and on agency boards, and the formation of a Small and Medium Forest Enterprise association.

To better understand the chainsaw milling sub-sector in Guyana, further research is needed on several issues:

- socio-economic impacts on communities;
- actual direct and indirect employment generated by the sub-sector;
- distribution and use of benefits along the supply chain;
- the extent of illegal logging;
- the efficiency of conversion, including the waste left in the forest;
- the true extent of chainsaw milling, including on Amerindian lands and in State Forest Permissions not involved in Small Logging Associations; and
- environmental impacts.

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The EU-funded project “Developing alternatives for illegal chainsaw milling in Ghana and Guyana through multi-stakeholder dialogue” is carried out by Tropenbos International in collaboration with the Forestry Training Centre Incorporated (FTCI) and Iwokrama International Centre for Rainforest Conservation and Development (Iwokrama) in Guyana, with the support of the Guyana Forestry Commission. The project aims to find sustainable solutions for the problems associated with the production of lumber for the local timber markets in Ghana and Guyana. It involves all stakeholders in dialogue, information gathering and the development of alternatives for unsustainable chainsaw milling practices. The overall objectives of the project are to reduce poverty and promote viable livelihoods in forest-dependent communities; reduce the occurrence of illegal logging; and promote the conservation and sustainable management of tropical forest in developing countries.



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Photos: TBI and FTCI; Cover photo: Marieke Wit

Available from:

Tropenbos International
Marieke Wit
P.O. Box 232
6700 AE Wageningen
Tel.: +31 (0) 317 481425
Marieke.wit@tropenbos.org

Forestry Training Centre Inc.
Rohini Kerrett
1 Water Street, Kingston
Georgetown, Guyana
Tel.: +592 227 0724
chainsawproject@gmail.com

www.chainsawmilling.org



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