



Reporting Framework for CITES Timber Exports

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Executive Summary

Background to the report

The consultant was contracted to work with GFC to enhance the sustainable management and commercial utilisation of the CITES-listed species *Cedrela odorata* (red cedar) in Guyana, a small project within the ITTO thematic programme on trade and market transparency; project number: TMT-SPD 014/13 Rev.1 (M). Among the expected outcomes of the project are completion of a resource assessment of red cedar in Guyana's forest estate to establish the status of the species; informing a decision on the status of conservation and/or utilization of red cedar; development of capacity in Guyana for managing red cedar; development of a strategy for developing and commercializing CITES listed species in Guyana including statistical database; and developing markets for red cedar both locally and internationally in areas of value added products.

Historically, red cedar has been a valuable timber, with a natural range covering Latin America, the Caribbean and South America. Over-harvesting in some Range states in the region has resulted in the species to be considered globally vulnerable according to the International Union for the Conservation of Nature (IUCN) since 1998. Peru and Colombia included their national population in CITES Appendix III in 2001, followed by Guatemala in 2008. Bolivia included the whole species in Appendix III in 2010 and Brazil did the same in 2011. This listing implies that export from Guyana of specimens of the species requires a CITES certificate of origin issued by the CITES Management Authority of Guyana, in accordance with Article V, paragraph 3, of the CITES Convention. Annotation #5 is applied to the CITES listing of red cedar meaning that the parts and derivatives covered by the listing are logs, sawn wood and veneer sheets.

In Guyana, the species has not been used commercially to the same extent as in other range countries. The main reason for the limited use is the scarcity of the species in Guyana.

This second report focused on the domestic and international markets of the species and a reporting framework for CITES. The report provides an overview of the current supply chain monitoring system and reporting framework for timber exports from Guyana; the historical production, marketing and trade in red cedar from Guyana; and assessment of opportunities for further developing markets for red cedar locally and internationally.

Monitoring and Reporting Framework for Timber Exports from Guyana

Forest management system

The Guyana Forestry Commission (GFC) holds the management rights for all State Forest and issues leases and permits to concessionaires for the commercial harvest of timber. There are four types of permit, including Timber Sales Agreement (TSA), large concessions of more than 24,281 ha for a duration of 20 years minimum; Wood Cutting Lease (WCL), concessions between 8,094 and 24,281 hectares for 3 to 10 years; State Forest Authorization (SFA), small concessions of less than 8,093 ha valid for a period of 1-2 years, which allow holders to remove a predetermined quota of timber; and State Forest Exploratory Permit (SFEP), an exploratory permit issued for undertaking exploratory operations such as inventories, environmental and social impact assessments and the preparation of management plans.

Sustainable management of Guyana's forests is grounded in the Forest Act and Forest Regulations, and the recently updated Codes of Practice for Forest Operations. There are a number of restrictions that can be divided into felling restrictions, tree species protection and zones that should be excluded from harvesting; i.e.:

- Minimum cutting diameter limit (two classes: 34 and 19 cm dbh);
- Bulletwood (*Manilkara bidentata*) trees may not be felled without permission;
- Maximum felling height is 91 cm from the ground or in the case of a buttressed tree 8 cm above the top of the buttress;
- Trees may not be felled if they are within 8 m proximity of another stump to minimize the size of canopy gaps during harvesting (in case of large concessions the proximity restriction only applies to trees with a diameter below 40 cm);
- No felling is allowed of seven protected 'keystone' tree species, whilst felling of another two 'keystone' species is limited;
- Buffer zones alongside watercourses and around swamps and lakes are excluded from harvesting;
- Felling is not allowed on steep slopes with a gradient of 60% or more and skidding is not allowed on steep slopes with a gradient of 40% or more.

The Annual Allowable Cut (AAC) is based on a maximum harvesting intensity of twenty cubic meters per hectare and a cutting cycle of 60 years. Allowable yield is not differentiated by species, implying that all species lumped together constitute the AAC.

- The AAC for small concessions is determined by the GFC on a case by case basis for the entire SFA and an assumed 80% net productive forest area.
- Allowable yield for large concessions is based on an area control method whereby only the net productive forest area is considered. The net productive forest area is derived by subtracting non-productive forest areas, biodiversity protection areas, and exclusion zones (riparian buffer zones, steep slopes, etc.) from the total concession land area.
- The allowable yield for the current State Forest Estate is estimated at 1.5 million cubic metres per year for 2015; 950,000 m³ per year for the TSAs/WCLs and 550,000 m³ for the SFAs. Wood production for 2014 from State Forest lands amounted to roughly 560,000 m³, meaning that only 38% of the national AAC was realized in 2014.

Forest Monitoring and Reporting System

Guyana has a strong system of forest permitting and monitoring that includes most elements of an effective chain of custody management system of forest produce from the point of harvest to point of export, and allow for verification of legal origin of forest produce. Monitoring tools include the permitting system, the national log tracking system, the Codes of Practice, and concession level and range monitoring. Monitoring occurs at four main levels: forest concession monitoring, monitoring through the transportation network, monitoring of sawmills and lumber yards, and monitoring ports of export:

- GFC's log tracking system traces forest produce through the use of log tracking tags, which are assigned to all concessionaires and private forest owners who are involved in commercial logging operations. The log tracking system requires that each harvested tree is measured and tagged. Each operator is recognized by a unique sequence of numbers assigned to that operation, while tags are issued in sequences to be used in particular blocks in case of large concessions. The GFC defines log quota for small concessionaires depending on the size of their concession and previous harvesting records.
- All timber must be tagged, including logs, lumber, piles, poles and posts. In the case where logs are converted in-forest (using a chainsaw or mobile mill) the removal and transport of lumber must be accompanied by a Removal Permit and tags must be attached to batches of lumber originating from the source logs.
- Transportation of logs and lumber outside the boundaries of a TSA/WCL or SFA forest concession must be accompanied by a GFC approved removal document; this document must declare the species and volume of timber, log tag numbers, permit number or license number.
- The block and log quota system applied to large concessionaires ensures that the concessionaire adheres to the allowable harvest intensity and the cutting cycle, because harvesting outside of those blocks is not permitted. The GFC conducts post-harvest audits in all TSAs, including reconciliation of a sample of stump tag numbers with the declaration and log tag numbers on the Removal Permit. Small concessionaires are subject to similar regular post-harvest audits.

Monitoring of Supply Chains

Formal declaration of legality of timber is confirmed at the first point of primary processing, which may be in the forest (in case of conversion by chainsaw or portable mill) or at a static sawmill. All sawmills and lumber yards are required to keep records of logs or lumber they receive, which records must include the origin of the produce. In addition, each facility must record sales and must submit monthly returns of logs or lumber sawn and lumber produced to evaluate conversion rates.

Exporters must apply to export forest produce by completing an Application for Export of Forest Produce, which should include the origin of the produce. This form is used to verify that the produce intended for export was legally obtained and declared to the GFC. Subsequently, the exporter must have the produce graded in accordance with the Guyana Grading Rules for Hardwood and apply for a Timber Marketing Certificate. Then, a GFC Grading Inspector verifies the grades assigned by the independent grader, after which the exporter can apply for an Export Certificate and complete a customs declaration form for the Customs and Trade Administration. The GFC will verify all documents, after which the exporter can proceed to the Customs and Trade Administration, which will perform the final examinations and seal the shipment.

The current CITES Appendix III listing of red cedar implies that a CITES certificate of origin must be issued by the Management Authority of Guyana before logs, sawn wood, and veneer sheets of the species may be exported. The Wildlife Division of the Ministry of Natural Resources is the CITES Management Authority in Guyana. CITES listed species are specifically dealt with in the 1999 Species Protection Regulations which is subsidiary to the Environmental Protection Act of 1996. Red cedar is listed in Schedule III of the Regulations but its listing [*Cedreia odorata* #5 (populations of Colombia,

Guatemala and Peru]] is not up to date. Moreover, the Species Protection Regulations do not treat the requirement and issuing of certificates of origin in accordance with Article V, paragraph 3, of the CITES Convention and such certificate has only been very occasionally issued for red cedar exports by request of overseas buyers.

Market Information and Trade Statistics on Red Cedar

Red Cedar Production Statistics

Average red cedar production (industrial roundwood equivalent) for the period 2007-14 from State Forest is estimated at 568 m³/yr.; ranging from 194 m³/yr. to 1,750 m³/yr. The average production of logs from State Forest amounted to some 205 m³/yr. and of chainsaw lumber from State Forest to 363 m³/yr. (both roundwood equivalents). Most red cedar produce originates from small concessions in the form of primary lumber (converted in-forest). SFA's produced on average 513 m³ per year, TSA's 54 m³ per year and Private Properties (mainly Amerindian Village Lands) 113 m³ per year. In case of SFA's, about 71% of red cedar production is converted in the forest. In case of TSA's 99% of the production is as logs.

In terms of national timber production red cedar plays a very minor role, as shown by comparison with the total production (industrial roundwood equivalent), which fluctuated around 590,000 m³/yr. over the period 2007-14. This implies that red cedar made up no more than 0.1% of total timber production.

Both log and lumber production peaked in 2007 and afterwards declined strongly in reaction to the global economic downturn in 2008. Production started to recover in 2011 and again in 2013 but both times recovery appeared to be short-lived.

Domestic market

Red cedar is mainly being produced for the export market and there is little demand on the domestic market. Interviews with sawmillers and timber traders revealed that the species is well-known and judged to be a high quality and high value species suited for cabinet and furniture making, as well as doors. One sawmill was selling red cedar lumber at 330 G\$ per BM (690 US\$ per cubic metre), while other species that are used for the same applications such as crabwood (*Carapa guianensis*) or locust (*Hymenaea courbaril*) were selling at 170 G\$ per BM (355 US\$ per cubic metre). Local demand is limited because of the scarce supply. Small sawmillers reported that they processed only 1-2 logs per year. One TSA holder reported that they sold red cedar as mixed hardwood at the domestic market because supply was too low to sell the species separately locally or internationally; they also exported red cedar as logs to China.

Export of red cedar produce from Guyana

Export of red cedar produce from Guyana has declined strongly since 2008 and kept pace with the global economic downturn. Export levels reached rock-bottom in 2012 and have been recuperating slowly since then (Table 1).

The estimated proportion of produced red cedar that was exported averaged around 38% over the period 2011-2014.

Table 1 Export of red cedar logs, lumber, building components, furniture and mouldings from Guyana for the period 2006–14

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Logs (m ³)	2	2	55		4	3			
Undressed Lumber (m ³)	42	390	656	264	101	10	20	19	37
Dressed Lumber (m ³)		195	276	30	14	60			1
Doors (pcs)		1,050	740	156	350	144	20		
Windows (pcs)				270				20	
Furniture (pcs)		2	40				14		3
Mouldings (m)		21,942			208				244

Unit prices for red cedar export products showed a marginally increasing trend for logs, kiln dried undressed lumber and dressed lumber (both air and kiln dried). Export prices were below average for logs at 122 US\$ per cubic metre for the period 2006-14 and above average for undressed and dressed lumber at 862 US\$ and 998 US\$ per cubic metre respectively. Red cedar does however not appear to fetch a premium price for export like it is reported to do in the domestic market; overall, logs sold at an export price of 156 US\$ per cubic metre, undressed lumber at 572 US\$ and dressed lumber at 859 US\$.

The majority of Guyana's red cedar lumber and building componentry exports have had the Caribbean as destination; in particular Barbados, while log exports had the Far East, mainly China, as destination. In terms of total product value, Barbados (85% of total product value) was by far the most important market for red cedar over the 2006-14 period followed by the USA (8%), Trinidad & Tobago (3%) and Bermuda (2%). Other destinations included in order of importance: Saint Vincent and the Grenadines, Grenada, Antigua and Barbuda, China, Taiwan, Saint Lucia, British Virgin Islands and India.

Prospects for developing markets for red cedar locally and internationally

Development of markets essentially requires a steady and reliable supply. The first report of this project "Resource Assessment and Forest Management Plan for the CITES-Listed Species *Cedrela Odorata* (red cedar) in Guyana" (Van der Hout 2015) concluded that red cedar is rare in Guyana (< 1 tree/ha), while according to stock surveys in large concessions the species is even very rare (< 1 tree per 100 ha). Under the current forest management regulations sustainable yield is expected to lie close to 800 m³ per year. The sustainable yield for small concessions is estimated to lie between 150 and 200 m³ per year and for large concessions to be close to 400 m³ per year. The remaining 150 m³ can be sourced from Amerindian Village lands.

Production from small concessions amounted to about 500 m³ per year on average over the period 2007-14 and thus appears to have exceeded sustainable yield. Expansion of the production from small concessions (and Amerindian Village Lands) is therefore not plausible. Large concessions have been producing about 50 m³ per year and there appears to be some scope to expand production from these concessions. Still, sustainable production levels will remain quite limited and there is no real scope to expand the domestic market, particularly because (much) cheaper substitutes such as crabwood (*Carapa guianensis*) and locust (*Hymenaea courbaril*) are widely available for the same purposes.

In order to sustain the current export levels or preferably return to the levels that were achieved in 2009-2010 it will be necessary to make better use of the underutilized stocks in large concessions. Large concessionaires show little interest in the species because of the small volumes available and sell the species below its intrinsic value as mixed hardwood or as export-logs. It is recommended that the GFC or the Forest Products Development & Marketing Council of Guyana act as an intermediary to improve trade links between large concessions and red cedar exporters.

Export levels have dropped substantially since 2008, but exporters have not pro-actively attempted to restore the export markets for red cedar. The main reason for this is a poor understanding of steadily available quantities of the species. Once exporters have a better picture of the extent of trustworthy, steady supplies they could be encouraged to pro-actively approach potential buyers, particularly in the Caribbean.

Other species

Other species that are increasingly being perceived as becoming rare and vulnerable (Schulze *et al.* 2008a; Schulze *et al.* 2008b) and might be proposed for CITES or IUCN Red List listings at some stage include; e.g.:

- greenheart (*Chlorocardium rodiei* - IUCN Red List ver. 3.1 (2007): Data Deficient),
- locust (*Hymenaea courbaril* – jatobá – IUCN Red List ver. 3.1 (2012): Least Concern),
- purpleheart (*Peltogyne venosa* – amaranth – IUCN Red List Not Assessed),
- tatabu (*Diploptropis purpurea* – sucupira – IUCN Red List Not Assessed) and
- washiba (*Tabebuia serratifolia* – ipê – IUCN Red List Not Assessed)

It is recommended to conduct similar resource assessments and market information reviews of these five timber species, which are among the most important species being exported from Guyana.

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List of Abbreviations

AVL	- Amerindian Village (& Community) Land
CITES	- Convention on International Trade in Endangered Species of Wild Fauna and Flora
DBH	- Diameter at breast height (1.3 m)
EPA	- Environmental Protection Agency
FPDMC	- Forest Products Development & Marketing Council of Guyana
GFC	- Guyana Forestry Commission
ITTO	- International Tropical Timber Organization
IUCN	- International Union for Conservation of Nature
MCDL	- Minimum Cutting Diameter Limit
MIS	- Management Information System
NWD	- North West District
SFEP	- State Forest Exploratory Permit
SFA	- State Forest Authorisation
SLA	- Small Loggers' Association
TSA	- Timber Sales Agreement
UNEP-WCMC	- United Nations Environment Programme's World Conservation Monitoring Centre
WCL	- Wood cutting lease

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1 Introduction

1.1 Terms of Reference

The consultant was contracted to work with GFC to enhance the sustainable management and commercial utilisation of the CITES-listed species *Cedrela odorata* (red cedar) in Guyana, a small project within the ITTO thematic programme on trade and market transparency (TMT). The ITTO thematic programme on trade and market transparency supports among others the ITTO-CITES programme. The project number of this small project is TMT-SPD 014/13 Rev.1 (M).

The Specific Objective is to “*Strengthen forest planning and marketing of CITES listed, current and potential timber species from Guyana*”. Among the main expected outcomes of the project are completion of a resource assessment of red cedar in Guyana’s forest estate to establish the status of the species; informing a decision on the status of conservation and/or utilization of red cedar; development of capacity in Guyana for managing red cedar; development of a strategy for developing and commercializing CITES listed species in Guyana including statistical database; and developing markets for red cedar both locally and internationally in areas of value added products.

The Terms of Reference for this work can be summarized as involving the following objectives:

1. Produce a resource assessment and forest management plan for red cedar
2. A reporting framework for CITES timber exports
3. Support capacity building on CITES and its implication for the forest sector in Guyana

The first objective concerns:

- a) the design and execution of a resource assessment for red cedar in Guyana; and
- b) developing a forest management plan for red cedar

The second objective concerns:

- a) developing a protocol framework for international trade of red cedar;
- b) developing markets for red cedar locally and internationally; and
- c) compiling market information and trade statistics on red cedar.

The third objective concerns:

- a) supporting the Training Consultant in developing and executing a stakeholder awareness programme and a training programme on CITES and its implication for the forest sector in Guyana;
- b) assist the GFC in consolidating information on timber utilization; and
- c) supporting interactions between local partners and international contacts at level of US, EU and CITES.

This report is the consultant’s second delivery within the framework of the project and focuses on market information and a reporting framework for CITES timber exports.

1.2 Background

The ITTO-CITES programme provides specific assistance to countries throughout the tropics to design forest management plans, forest inventories, provide guidelines and case studies for making “Non Detriment Findings” (NDFs) for CITES listed tree species, and to develop and disseminate tools for timber identification with the overall objective to ensure that international trade in CITES-listed timber species is consistent with their sustainable management and conservation¹.

This report provides an overview of the current national chain of custody and reporting framework for timber exports from Guyana; the historical production, marketing and trade in red cedar from Guyana; and assessment of opportunities for further developing markets for red cedar locally and internationally.

1.3 Diversification of Commercial Timber Species in Guyana

Historically, the focus of Guyana’s wood products sector has been on a few key primary species, principally greenheart (*Chlorocardium rodiei*) and purpleheart (*Peltogyne venosa*), because of their inherent physical properties of natural durability and strength, as well as suitability as structural and appearance grade timber. Over the past five to ten years, in collaboration with the industry and assistance from the ITTO, the Guyana Forestry Commission and the Forest Products Development and Marketing Council have been diversifying the range of commercial species that the industry is able to offer both domestic and international markets, focusing specifically on the development, promotion and marketing of lesser used species.

Historically, red cedar has been a valuable timber, with a natural range covering Latin America, the Caribbean and South America. Over-harvesting in some Range states in the region has resulted in the species to be considered globally vulnerable according to the International Union for the Conservation of Nature (IUCN) since 1998 although this assessment needs updating². Brazil (2011) and Bolivia (2010) have listed the whole species in Appendix III of CITES, implying that all populations everywhere in the world are included, whilst Columbia (2001), Guatemala (2008), and Peru (2001) have also included their national populations. The current listing of red cedar implies for Guyana that a CITES certificate of origin should be issued by the Management Authority of Guyana before logs, sawn wood, and veneer sheets of the species may be exported.

In Guyana, the species has not been used commercially to the same extent as in other range countries. The main reason for the limited use is owing to high species diversity in Guyana forest which makes its occurrence very widely spread over the large geographic of the forests and limited information on its occurrence. Additionally, the end use applications for this species are not widely known locally. The outputs from the project have been used to develop a management plan for the sustainable harvesting of red cedar as reported in the first report for this project. This report focuses on the domestic and international markets of the species; consistent with the objectives of CITES Appendix III Listing.

¹ http://www.itto.int/cites_programme/

² IUCN (2014), ‘*Cedrela odorata*’, in the IUCN Red List of Threatened Species, Version 2014.3; assessor: Americas Regional Workshop (Conservation & Sustainable Management of Trees, Costa Rica, November 1996); date assessed: 1998; iucnredlist.org

1.4 Outline of the Report

The first section describes the forest management and monitoring systems that are currently being implemented by the Guyana Forestry Commission. This section concludes with a protocol framework for international trade in red cedar products.

The second section of the report describes red cedar production in Guyana over the period 2007-14 and export volumes on red cedar from Guyana by product type over the period 2009-14.

The third section looks into the prospects of further developing domestic and international markets for red cedar.

The fourth and final section brings these three aspects together to arrive at a production and marketing strategy and reporting framework that guarantee consistent implementation of the trade regulation requirements of a CITES Appendix III listing.

2 Methodology

2.1 Information Sources

This report includes a description of the forest management and monitoring systems that are being implemented by the Guyana Forestry Commission (GFC). Information was gathered from published and gazetted official documents, internal GFC procedural documents and interviews with GFC staff members. In addition, a meeting was held with Ms. Alona Sankar, Head of the Wildlife Division of the Ministry of Natural Resources and the Environment. The Wildlife Division is the CITES Management Authority and the responsible agency for issuing CITES Certificates of Origin.

Red Cedar production figures in general terms (logs, primary lumber) for the period 2006-14 were provided by Planning and Development Division (PDD) of the GFC. In addition, production figures were made available by concession by the Forest Monitoring Division and from the Management Information System (MIS) of the GFC.

Red Cedar export figures in general terms (logs, undressed lumber, dressed lumber, furniture, mouldings, doors, windows, etc.) were provided by the PDD for the period 2006-2010. For the reporting framework for CITES listed species it would be necessary to evaluate the chain of custody for logs, lumber and veneer, but not for finished products such as door, windows, furniture, etc. On the other hand, information on finished products is needed when international and local markets are being evaluated. Original export documentation from 2009 onwards was provided by Lakshmi Mangal of the Management Information Department of the GFC in order to further examine the true volumes having been exported and to assess the source of the produce.

Regarding prospects of further developing domestic and international markets for red cedar interviews were held with a number of sawmill and lumberyard owners and exporters that are involved in domestic or international trade in red cedar; i.e. Barama Company Ltd. (vertically integrated large concessionaire/sawmill/exporter), Bhola's Sawmill, L.S. Harridat Sawmill, S & M Bission Sawmiller and Cummings Wood Products (Timber Dealer/Exporter). Barama Co. Ltd., Bhola's Sawmill and S & M Bission Sawmiller source red cedar from their own concessions, but the latter two also from other forest sites. Cummings Wood Products and L.S. Harridat Sawmill source red cedar from multiple sites, particularly small concessions' and Amerindian reservations.

3 Guyana's Forest Resource

3.1 Land Classification and Allocation

Guyana's forest resource covers 18.5 million hectares³, which is roughly 87% of the country's land area of 21.1 million hectares⁴. The forest resource includes tropical rainforest, seasonal forest, dry evergreen forest, marsh forest and mountain forest. Guyana's forests form part of the wider Guiana Shield Rainforest that also covers Suriname, French Guiana, Venezuela and Brazil and is one of the largest expanses of untouched tropical rainforest in the world.

Of the 18.5 million hectares of Guyana's forest resource, 14.8 million hectares are administered by the State, divided into State Forests and State Lands (mainly agricultural and mining leases). 12.6 million hectares have been classified as State Forest, of which roughly 330 thousand hectares are mainly covered by grass- or wetland. Roughly 2.6 million hectares of forest have been formally gazetted as Amerindian Village Lands (see Table 2). Another 731 thousand hectares are also titled Amerindian lands but these are mainly grassland.

About 7.1 million hectares of State Forest have been allocated for wood production purposes. The unallocated State Forest area amounts to 5.2 million hectares and is located in the South and the West of the country. 1.16 million hectares are protected areas, including Iwokrama with 371,681 hectares, Kaieteur National Park with 61,091 hectares, and Shell Beach and Kanuku Mountains together covering 730,300 hectares.

Table 2 Land classification and forest/non-forest cover in Guyana in 1,000 ha

Land Class	Vegetation (× 1000 ha)		Total
	Forest	Non-Forest	
State Forest Area	12,267	330	12,597
Titled Amerindian Lands	2,584	731	3,315
State Lands	2,559	1,517	4,076
Protected Areas	1,090	50	1,140
Total Area	18,500	2,628	21,128

The Guyana Forestry Commission (GFC) holds the management rights for all State Forest and issues leases and permits to concessionaires for the commercial harvest of timber. After the lease period the concessions are renewed or returned to the GFC depending on certain factors inclusive of sustainable harvesting levels. There are four types of permit, which include⁵:

- *Timber sales agreement (TSA)*: concessions of more than 24,281 ha for a duration of 20 years minimum. There are 27 TSAs covering an area of 4.4 million hectares (63% of the State Forest area that is allocated for production purposes).
- *Wood cutting lease (WCL)*: concessions between 8,094 and 24,281 hectares and allocated for 3 to 10 years. There is one licence covering an area of about 21,267 hectares (0.3% of all allocated State Forest).

³ Guyana Forestry Commission and Indufor (2015) *Guyana REDD+ Monitoring Reporting & Verification System (MRVS)*, Year 4 Interim Measures Report, 1 January 2013 – 31 December 2013, Version 3

⁴ FAO (2010) *Global forest Resources Assessments 2010: Guyana Country Report*. Food and Agriculture Organization of the United Nations, Forestry Department, Rome.

⁵ Forest Sector Information Report, Annual Review 2014. Guyana Forestry Commission, Georgetown, Guyana.

- *State Forest Authorization (SFA)*: concessions allowing owners to remove a predetermined quantity (quota) of timber from within the forest concession boundaries. SFAs are valid for a period of 1-2 years and are for area sizes less than 8,093 ha. SFAs are generally issued to small-scale operators and community-based associations. There are 525 permits covering a total area of 2.1 million hectares (29% of all allocated State Forest).
- *State Forest Exploratory Permit (SFEP)*: a 1-3 yrs. exploratory permit issued for undertaking exploratory operations such as inventories, environmental and social impact assessments and the preparation of management plans. SFEPs are a pre-requirement for new large concessions (TSAs and WCLs). Seven exploratory permits are in effect covering an area of 570,302 hectares (8% of all production area allocations).

WCLs and TSAs are considered 'large concessions' and are required to demarcate their boundaries on the ground, undertake 100% pre-harvest inventories, comply with the Code of Practice of Forest Operations for TSAs and WCLs, and submit a forest management plan and annual operations plan to the GFC before commencement of harvesting operations. The latter specifies the forest blocks to be harvested that year and the volume to be extracted. Volume is calculated based on concession area and felling cycle and tags are issued accordingly. Harvested blocks are inspected by GFC field staff to ensure adherence to the annual operations plan. 'Small concessions' (SFAs) are not required to conduct inventories or to prepare forest plans, but they need to comply with the Code of Practice of Forest Operations for SFAs.

Amerindian Village Lands are legally titled lands held by Indigenous communities within Guyana. Forest resources on Amerindian Village Lands are managed by Village Councils with limited control or interference by the state. However, once timber is utilised for commercial purposes there must be compliance with GFC's log tracking and permitting system. The same rule applies to land legally held by an individual, families or group either by title, transport or legal order by the courts of Guyana (Private Properties).

Agricultural Leases are State Lands granted by the Guyana lands and Surveys Commission and allotted to individuals, groups or company for the purpose of agriculture. If the land is covered by forest, the holder is given the opportunity to utilise the produce for commercial or domestic purposes. To this effect, the holder needs to apply for a State Forest Authorization and to comply with GFC's log tracking and permitting system. In the event that the Agricultural Lease falls within allocated State Forest, the area is excised from such allocated concession. Agricultural Leases being conversion areas are not required to comply with environmental standards set out by GFC.

Mining Properties are areas granted by the Guyana Geology and Mines Commission for the purpose of mining (gold, diamond, bauxite, etc.). The permit holder or a third party, e.g. a timber concession holder, is given the opportunity to salvage timber present within the boundaries of such permit. Once timber is utilised for commercial purposes there must be compliance with GFC's log tracking and permitting system. Mining Properties being conversion areas are not required to comply with environmental standards set out by GFC.

3.2 Forest Policy and Legislation

Guyana has developed principles, policies and guidelines for improved forest management and timber harvesting practices. This is reflected in the 2011 National Forest Policy Statement as well as in forest legislation, forest management guidelines and Codes of Practice for Forest Operations.

The Forest Act (Chapter 67.01 of the Laws of Guyana) governed the administration of Guyana's forests from 1953 to January 2009. The new Forest Act 2009⁶ was passed by Parliament in 2008 and gazetted on 12th October 2009. This new Forest Act promotes the participation of Amerindians and local communities in the development and implementation of sustainable forestry activities. It also establishes regulation for the multiple uses of the forests including traditional rights and provides for the declaration of protected areas within a consultative process in coordination with the Environmental Protection Agency (EPA). Forest Regulations subsidiary to the 1953 Forest Act remain in effect until new Forest Regulations have been passed subsidiary to the 2009 Forest Act.

The Guyana Forestry Commission (GFC) is responsible for the administration and management of all State Forest land. The GFC develops and monitors standards for forest sector operations, develops and implements forest protection and conservation strategies, oversees forest research and provides support and guidance to forest education and training. The GFC has, over the past 15 years, undergone rapid development in the implementation of sustainable forest management, forest legality, and environmental standards.

In 1998 the GFC introduced its first Code of Practice for Timber Harvesting based on FAO's Model Code of Forest Practice. The Code was subsequently revised in 2002 and once more in 2014. It prescribes internationally accepted standards for exclusion areas and buffer zones, 100% pre-harvest inventory, road construction, felling, skidding, trucking, and operational and camp hygiene as well as occupational health and safety. The Code also describes the method to be applied to calculate the Annual Allowable Cut, procedures for the approval of Annual Operating Plans and of blocks to be harvested, the GFC's log tracking and permitting system (Removal Permits, etc.), felling restrictions, protected trees, logging restrictions on slopes and minimum distance between certain harvest trees to reduce the size of canopy openings.

⁶ <http://legalaffairs.gov.gy/information/laws-of-guyana/875-chapter-6701-forests>

4 Forest Management System

4.1 Harvesting Restrictions

Sustainable management of Guyana's forests is grounded in the Forest Act and Forest Regulations, and the recently updated Code of Practice for Forest Operations, which is now structured to address the different categories of forest utilization; i.e. large concessions, small concessions and conversion areas (mining claims or permits and agricultural leases). There are a number of restrictions that can be divided into felling restrictions, tree species protection and zones that should be excluded from harvesting.

The current statutory regulations (Forest Regulations 16, 17 & 18) include:

- Minimum cutting diameter limits (two classes: 34 and 19 cm dbh). The larger minimum cutting diameter limit of 34 cm is applied to 25 main species, including most but not all Special Category and Class I species. Red cedar is listed as a Special Category species⁷.
- Trees belonging to the species Bulletwood (*Manilkara bidentata*) may not be felled without permission in writing of the Commissioner first being obtained. This restriction dates back to the era when this species was much sought-after for the tapping of balata (the latex that is extracted from the Bulletwood tree in the same manner in which sap is extracted from the rubber tree)
- The maximum felling height is 3 feet (91 cm) from the ground or in the case of a buttressed tree no more than 3 inches (8 cm) above the top of the buttress except to avoid unmerchantable timber.

Controls on timber harvesting under the Code of Practice include:

- A maximum harvesting intensity of twenty cubic meters per hectare and a cutting cycle of 60 years;
- In small concessions, trees may not be felled if they are within 8 m proximity of another stump to minimize the size of canopy gaps during harvesting and to safeguard successful regeneration of commercial species. In large concessions, this restriction is less austere and trees may be harvested without any restriction on proximity, provided that these trees are greater than 40 cm in diameter;
- No felling is allowed of seven protected 'keystone' tree species, whilst felling of another two 'keystone' species is limited; at least 2 trees per 100-ha block of these two species with a diameter greater than 40 cm should be preserved as seed trees;
- Riparian buffer strips alongside watercourses and around swamps and lakes are excluded from harvesting to protect river/creek banks from erosion and to prevent siltation or other damage to water sources. The prescribed buffer zone widths depend on the type of protected area or watercourse; i.e., 30 m on either side of rivers, 20 m on either side of creeks wider than 10 m, 10 m on either side of creeks less than 10 m wide, and no machine access 10 m on either side of gullies although felling is allowed along gullies.

⁷ Classification of species is principally linked to the applicable royalty rate.

- Felling is not allowed on steep slopes with a gradient of 60% or more, because of enhanced risk of soil erosion.
- Ground-based extraction by bulldozer, farm tractor, track- or rubber-tyre skidder is restricted to slopes with a gradient of 40% or less, because of enhanced risk of erosion, exposure, churning or compaction of the soil, and operator safety considerations.

4.2 Forest Management Planning

All TSA and WCL holders are required to submit a 5-yrs. Forest Management Plan (FMP) to the GFC. The FMP should define the cutting cycle, non-productive, available and net productive forests areas and compute the Annual Allowable Cut (AAC) and annual coupe based on these parameters. In addition, each TSA or WCL holder is required to submit an Annual Operating Plan (AOP), which must be based on 100% pre-harvest forest inventory information.

The 100% pre-harvest level - which must be accompanied by details regarding the proposed operations for that 12 month period, such as maps, plans for road establishment, skid trail alignment, etc. - should be carried out using square blocks with an area of 100 ha and be demarcated on the ground by means of cut boundary lines and labelled corner posts. Each tree should be given a unique inventory number which should be affixed to the tree. The inventory report should include the number of trees and volume per species by compartment and by block with detailed tree location and harvest planning maps. The GFC conducts a 2.5% intensity verification exercise and once the inventory is approved a letter is sent to the concessionaire granting permission for harvesting in specific listed blocks.

Small concessions are basically managed by the GFC who issues log tags based on predetermined log quota.

4.3 Annual Allowable Cut

In principle, the Annual Allowable Cut (AAC) is based on a maximum harvesting intensity of twenty cubic meters per hectare, representing between 7 and 10 trees harvested per hectare⁸ and a cutting cycle of 60 years. The allowable yield regulations are not differentiated by species, implying that all species are lumped together and together constitute the AAC.

The system to determine the AAC differs between large and small concessions. The AAC for SFA holders is determined by the GFC on a case by case basis for the entire SFA, based on the 20 m³/ha over a 60-year cutting cycle and an assumed 80% net productive forest area. In case of TSAs it is based on the number of blocks that may be harvested in a given year, which in turn is based on the net productive forest area within the entire concession area.

The stipulated AAC is not generally achieved due to limited availability of marketable species of minimum size and quality and the concessionaire can opt for a lower AAC. The cutting cycle is then prorated to determine the annual allowable number of harvest blocks:

- 13.33 m³/ha for a cutting cycle of 40 years,

⁸ The average size of old-growth trees at the first harvest is greater than the average tree size at subsequent cuts (the so-called 'primary forest premium').

- 10 m³/ha for a cutting cycle of 30 years,
- 8.33 m³/ha for a cutting cycle of 25 years

4.4 Annual Coupe - Large Concessions

Regulation of the allowable yield is applied by area control method whereby only the net productive forest area is considered. The net productive forest area is derived by subtracting non-productive forest areas, biodiversity protection areas (4.5% of the productive forest area), and exclusion zones (riparian buffer zones, steep slopes, etc.) from the total concession land area. The annual coupe is computed in a straightforward manner by dividing the net productive forest area by the cutting cycle. Multiplication of the annual coupe by the AAC per hectare (see above) produces the total allowable yield for a concession in cubic metres per year.

4.5 Production in Comparison with Annual Allowable Cut

The allowable yield for the current State Forest Estate is estimated at 1.5 million cubic metres per year for 2015. The total AAC is estimated at 950,000 m³ per year for the TSAs/WCLs and at 550,000 m³ for the SFAs.

Wood production for 2014 from State Forest lands amounted to roughly 560,000 m³, showing that only 38% of the national AAC was realized (harvested). According to the GFC, 57% of the production from State Forest lands was on accord of TSAs and WCLs, and 42% on accord of SFAs, which shows that TSAs and WCLs realized only 33% of their combined AAC, while SFAs realized 43% of their combined AAC. The comparison of the actual production rate with the allowable yield also indicates that harvest rates are low in Guyana. Based on the current recovery, large concession holders only harvest about 0.11 m³/ha/yr. and small concession holders 0.14 m³/ha/yr.

5 System of Forest Monitoring and Regulation in the Forest Sector

5.1 Overview

Guyana has a strong and continuously improving system of forest monitoring and regulation in the forest sector, resulting in maintained low rates of illegality and an environment where there is an inherent deterrent to illegal activities. Systems of reporting and monitoring include most elements of an effective chain of custody management system of forest produce from the point of harvest to point of export, and allow for verification of legal origin of forest produce. These systems and their implementation have been enabled over the years by the strengthening of the institutional framework, whilst also supporting the sector. Key monitoring tools include the permitting system, the national log tracking system, the Codes of Practice, and concession level and range monitoring. The monitoring process of the extracted volumes varies depending on whether the operation:

- takes place in a State Forest lands and is not a procedural breach;
- takes place in Private Properties / Amerindian lands and is not a procedural breach;
- is a procedural breach (i.e. State Forest lands or private properties / Amerindian lands);
- is illegal logging.

Monitoring occurs at four main levels: forest concession monitoring, monitoring through the transportation network, monitoring of sawmills and lumber yards, and monitoring ports of export. For forest harvesting and transport, monitoring is done at station level, at concession level and supplemented by random patrols. GFC staffs have permanent presence at all large concessions and control the use of the tags as well as compliance with the Code. GFC road checkpoints also control the transport of timber to ensure that all products are correctly recorded in the removal documentation and are tagged.

5.2 Removal Documentation

All transportation of logs and lumber outside the boundaries of a TSA/WCL or SFA forest concession must be accompanied by a GFC approved removal document (Removal Permit, Transshipment Permit, Trip Sheets, Custody Form, Timber Marketing Certificate, Clearance Pass or Bill of Sale). In addition, the removal document must declare the species, and volume of timber being transported with reference to GFC's tag numbers, permit number or license number (in case of a sawmill) which provides evidence as it relates to the sourcing of the timber.

In certain cases, a Transshipment Permit or a Trip Sheet can be used to accompany logs in transit but these documents must be linked to a Removal Permit. Furthermore, for the removal of logs and lumber from the forest concession to a primary processing mill or to the point of export the relevant documents listed above can also be used.

In the case of Amerindian Village Lands and Private Properties, the documentary procedures outlined above as regards to removal permitting, are only required if the produce is being moved outside the boundaries of the area. From this point onwards, the procedures that apply to State Forest concessions, apply to this produce as well. The document that is used for transportation of forest produce outside the Amerindian reservation or private property is the Private Property

Removal Declaration, which does not require calculation of royalty and differs in that respect from the Removal Permit

Large concessions can submit Removal Permits on a monthly basis though all transport of logs must be accompanied by Trip Sheets or Transshipment Permits in such cases. Small concessionaires need to declare the volume to the nearest forest station within 24 hours after the produce has reached the destination. Every month, these Removal Permits are sent to the GFC's headquarters to be recorded in the production database. There is a dedicated unit in the GFC's Management Information System section that is responsible for performing the function of data collection, recording, and quality control. Validation takes place of tags being used by unauthorised operators, or permits being incorrectly, incompletely or otherwise misused, and cross-checking of basic entry issues including levels of production conversion rates, etc.

5.3 Log Tracking System

The GFC introduced a log tracking system in 2000 to assist in verifying the origin of forest produce and to control the level of harvesting within state forests. The system is based on the traceability of forest produce through the use of log tracking tags, which are assigned to all concessionaires and private forest holders who are involved in commercial logging operations. The log tracking system requires that each harvested tree is measured and tagged.

An operator's annual quota is calculated based on the chosen cutting cycle, the AAC calculated for the concession and the results of the 100% pre-harvest inventory in case of large concessions (see Section 4.2). The quota is equated to the number of standing trees which will yield the volume and the number of trees computed indicates the number of tags to be issued. Each operator is recognized by a unique sequence of numbers assigned to that operation, while tags are issued in sequences to be used in particular blocks only in case of large concessions. The GFC defines log quota for small concessionaires depending on the size of their concession and previous harvesting records.

Log tagging is done at the stump, where half of the tag is affixed to the stump at the time of felling, and the other part of the tag bearing is affixed to the produce being removed and transported. The unique identification code on each unit of produce will indicate who the concessionary operator is, and can therefore help indicate the geographic origin of the forest produce. In the case of large concessions it is possible to track to the source block via the Removal Permit or the tag issuance range. Since the concessionaire must enter the enumeration number of each log on the production register and submit a stock map per block, tracking back to source stump is also possible.

All timber must be tagged, including logs, lumber, piles, poles and posts. In the case where logs are converted in-forest (using a chainsaw or mobile mill) the removal and transport of lumber must be accompanied by a Removal Permit and tags are attached to batches of lumber originating from the source logs.

5.4 Legal and Procedural Breaches

Inspections of removal documents are routinely carried out at forest stations located along main transport routes. In addition, unannounced spot checks are carried out by GFC officers on routine patrols. Timber transports that are suspected to be in breach of the regulations are confiscated.

Depending on the severity of the breach the timber remains in the custody of the accused or agent and a Custody Form is issued or the timber is seized in which case the timber is secured by the GFC. Confiscated or seized timber may re-enter the legal supply chain after the necessary compensation has been paid and approved by the GFC and a Clearance Pass has been issued for onward transit of the timber.

The block and log quota system applied to large concessionaires ensures that the concessionaire adheres to the allowable harvest intensity and the cutting cycle, because harvesting outside of those blocks is not permitted. The GFC conducts post-harvest audits in all TSAs by checking a sample of the stumps to reconcile the GFC stump tag numbers with the declaration and log tag numbers on the Removal Permit. This way it is ensured that the operator has adhered to the harvesting plan, left the block in good condition and that all stumps are correctly tagged. SFAs are subject to similar regular post-harvest audits; the AAC for SFA holders is determined by the GFC on a case by case basis for the entire SFA and tags are issued according to the annual quota.

5.5 Monitoring of Timber Supply Chains

In Guyana the formal declaration of legality of timber is confirmed at the first point of primary processing. This point may be in the forest for conversion by chainsaw (sawpit licence), portable mill (sawmill licence) or at a static sawmill (sawmill licence). In the case where logs are converted in the forest (using a chainsaw or mobile mill) the removal and transport of lumber must be accompanied by a Removal Permit.

Logs entering a sawmill must be entered onto the Sawmill Record of Produce Received / Purchased / Supplied, which records: date of produce received, Removal Permit or other document number, species, type of produce (logs, lumber, other products) and volumes in m³ or quantity (pieces, cords, kg, metres), origin of produce, vehicle/boat number, name of seller and name of business owner. Sales of sawn lumber must be recorded on the Wood Product Sales form, which records date of sale, product type, species, unit (cubic metres for logs or lumber, metres (m) for piles, pieces for other products), quantity, invoice number and log tag number in case of log sales. Sawmills are required to submit a monthly declaration to the Guyana Forestry Commission. Separate declarations need to be made for processing of logs and for processing of lumber. Both forms are named Return of Lumber Sawn and Lumber Produced and record species, balance of logs (lumber) from previous month (pieces and volume), logs (lumber) received at sawmill during reporting month, input of logs (lumber) processed at sawmill for the reporting month and output of lumber recovered for the reporting month and balance of logs (lumber) remaining at the end of the reporting month. No invoice (removal document) numbers (neither receipt nor sales), origin of produce or customer name are included on the Returns forms.

Lumber transported from a sawmill is not covered by an official document but a bill of sale must be carried. All lumber entering a lumber yard must be recorded onto the Lumber Yard Record of Produce Received form which is identical to the form for sawmills. This also applies to the Wood Product Sales form. Lumber Yards (and Exporters) are required to submit a monthly declaration to the GFC. Lumber Yard Return forms record species names, balance brought forward (m³), input (m³), output (m³) and balance remaining. No invoice numbers (receipt nor sales), origin of produce nor purchaser names are included on the Returns forms.

The GFC maintains databases of Record of Produce Received, Wood Product Sales and Return of Lumber Sawn and Lumber Produced for both logs and lumber. Inputs and outputs by species are being tracked on a monthly basis.

5.6 Monitoring of Export of Forest Produce

Exporters of wood products from Guyana must hold a valid Sawmill or Timber Dealer's License and complete an Application for Export of Forest Produce form. On this form the exporter must declare the wood source of the export product indicating Removal Permit and/or receipt numbers. This form will be used by the GFC officers as the basis for conducting reconciliation to verify that the produce intended for export was legally obtained and declared to the GFC on a Removal Permit or a private property removal declaration.

The exporter then applies for a Timber Marketing Certificate (TMC), while all produce to be exported must be graded by a GFC-licensed independent grader in accordance with the Guyana Grading Rules for Hardwood. The grader will brand the produce and complete the relevant sections of the TMC. Upon receipt of the TMC application a GFC Grading Inspector verify the grades assigned by the independent grader. If the GFC Grading Inspector is satisfied that the forest produce meets the necessary quality standards, the GFC Grading Inspector then affixes their brand and completes the relevant sections of the TMC.

The exporter then applies for an Export Certificate (EC). This EC is prepared by the exporter and is for products already inspected and certified by the GFC. The exporter subsequently completes the customs declaration form (C72) and attaches the Timber Marketing Certificate (TMC), Export Certificate (EC), Application for Export of Forest Produce, Commercial Invoice and CARICOM Invoice (for exports within the CARICOM region only). The GFC will conduct document verification entailing checks of the proof of origin of produce (bills, receipts, permits, etc.), Export Commission payable to the GFC and whether the documentation has been properly filled out. The GFC will stamp the C72 form (4 copies) and the EC with approval for shipment and two GFC officers will sign authorizing the export of that particular batch. The exporter must then proceed to the Customs and Trade Administration (CTA) and submit the complete set of authorized documents. The CTA will perform the final examinations and seal the shipment.

5.7 CITES Certificate of Origin

The Wildlife Division of the Ministry of Natural Resources is the CITES Management Authority in Guyana. CITES listed species are specifically dealt with in the 1999 Species Protection Regulations which is subsidiary to the Environmental Protection Act of 1996. Export of CITES listed specimens of fauna are apparently effectively managed by the Wildlife Division, but this is not the case for timber species. To date, only on one occasion a certificate of origin had been issued; for red cedar export to the USA by request of the purchaser. The CITES Management Authority would welcome a formal arrangement whereby the GFC would notify the Wildlife Division of any red cedar export applications. Discussions with the export section of the FMD revealed that officers were not aware of the requirement for a CITES certificate of origin in case of exports of red cedar logs, sawn wood or veneer sheets.

There reportedly is no inter-agency or inter-sectoral committee on CITES and there are no Memoranda of Understanding or other formal arrangements for institutional cooperation related to CITES been agreed between the Management Authority and other agencies.

The Species Protection Regulations, 1999, are made under the Environmental Protection Act 1996 (No. 11 of 1996) and govern the export trade of protected fauna and flora and are currently being reviewed. Regulation 8 (1) stipulates that “no person shall import, export, re-export or introduce from the sea, any specimen of an endangered species of wildlife including animals bred in captivity and artificially propagated species specified in Schedule I, II, III or IV except with a permit or certificate in accordance with the provisions of these Regulations”. Regulation 11 (1) specifies that “any person who proposes to import, export, re-export or introduce any animal or plant or specimen from the sea specified in Schedule I, II, III or IV shall before commencing any action related thereto, apply to the Management Authority for a permit or certificate and such information or document, if any, as the Management Authority may require”.

Red cedar is listed in Schedule III of the Regulations but its listing (*Cedrela odorata* #5 (populations of Colombia, Guatemala and Peru) is not up to date. The History of CITES listings (UNEP-WCMC 2014) indicates that Peru included its national population in Appendix III on 12/06/2001, Colombia on 29/10/2001 and Guatemala on 12/02/2008. Bolivia included the whole species in Appendix III on 14/10/2010 and Brazil on 27/04/2011. This listing implies that export from all other range States of the species, of specimens originating in those States, requires a CITES certificate of origin issued by the Management Authority of the range State, in accordance with Article V, paragraph 3, of the CITES Convention. The annotation #5 applied to listings of the tree species means that the parts and derivatives covered by the listing are logs, sawn wood and veneer sheets.

The Species Protection Regulations, 1999, do not specifically treat the requirement and issuing of certificates of origin in accordance with Article V, paragraph 3, of the CITES Convention. Certificates specified in the Regulations include certificates of introduction from the sea, of captive breeding, of artificial propagation and a pre-regulation certificate, but not a certificate of origin. In general, enforcement and monitoring are a challenge since it has to be done by officers of the Enforcement Agencies, i.e. Police and Customs. In many cases, officers may not be aware of the Regulations. GFC officers are currently neither aware of the CITES Convention requirements with regard to the export of red cedar.

6 Reporting Framework for CITES Timber Exports

6.1 Production Data Management System

The GFC's production database was originally built around the Removal Permit with the aim to verify royalty assessment and payment. Royalty rates are in hoppus measurement and Removal Permits hence state hoppus measurements; albeit it in cubic metres. At a later stage, Production Registers were added which provide four diameters (top and bottom twice at right angles), log lengths and true metric volumes. Production data summaries are based on Removal Permit data and compute 'true' volume in cubic metres as Hoppus Volume in cubic metres \times 1.278 for logs, while 50% conversion efficiency is used for primary lumber (logs converted in-forest).

6.2 Supply Chain Monitoring

6.2.1 Supply chains in Guyana

Supply chains vary in Guyana with some companies exporting logs directly, some companies being vertically integrated – having their own concession that supplies their sawmill or plywood factory - whereas others are more complex with timber dealers sourcing material from various sawmills or chainsaw lumber converted in-forest from various forest sites including Amerindian reservations and concessions. Sawmills also source logs from numerous forest sites, as seen in Figure 1.

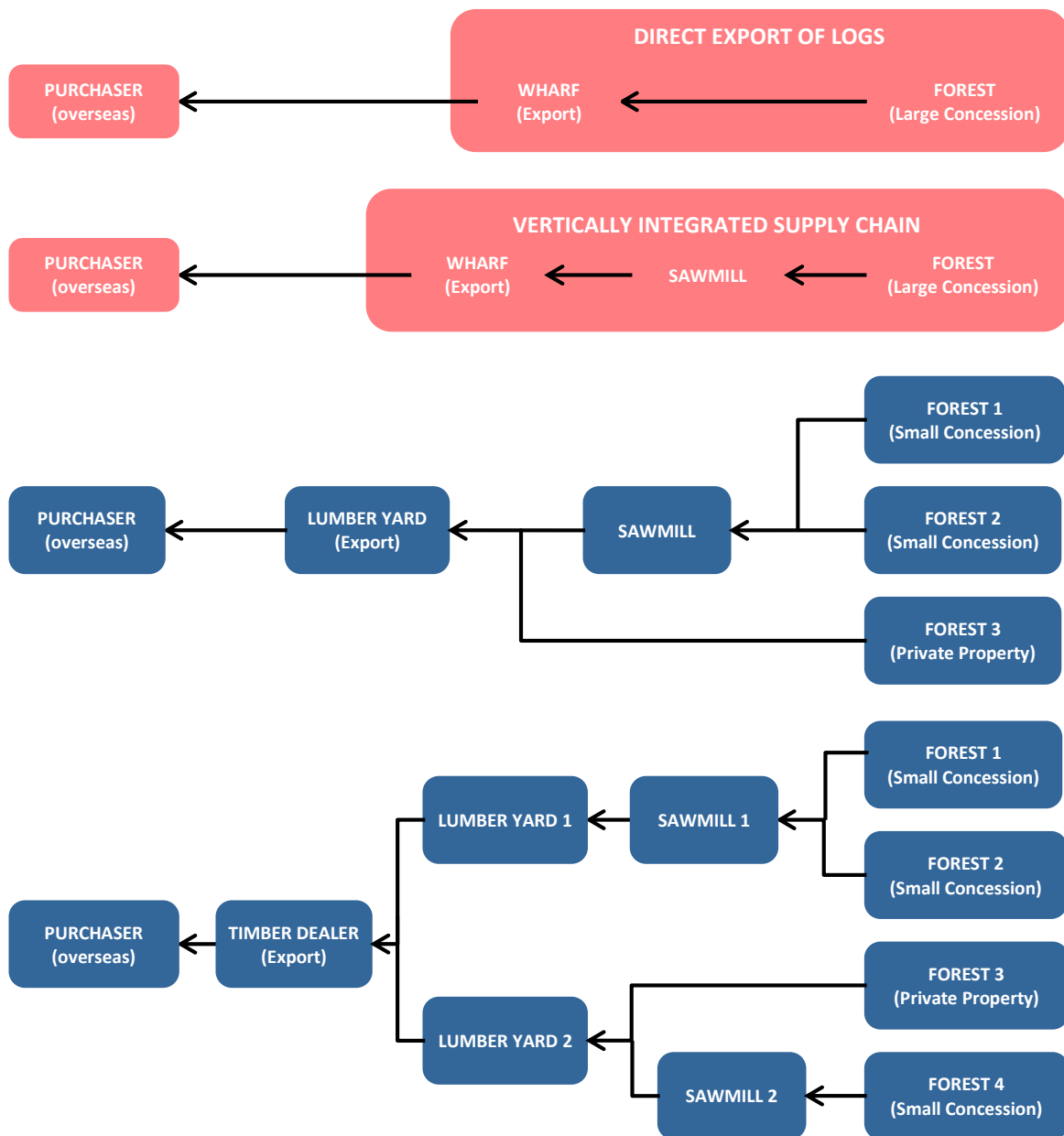


Figure 1 Examples of vertically integrated and not integrated supply chains in Guyana; the supply chain becomes more complex the closer one gets to the forest.

6.2.2 Chain of Custody

The first stage in the supply chain from forest to sawmill is covered by the permitting and log tracking system and allows identification of the origin (concession or private property) of the produce. The longer the supply chain becomes between first processing and export the more complex the supply chain becomes, because material from different sources may result in an output from mixed origins (different forest concessions/private properties).

The GFC maintains a License and Wood Processing Database that tracks goods received and sold including invoice numbers and can produce e.g. standalone sales and supplies reports. The GFC also maintains a Return of Lumber Sawn and Lumber Produced database which covers the data collected on the returns forms.

6.2.3 Material Accounting Record

Essential in an adequate Chain of Custody is a material accounting record to ensure that at all times the quantities produced and/or sold are linked with the quantities of inputs and the species/product group conversion factor(s). Such accounting record should include at least the following information:

For inputs and outputs:

- a) removal document, log tag or sales invoice references;
- b) quantities (by volume and pieces);

For inputs:

- c) species / material category (logs, lumber, etc.);

For outputs:

- d) information to identify the product item in invoices;
- e) applicable claim period or job order.

Each sawmill or lumber yard should therefore, keep records of purchases and sales (monthly volume summaries and material accounting records) with links to incoming and out-going invoices by claim period or job order (batch). Incoming invoice (or removal document or log tag number) references link to the Sawmill or Lumber Yard Record of Produce Received/Purchased/Supplied form and outgoing invoices should link to the Wood Product Sales form. The Record of Sawmill/Lumber Yard Record of Produce Received includes fields for Removal Permit or other document references and the date of the document and origin of produce, but the Wood Product Sales form, on the other hand, would need to be improved by (always) including the name (and address) of the customer. Otherwise the sawmill or lumber yard could keep registers of its suppliers and customers with relative invoice or removal document details.

The Return of Lumber Sawn and Lumber Produced forms and database should be upgraded to an appropriate material accounting record by including removal document / incoming invoice and outgoing invoice references by job order (batch) or claim period (e.g. month). Table 3 provides an example of a volume accounting record.

Table 3 Example of a volume accounting record

INPUTS				OUTPUTS				
Invoice reference for inputs	Invoice date	Quantities for inputs m ³	Information to identify the product item in invoices for inputs	Information to identify the product item in invoices for outputs	Quantities for outputs m ³	Applicable claim period or job order for outputs	Invoice reference for outputs	Invoice date
RF 234	01/01/2009	5000	MDF	Flush Doors PC6578	5000	January	BR345	25/01/2009
RF 235	10/01/2009	2500	MDF					
RF 236	20/01/2009	2500	MDF					
FC 0098	06/01/2009	13000	Pine					
WT J1	07/01/2009	100	Euc Veneer					
RF 237	01/02/2009	15000	MDF	Flush Doors PC6578	5000	February	BR346	26/02/2009
FC 0099	06/02/2009	14000	Pine					
WT J1	15/02/2009	50	Euc Veneer					
RF 238	01/03/2009	5000	MDF	Flush Doors PC6578	5000	March	BR347	10/03/2009
RF 239	20/03/2009	5000	MDF	Flush Doors	5000	March	BR348	15/03/2009

				PC6578				
FC 00100	05/03/2009	20000	Pine					
DF35	05/01/2009	50	Euc Veneer					

6.3 Monitoring of Exports of Forest Produce

Exporters of wood products from Guyana must complete an Application for Export of Forest Produce form. On this form the exporter must declare the wood source of the export product indicating Removal Permit and/or receipt numbers. This form will be used by the GFC officers as the basis for conducting checks to verify that the produce intended for export was legally obtained.

For tracking export logs the GFC tag number provides a robust means to verify legal source of the asset. In the case of large concessions it is possible to track to the source block via the Removal Permit or the tag issuance range. Since the concessionaire must enter the enumeration number of logs on the Production Register, and submit a stock map per block, tracking back to source stump is also possible. For processed wood products the Application for Export of Forest Produce provides the means to identify relevant Removal Permits and/or sales receipts to track to a batch of potential source logs.

6.4 Recommended Reporting Framework for CITES Timber Exports

Guyana has a strong system of forest permitting, log tracking and monitoring, resulting in maintained low rates of illegality and an environment where there is an inherent deterrent to illegal activities. Systems of reporting and monitoring include most elements of an effective chain of custody management system of forest produce from the point of harvest to point of export, and allow for verification of legal origin of forest produce to a certain extent but there is scope for some improvement.

- GFC's production database was originally built around the Removal Permit with the aim to verify royalty assessment and payment thereof. Royalty rates are in hoppus measurement and Removal Permits hence state hoppus measurements. At a later stage, Production Registers were added which provide true metric volumes. Discrepancies were observed between the volumes reported on Removal Permits and their associated Production Registers. There is therefore scope for computerized (re-)assessment of royalty based on the associated Production Register data instead of sole manual computation at the forest station. Moreover, there is scope to improve the production database by including automated reconciliation of the Removal Permit data with the Production Register data.
- The timber supply chain can become quite complex in case of exports do not originate from vertically integrated operations. The first stage in the supply chain from forest to sawmill is well-covered by the permitting and log tracking system and allows identification of the origin (concession or private property) of the produce. Once lumber leaves a sawmill traceability is considerably reduced. The GFC maintains a License and Wood Processing Database that tracks materials received and sold including invoice numbers, but these are standalone databases. The GFC also maintains a Return of Lumber Sawn and Lumber Produced database but this database does not include invoice/removal document references for inputs or outputs. The GFC also requires sawmills and lumber yards to submit monthly Records of Produce Received which must include Removal Permit or other document references and

origin of produce. The Wood Product Sales form however does not link to the Record of Produce Received or to a batch (job order) reference. It is recommended that Return of Lumber Sawn and Lumber Produced forms and database are upgraded to a true Material Accounting Record by including removal document / incoming invoice and outgoing invoice references by job order (batch) or claim period (e.g. month). An example of such a Material Accounting Record is shown in Table 3.

- Exporters of wood products from Guyana must complete an Application for Export of Forest Produce form on which they must declare the source of the export product and indicate Removal Permit and/or receipt numbers. Examination of 33 export consignments which included red cedar showed that this requirement is not rigorously enforced. It was also shown that it is difficult to trace back processed wood products that are referenced by sales receipts. The latter critical control point can be dealt with by introducing proper material accounting records for each timber processing or trading facility. Moreover, it is essential that the requirement that the source of the export product is indicated on the Application for Export of Forest Produce form by means of the Removal Permit and/or receipt numbers is strictly enforced in all cases.
- Exports of red cedar logs, lumber and veneer sheets require a CITES Certificate of Origin. The Wildlife Division of the Ministry of Natural Resources, the CITES Management Authority in Guyana, is not notified by the GFC or the Guyana Customs and Trade Administration of any red cedar exports. Moreover, staff involved in export documentation at the GFC is not aware of the CITES Certificate of Origin requirement. It is recommended that a Memorandum of Understanding or similar formal arrangement is drawn up between the GFC, the Customs and Trade Administration and the Wildlife Division of the Ministry of Natural Resources that stipulates the reporting framework for CITES listed timber species and the role of each agency therein.
- It is recommended to adapt export procedures by requiring the exporter to apply for a CITES certificate of origin with the Wildlife Division of the Ministry of Natural Resources at some stage during the preparation for export; e.g. between the issuance of the Timber Marketing Certificate and the Export Certificate.

7 Market Information and Trade Statistics on Red Cedar

7.1 Red Cedar Production Statistics for the Period 2007-14

Red cedar production data for the period 2007-14 was derived from GFC's production database. The production database principally builds on records from Removal Permits. As described in section 6.1, volume data on Removal Permits are recorded in Hoppus measurement for logs because royalty is based on Hoppus measurement. True volume summaries are usually approximated by converting volume values by multiplying by a factor 1.278 for logs, while 50% conversion efficiency is used for primary lumber (logs converted in-forest). Such conversion works fine when the aim is to assess royalty or when assessing legality of log and primary lumber supplies. If the objective is however to assess the true harvested volume e.g. for forest management or allowed yield purposes, this approximation is insufficiently accurate. Production registers that are associated with Removal Permits provide true metric volumes for each log tag number. Unfortunately, Removal Permits usually report on large numbers of logs and individual logs are therefore often referenced by log tag number ranges. It was shown in section 6.1 that discrepancies occur between the volumes reported on Removal Permits and the volumes reported on the Production Registers. Another complication is that production from Amerindian Lands and Private Property has only been added to the production database commencing from 2009, because no royalty is payable on this origin of production.

The volumes presented in Figure 2 refer to production from State Forest and are based on converted values from Removal Permits for the period January 2007 – December 2011 and November-December 2014. Figures for the period January 2012 – October 2014 are more accurate because those were derived from Production Registers. The pre-2012 figures are thus an approximation of the true harvested volumes. Production records for State Forest (large and small concessionaires) distinguish between primary lumber and logs.

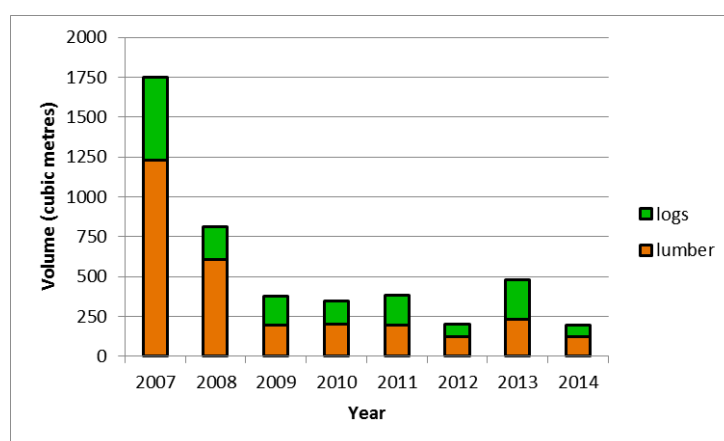


Figure 2 Annual red cedar production from State Forest over the period 2007-14 differentiated by logs delivered at sawmills or exported and primary (chainsaw) lumber converted in-forest.

Average red cedar production (industrial roundwood equivalent) for the period 2007-14 from State Forest is estimated at 568 m³/yr.; ranging from about 194 m³/yr. to about 1,750 m³/yr. (see Figure 2). The average production of logs from State Forest amounted to some 205 m³/yr. The roundwood

equivalent of (primary) chainsaw lumber is estimated at 363 m³/yr. No differentiated information was available at the time for Private Properties, but it is assumed that most of this produce consisted of primary (chainsaw) lumber. A conversion rate of 50% was applied to these values. Production from Amerindian Village Lands and other Private Properties for the period 2009-14 is therefore estimated at 113 m³/yr. on average.

Both log and lumber production peaked in 2007 and afterwards declined strongly in reaction to the global economic downturn in 2008. Production started to recover in 2011 and again in 2013 but both times recovery appeared to be short-lived. As will be shown in the following section production is strongly correlated with demand for export.

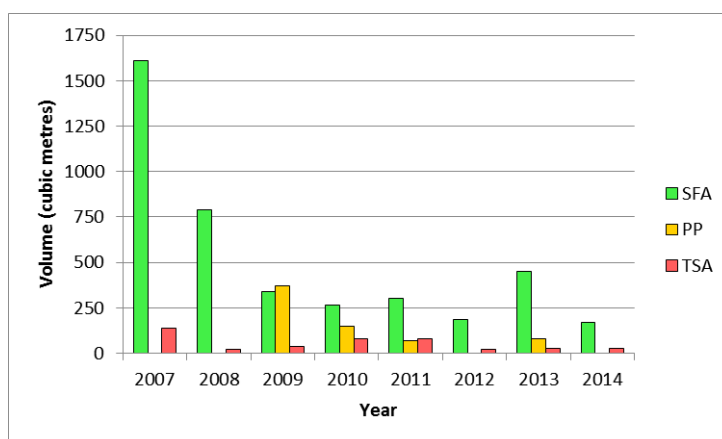


Figure 3 Annual red cedar production from small concessions (SFA's), large concessions (TSA' s) and private properties (mainly Amerindian Village Lands) in cubic metres for the period 2007-14 (Production from Private Properties covers the period 2009-13 only).

Figure 3 and Table 4 show that most red cedar originates from small concessions in the form of primary lumber (converted in-forest). SFA's produced on average 513 m³ per year, TSA's only 54 m³ per year and Private Properties (mainly Amerindian Village Lands) 113 m³ per year. In SFA's about 71% of red cedar production is converted in the forest (363 m³/yr. on average), while logs contribute 151 m³/yr. on average (29%). In case of TSA's 99% of the production is as logs. See also Figure 4.

Table 4 Annual red cedar production in cubic metres from small concessions (SFA's), large concessions (TSA' s) and private properties (mainly Amerindian Village Lands) for the period 2007-14 (Production from Private Properties covers the period 2009-13 only). Production from State Forest is differentiated by logs delivered at sawmills and primary (chainsaw) lumber converted in-forest; production from Private Properties is assumed to be as primary lumber

Land Allocation	Product Category	2007	2008	2009	2010	2011	2012	2013	2014
State Forest Authorisation (small concessions)	logs	378	180	141	68	105	63	225	47
	lumber	1232	607	197	199	196	120	228	122
Timber Sales Agreement (large concessions)	logs	140	24	38	80	81	17	25	25
	lumber	0	0	0	0	0	3	0	0
Private Property (Amerindian Lands)	lumber (?)	?	?	373	150	70	0	83	?
Grand Total		1750	811	748	496	452	203	561	194

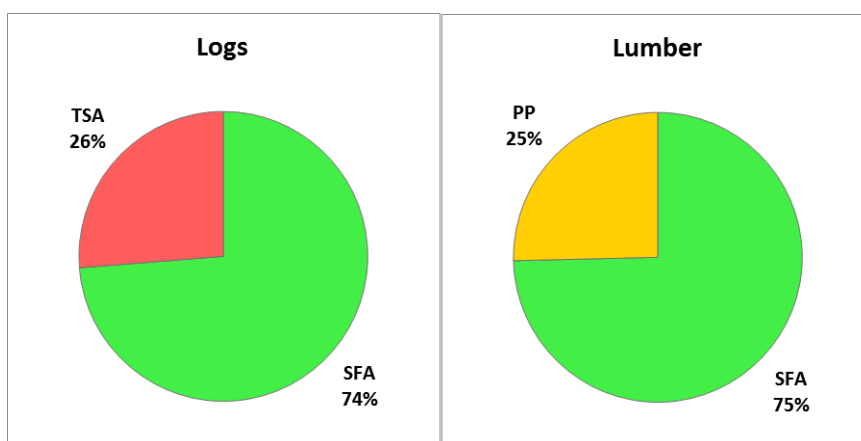


Figure 4 Most red cedar production stems from small concessions (SFA's); both in case of lumber and of logs.

In terms of national timber production red cedar plays a very minor role, because the total production (industrial roundwood equivalent) fluctuated around 590,000 m³/yr. over the period 2007-14; implying that red cedar made up no more than 0.11% of total timber production.

Most production is associated with GFC's North-West District division, followed by the Essequibo division (Figure 5). It needs to be noted that the large Barama Co. Ltd. concession is registered under the North-West District division but is mainly located in the Essequibo district. Furthermore, most of the southern regions (e.g. the Rupununi district) fall under the Essequibo division. For further details on production by region the reader is referred to the first report under this project (Van der Hout 2015).

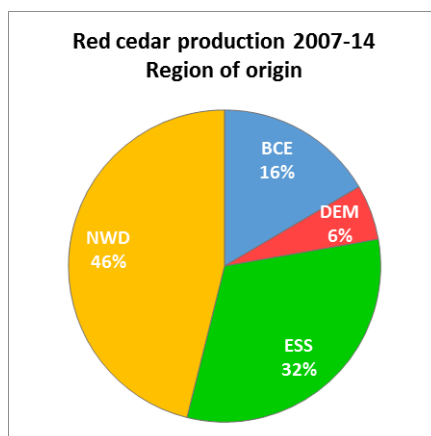


Figure 5 Region of origin of red cedar production over 2007-14 by GFC division; NWD = North West District, BCE = Berbice, DEM = Demerara, ESS = Essequibo

7.2 Domestic market

Red cedar is mainly being produced for the export market and there is little demand on the domestic market. Interviews with sawmillers and timber traders revealed that the species is well-known and judged to be a high quality and high value species suited for cabinet making, cupboards and furniture. One sawmill was selling red cedar lumber at 330 G\$ per BM (690 US\$ per cubic metre),

while other species used for the same applications such as crabwood (*Carapa guianensis*) or locust (*Hymenaea courbaril*) were selling at 170 G\$ per BM (355 US\$ per cubic metre). Local demand is limited because of the scarce supply. Small sawmillers reported that they processed only 1-2 logs per year. One TSA holder reported that they sold red cedar as mixed hardwood at the domestic market because supply was too low to sell the species separately; they also exported red cedar as logs to China.

Questionnaires were distributed among large and small concessionaires, sawmills, lumber yards and timber dealers, but response was very limited. The main reason for the limited response is the poor supply of and demand for the species.

7.3 Global red cedar trade patterns

The CITES trade database includes details of all export and import permits and certificates issued for CITES-listed species. According to CITES trade data between 2001 and 2013, the annual level of exports of red cedar as reported by exporters was on average around 28,000 m³ for sawn wood and logs. Trade in red cedar peaked in 2002 and 2007, but declined strongly after 2009.

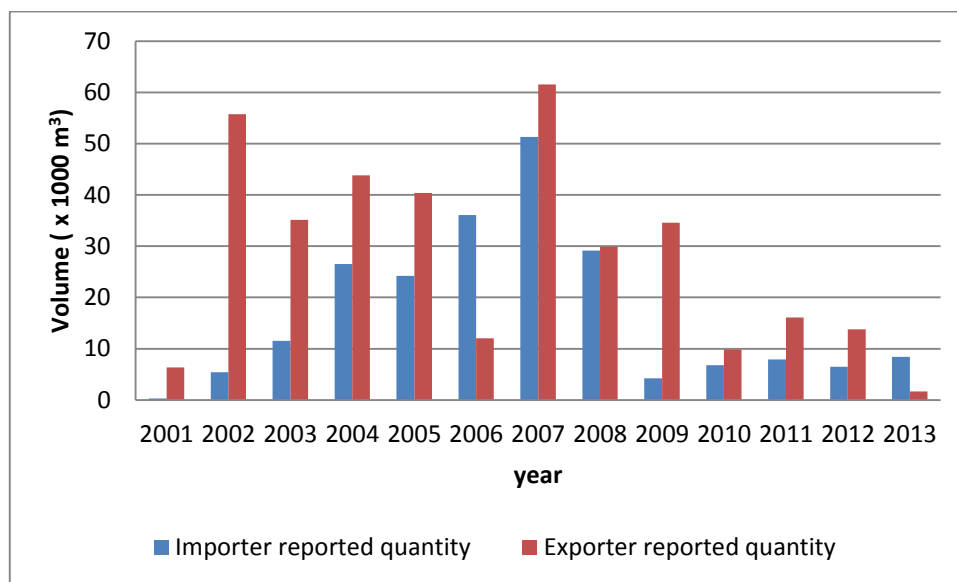


Figure 6 Direct global trade in *Cedrela odorata*, according to the CITES trade database for 2001–13

Volume, source and destination reported by importers differ from the information reported by exporters (Figure 6). The discrepancy is likely due to inconsistencies in how trade in CITES Appendix III-listed species is reported (Ferriss, 2014). While there is no requirement to report imports of those species and range states that do not list their population on Appendix III are only required to issue a certificate of origin, in practice a number of countries do, including the EU member states and the United States, but not always (Ferriss, 2014). Furthermore, some countries report trade in Appendix III-listed populations (i.e. exports from Bolivia, Brazil, Costa Rica, Guatemala or Peru), while others report trade in all specimens of the species.

During the period 2001–13, Peru and Bolivia were the main exporters of red cedar according to exporter reported quantities (annual average of c. 14,700 m³ and c. 14,150 m³ respectively), while importer reported quantities indicate only Peru (c. 13,500 m³ annual average) as main exporter. The

United States, Mexico and Argentina were the main importers, while Peru, Japan, Chile, Spain and the Dominican Republic imported significant volumes according to exporter reports.

7.4 Export of red cedar produce from Guyana

7.4.1 Export volumes

The decline in export of red cedar produce from Guyana preceded the global decline from 2009 onwards as shown in Table 5 below. The decline from 2008 onwards is clearly demonstrated for logs, lumber and doors.

Table 5 Export of red cedar logs, lumber, building components, furniture and mouldings from Guyana for the period 2006–14

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Logs (m ³)	2	2	55		4	3			
Undressed Lumber (m ³)	42	390	656	264	101	10	20	19	37
Dressed Lumber (m ³)		195	276	30	14	60			1
Doors (pcs)		1,050	740	156	350	144	20		
Windows (pcs)				270				20	
Furniture (pcs)		2	40				14		3
Mouldings (m)		21,942			208				244

In order to examine the proportion of red cedar production being exported, a log recovery of 40% was assumed for exported undressed lumber and of 30% for exported dressed lumber. An external door measures roughly 0.08 m³ and assuming a 20% recovery rate a piece would have been converted from roughly 0.4 m³ roundwood equivalents. Each piece of windows or furniture is assumed to be converted from 0.2 m³ roundwood, while mouldings are assumed to be equivalent to 0.005 m³ per running metre.

Table 6 Export of red cedar logs, lumber, building components, furniture and mouldings from Guyana for the period 2006–14 in roundwood equivalents

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Logs (m ³)	2	2	55		4	3			
Undressed Lumber (m ³)	104	974	1,641	660	251	24	49	48	92
Dressed Lumber (m ³)		650	921	99	48	199			3
Doors (m ³)		420	296	62	140	58	8		
Windows (m ³)				54				4	
Furniture (m ³)		0.4	8				3		1
Mouldings (m ³)		110			1				244
Total	106	2,156	2,921	875	444	284	60	52	97

A simple comparison between reported produced red cedar volume (Table 3) and exported volume (Table 6), both in roundwood equivalents (Figure 7), suggests that export volumes exceeded produced volumes during 2007-2009. This was especially true in 2008 when three times as much red cedar (in roundwood equivalents) was reported to have been exported than produced. One possible explanation is that the log recovery rate of 50% that is applied to primary lumber strongly overestimates the real conversion rate. Another explanation could be that red cedar lumber

produced in previous years had been saved up. Contamination with red cedar originating from unknown (illegal) sources or re-export of imported red cedar seems to be unlikely.

The estimated proportion of produced red cedar that was exported averaged around 38% over the period 2011-2014.

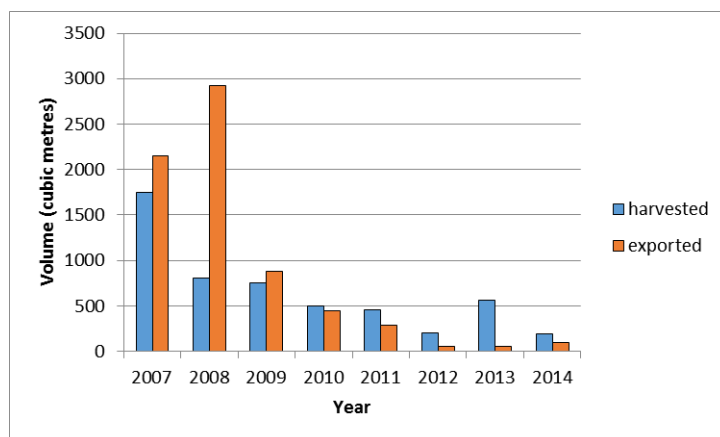


Figure 7 Harvested red cedar volume in Guyana and exported red cedar logs, lumber, building components, furniture and mouldings from Guyana for the period 2007-14; both in roundwood equivalents (estimates)

7.4.2 Export prices

Unit prices for the various export products showed a marginally increasing trend for logs, kiln dried undressed lumber and dressed lumber (both air and kiln dried) (Table 7). Red cedar export prices are below average for logs and above average export prices for undressed and dressed lumber (Table 8). Red cedar however does not appear to fetch a premium export price like the one reported for the domestic market.

Table 7 Unit prices in US dollars for various red cedar export products over the period 2006-14.

Product	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Logs (m³)	90	90	121		145	150				122
Undressed Lumber (m³)										
Air dried	742	725	663	902	818	500	722	1,357	850	745
Kiln dried		1,039	1,016	1,068	1,001			1,166	1,187	1,041
Dressed Lumber (m³)										
Air dried			636	728	751	1,187			1,100	807
Kiln dried		1,071	1,044	763	1,548	1,180				1,089
Doors (pc)		190	121	113	134	143	124			131

Table 8 Average export prices for timber products (all species) from Guyana in US dollars per cubic metre over the period 2006-14 (Source GFC Forest Sector Information Reports 2006-14)

Product	2006	2007	2008	2009	2010	2011	2012	2013	2014
Logs	133	133	169	163	154	143	168	163	177

Undressed lumber	447	476	502	527	574	567	626	697	731
Dressed lumber	485	563	630	697	748	1,082	1,154	1,182	1,191

Log prices for the leading export species greenheart (*Chlorocardium rodiei*) and purpleheart (*Peltogyne venosa*) ranged between 120 and 150 US\$ per cubic metre and between 150 and 385 US\$ per cubic metre respectively for the 2011-14 period according to ITTO Tropical Timber Market Reports. Undressed greenheart lumber fetched export prices between 467 and 1,657 US\$ per cubic metre and purpleheart between 550 and 1,993 US\$ per cubic metre, while dressed greenheart lumber prices ranged between 600 and 1,885 US\$ per cubic metre and purpleheart between 700 and 1,260 US\$ per cubic metre for the same period according to ITTO Tropical Timber Market Reports.

7.4.3 Export markets

The majority of Guyana’s red cedar lumber and building componentry exports have had the Caribbean as destination and in particular Barbados, while log exports had the Far East, mainly China, as destination (Figure 8).

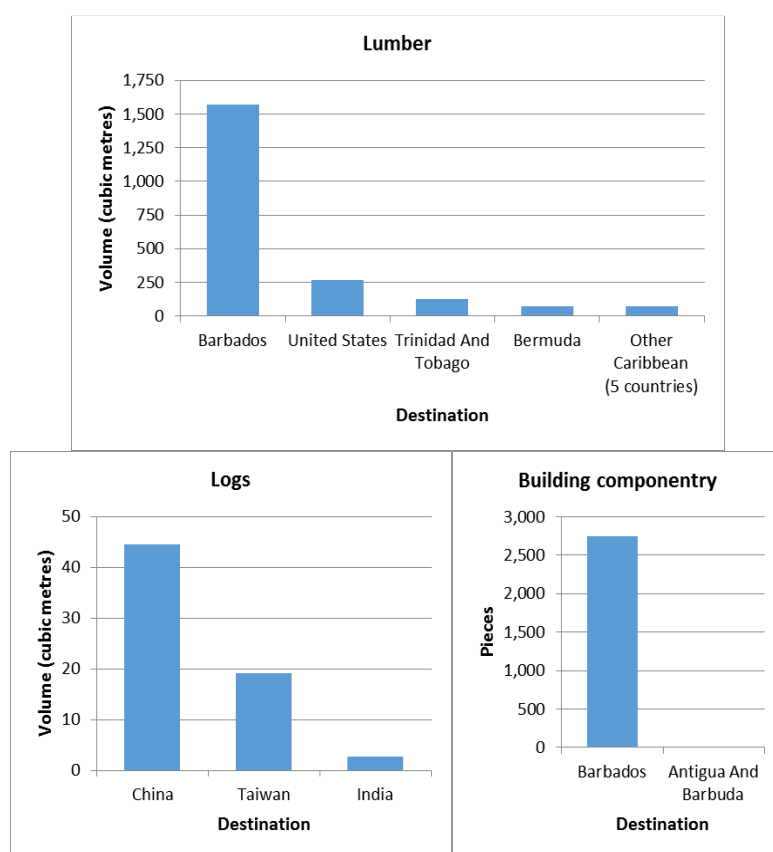


Figure 8 Export destinations of red cedar produce differentiated by lumber, logs and building componentry (doors and windows) over the period 2006-14

In terms of total product value, Barbados was by far the most important market for red cedar over the 2006-14 period followed by the USA, Trinidad & Tobago and Bermuda. Other destinations included in order of importance: Saint Vincent and the Grenadines, Grenada, Antigua and Barbuda, China, Taiwan, Saint Lucia, British Virgin Islands and India (Figure 9).

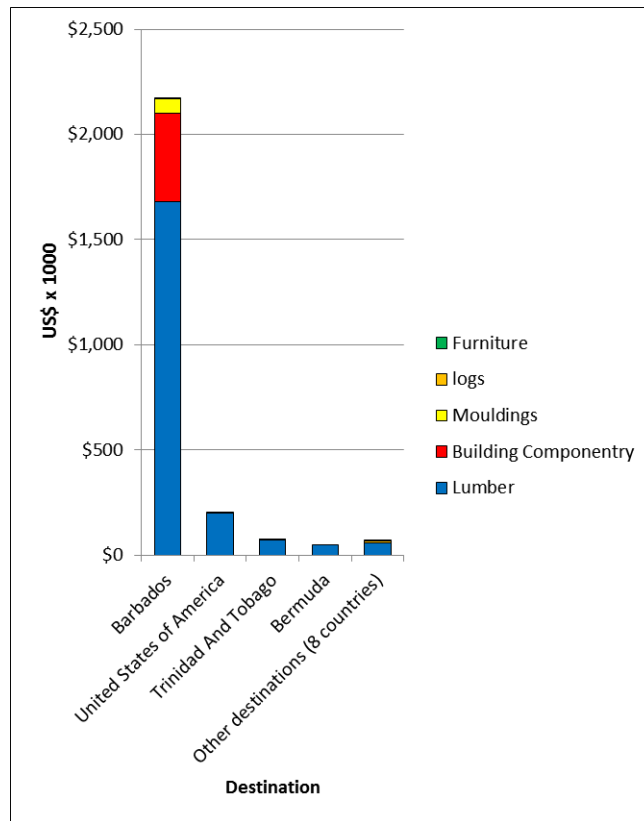


Figure 9 Top red cedar export markets by product value over the period 2006-14

The decline in exported red cedar volume is reflected in the decline of total product value, whereby the decline applied indiscriminately to all three main markets Barbados, USA and Trinidad & Tobago (Figure 10).

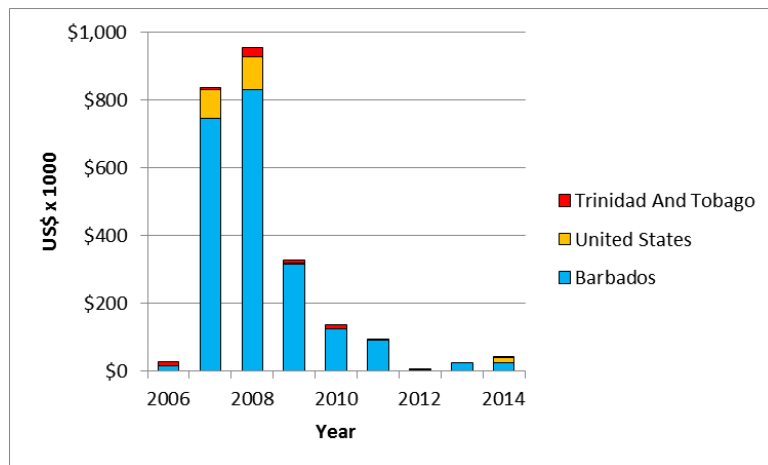


Figure 10 Decline in total export value for the main three red cedar markets over the period 2006-14

The decline in red cedar export appears to have kept pace with the global economic downturn since 2008 reaching rock-bottom in 2012 and recuperating very slowly since then.

7.4.4 Exporters and buyers

During the period 2006-14, 34 different companies exported red cedar produce, of which 6 companies made up 90% of exports by product value. Some of these exporters went bankrupt or were taken over by other owners. In recent years, only 11 companies were active in red cedar export, of which 5 companies made up 90% of exports. Most of these companies export to multiple destinations and clients.

Fifty-eight different buyers were identified, of which 9 buyers made up 90% of imports by product value. In recent years, only 16 companies imported red cedar produce, of which 4 companies made up 90% of exports. The three most important destinations, Barbados, United States of America and Trinidad & Tobago, each had three leading importers. Four of the leading buyers had multiple suppliers, while the five others had a sole supplier.

Interviewed sawmills and exporters indicated that they do not pro-actively seek export markets but that they respond to orders placed by buyers. It may be worthwhile to pursue known potential export markets (buyers) more pro-actively.

8 Prospects for developing markets for red cedar locally and internationally

Development of markets essentially requires a steady and reliable supply. The first report of this project “Resource Assessment and Forest Management Plan for the CITES-Listed Species *Cedrela Odorata* (red cedar) In Guyana” (Van der Hout 2015) red cedar is rare in Guyana (< 1 tree/ha), while according to stock surveys the species is very rare (< 1 tree per 100 ha). Under the current forest management regulations long-term sustainable yield is expected to lie close to 800 m³ per year. The long-term sustainable yield for small concessions is estimated to lie between 150 and 200 m³ per year and for large concessions to be close to 400 m³ per year. The remaining 150 m³ can be sourced from Amerindian Village lands.

In section 3.1 it was shown that small concessions produced some 500 m³ per year on average over the period 2007-14 and about 275 m³ per year over the last four years. Production from small concessions already exceeds sustainable yield and expansion of the production from small concessions (and Amerindian Village Lands) is therefore not conceivable. It is uncertain whether the current production levels are sustainable and hence cannot guarantee a steady, reliable supply. Large concessions have been producing about 50 m³ per year (about 40 m³ per year over the last four years) and there appears to be some scope to expand production from these concessions. Still, the species remains rare and sustainable production levels appear to be quite limited. Therefore, there is no real scope to expand the domestic market, particularly because (much) cheaper substitutes such as crabwood (*Carapa guianensis*) and locust (*Hymenaea courbaril*) are widely available.

In order to sustain the current export levels or preferably return to the levels that were achieved in 2009-2010 it will be necessary to make use of the underutilized stocks in large concessions, because small concessions have been exceeding sustained yield levels. Large concessionaires show little interest in the species because of the small volumes available and sell the species below its intrinsic value as mixed hardwood or as export-logs. It is recommended that awareness is raised among exporters and large concessionaires so that exporters can start sourcing red cedar produce from large concessions. The GFC or the Forest Products Development & Marketing Council of Guyana can act as an intermediary to improve trade links between large concessions and red cedar exporters.

Export levels have dropped substantially since 2008, but exporters are not actively pursuing to restore export markets for red cedar. The main reason for this is reportedly the scarce supply of and demand for the species. It is recommended that the Forest Products Development & Marketing Council of Guyana conducts an awareness campaign to assess sustainable supplies from large concessions and refer this information to red cedar exporters. Once exporters have obtained a better picture of potential regular supplies they should be encouraged to pro-actively approach potential buyers, particularly in the Caribbean. The Forest Products Development & Marketing Council of Guyana or the GFC could assist exporters in identifying potential buyers based on historical records.

9 Conclusion

This second report focused on the domestic and international markets of the species and a reporting framework for CITES. The report provided an overview of the current supply chain monitoring system and reporting framework for timber exports from Guyana; the historical production, marketing and trade in red cedar from Guyana; and assessment of opportunities for further developing markets for red cedar locally and internationally.

9.1 Monitoring and Reporting Framework

Guyana has a strong system of forest permitting and monitoring that includes most elements of an effective chain of custody management system of forest produce from the point of harvest to point of export, and allow for verification of legal origin of forest produce. Monitoring tools include the permitting system, the national log tracking system, the Codes of Practice, and concession level and range monitoring. Monitoring occurs at four main levels: forest concession monitoring, monitoring through the transportation network, monitoring of sawmills and lumber yards, and monitoring ports of export.

Formal declaration of legality of timber is confirmed at the first point of primary processing, which may be in the forest (in case of conversion by chainsaw or portable mill) or at a static sawmill. All sawmills and lumber yards are required to keep records of logs or lumber they receive, which record must include the origin of the produce. In addition, each facility must record sales and must monthly submit its returns of logs or lumber sawn and lumber produced to assess conversion rates.

Exporters must apply to export forest produce by completing an Application for Export of Forest Produce, which should include the origin of the produce. This form is used to verify that the produce intended for export was legally obtained and declared to the GFC. Subsequently, the exporter must have the produce to be exported graded in accordance with the Guyana Grading Rules for Hardwood and apply for a Timber Marketing Certificate. Then, a GFC Grading Inspector verifies the grades assigned by the independent grader, after which the exporter applies for an Export Certificate and completes a customs declaration form for the Customs and Trade Administration. The GFC will verify all documents and collect Export Commission, after which the exporter can proceed to the Customs and Trade Administration, which will perform the final examinations and seal the shipment.

The current CITES Appendix III listing of red cedar implies that a CITES certificate of origin should be issued by the Management Authority of Guyana before logs, sawn wood, and veneer sheets of the species may be exported. The Wildlife Division of the Ministry of Natural Resources is the CITES Management Authority in Guyana.

CITES listed species are specifically dealt with in the 1999 Species Protection Regulations which is subsidiary to the Environmental Protection Act of 1996. Red cedar is listed in Schedule III of the Regulations but its listing [*Cedrela odorata* #5 (populations of Colombia, Guatemala and Peru)] is not up to date. The Species Protection Regulations do not specifically treat the requirement and issuing of certificates of origin in accordance with Article V, paragraph 3, of the CITES Convention and such certificate has only been very occasionally issued for red cedar exports by request of the overseas buyer.

9.1.1 Improvements to the Production Data Management System

The GFC's production database was originally built around the Removal Permit with the aim to verify royalty assessment and payment. Royalty rates are in hoppus measurement and Removal Permits therefore state hoppus measurements; albeit it in cubic metres. At a later stage, a Production Register was introduced which provides true metric volumes for each harvested log.

Reconciliation of a sample of Removal Permits with their associated Production Registers showed a considerable number of discrepancies in the 'true' volume being recorded in the production data management system. Other discrepancies in the production database are formed by the use of various local names for certain timber species and data entry errors when entering species names (typo's, undue spaces), thus creating inconsistency of data by species. There is therefore scope to:

- computerize assessment of royalty based on the Production Register data instead of the manual calculation by the forest station;
- improve the production data management system by including automated reconciliation of the Removal Permit data with the Production Register data;
- distribute a list of official species names among producers (and sawmills and lumber yards) to help stakeholders to become familiar with the correct species names;
- train forest officers in the correct formal species names; and
- validate species names during data entry (software controlled) - restricted to the formal species names list.

9.1.2 Improvements to Supply Chain Monitoring

Supply chains vary in Guyana with some companies exporting logs directly, some companies being vertically integrated – having their own concession that supplies their sawmill or plywood factory - whereas others are more complex with timber dealers sourcing material from various sawmills or chainsaw lumber converted in-forest from various forest sites including Amerindian reservations and concessions. The first stage in the supply chain from forest to sawmill is covered by the permitting and log tracking system and allows identification of the origin (concession or private property) of the produce. The longer the supply chain becomes between first processing and export the more complex the supply chain becomes, because material from different sources may result in an output from mixed origins (different forest concessions/private properties).

The GFC maintains a License and Wood Processing Database that tracks goods received and sold including invoice numbers and Sawmill / Lumber Yard Return of Lumber Sawn and Lumber Produced databases for both logs and for lumber. The Sawmill / Lumber Yard Returns databases do however not include invoice references for inputs or outputs. The Sawmill and Lumber Yard Record of Produce Receipts database includes references to incoming invoice (or removal permit or log tag number) and is suited as part of a true chain of custody. The Wood Product Sales database, on the other hand, does not (always) provide references to outgoing invoices or buyers. There is therefore scope to:

- require sawmills and lumber yards to provide references to out-going invoices and buyers by claim period or job order (batch) when submitting sales records;

- Upgrade the Return of Lumber Sawm and Lumber Produced forms and databases to a true material accounting record by including removal document / incoming invoice and outgoing invoice references by job order (batch) or claim period (e.g. month).

9.1.3 Improvements to Monitoring of Exports of Forest Produce

For tracing export logs the GFC tag number provides a robust means to verify legal source of the asset via the Removal Permit or the tag issuance range. For processed wood products the Application for Export of Forest Produce in principle provides the means to identify relevant Removal Permits and/or sales receipts to track to a batch of potential source logs because the applicant is required to state the origin of the produce on the form.

Thirty-three export consignments were examined, which included 65 batches of different sources (or different batches from the same source). It appeared that the required reference to a receipt or a permit was lacking in some cases, while the exported product could not be traced back to the original source of the logs 27% of the batches of produce. There is therefore scope to:

- Require each sawmill and lumber yard to keep a material accounting record by including removal document / incoming sales receipt numbers and outgoing invoice numbers by job order (batch) or claim period (e.g. month) on their returns forms;
- Strictly enforce the requirement that the source of the export product must be indicated by means of the Removal Permit and/or receipt numbers.

9.1.4 Reporting Framework for CITES Timber Exports

- It is advised to improve the production database by including automated reconciliation of the Removal Permit data with the Production Register data. In addition, it is recommended to computerize the (re-)assessment of royalty based on the associated Production Register data instead of sole manual computation at the forest station.
- It is recommended that the Return of Lumber Sawm and Lumber Produced forms and databases are upgraded to a true Material Accounting Record by including removal document / incoming invoice and outgoing invoice references by job order (batch) or claim period (e.g. month).
- It is highly recommended that the requirement to confirm the source of the export product when applying for export of timber produce by means of the Removal Permit and/or receipt numbers is strictly enforced in all cases.
- It is recommended that a Memorandum of Understanding or similar formal arrangement is drawn up between the GFC, the Customs and Trade Administration and the Wildlife Division of the Ministry of Natural Resources that stipulates the reporting framework for CITES listed timber species and the role of each agency therein, particularly to signal the Management Authority that red cedar produce is to be exported.
- It is recommended to adapt export procedures by requiring the exporter to apply for a CITES certificate of origin with the Wildlife Division of the Ministry of Natural Resources at some stage during the preparation for export; e.g. between the issuance of the Timber Marketing Certificate and the Export Certificate.

9.2 Market Information and Trade Statistics on Red Cedar

9.2.1 Red Cedar Production

Red cedar is scarce in Guyana and production levels have been low; on average red cedar production from State Forest (industrial roundwood equivalent) was estimated at 568 m³/yr. for the period 2007-14. In terms of national timber production red cedar plays a very minor role, contributing no more than 0.11% of total timber production.

Most red cedar produce originates from small concessions in the form of primary lumber (converted in-forest). SFA's produced on average 513 m³ per year, TSA's 54 m³ per year and Private Properties (mainly Amerindian Village Lands) 113 m³ per year. In SFA's about 71% of red cedar production is converted in the forest. In case of TSA's 99% of the production is as logs.

9.2.2 Domestic market

Red cedar is mainly being produced for the export market and there is virtually no demand on the domestic market. Nevertheless, the species is regarded to be of high quality and high value suited for cabinet making, cupboards and furniture and sells at a high price; about double the price of substitute timber species. Large concession holders may sell red cedar as mixed hardwood at the domestic market because of the scarce supply or export the species as logs.

9.2.3 Export of red cedar produce from Guyana

Export of red cedar produce has declined strongly since 2008 having kept pace with the global economic downturn. Export levels reached rock-bottom in 2012 and have been recuperating slowly since then (Table 7). The estimated proportion of produced red cedar that was exported averaged around 38% over the period 2011-2014.

Export prices were below average for red cedar logs at 122 US\$ per cubic metre for the period 2006-14 and above average for undressed and dressed red cedar lumber at 862 US\$ and 998 US\$ per cubic metre respectively. Red cedar however does not appear to fetch a premium export price like it is reported to do in the domestic market; overall, logs sold at an export price of 156 US\$ per cubic metre, undressed lumber 572 US\$ and dressed lumber 859 US\$.

The majority of Guyana's red cedar lumber and building componentry exports have had the Caribbean as destination. Barbados (85% of total product value) has been the most important market for red cedar over the 2006-14 period followed by the USA (8%), Trinidad & Tobago (3%) and Bermuda (2%). Other destinations included in order of importance: Saint Vincent and the Grenadines, Grenada, Antigua and Barbuda, China, Taiwan, Saint Lucia, British Virgin Islands and India (Figure 9).

9.2.4 Prospects for developing markets for red cedar locally and internationally

Development of markets essentially requires a steady and reliable supply. Under the current forest management regulations sustainable yield is expected to lie close to 800 m³ per year. The sustainable yield for small concessions is estimated to lie between 150 and 200 m³ per year and for large concessions to be close to 400 m³ per year. The remaining 150 m³ can be sourced from Amerindian Village lands.

Production from small concessions amounted to about 500 m³ per year on average over the period 2007-14 and thus appears to have exceeded sustainable yield. Expansion of the production from small concessions (and Amerindian Village Lands) is therefore not plausible. Large concessions have been producing about 50 m³ per year and there appears to be some scope to expand production from these concessions.

It is recommended to make better use of the underutilized stocks in large concessions, because small concessions have been exceeding sustained yield levels. In order to encourage utilization it is recommended that the GFC or the Forest Products Development & Marketing Council of Guyana act encourage trade links between large concessions and red cedar exporters.

Export levels have dropped substantially since 2008, but exporters have not actively pursued to restore export markets for red cedar. The main reason for this is poor understanding of steadily available quantities of the species. Once exporters have a better picture of the extent of trustworthy, steady supplies they should be encouraged to pro-actively approach potential buyers, particularly in the Caribbean.

9.3 Other timber species

Other species that are internationally increasingly being perceived as becoming rare and vulnerable (Schulze *et al.* 2008a; Schulze *et al.* 2008b) and might be proposed for CITES or IUCN Red List listings include; e.g.:

- greenheart (*Chlorocardium rodiei* - IUCN Red List ver. 3.1 (2007): Data Deficient),
- locust (*Hymenaea courbaril* – jatobá – IUCN Red List ver. 3.1 (2012): Least Concern),
- purpleheart (*Peltogyne venosa* – amaranth – IUCN Red List Not Assessed),
- tatabu (*Diploptropis purpurea* – sucupira – IUCN Red List Not Assessed) and
- washiba (*Tabebuia serratifolia* – ipê – IUCN Red List Not Assessed)

It is recommended to conduct similar resource assessments and market information reviews of these five timber species, which are among the most important species that are exported from Guyana.

10 Literature

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