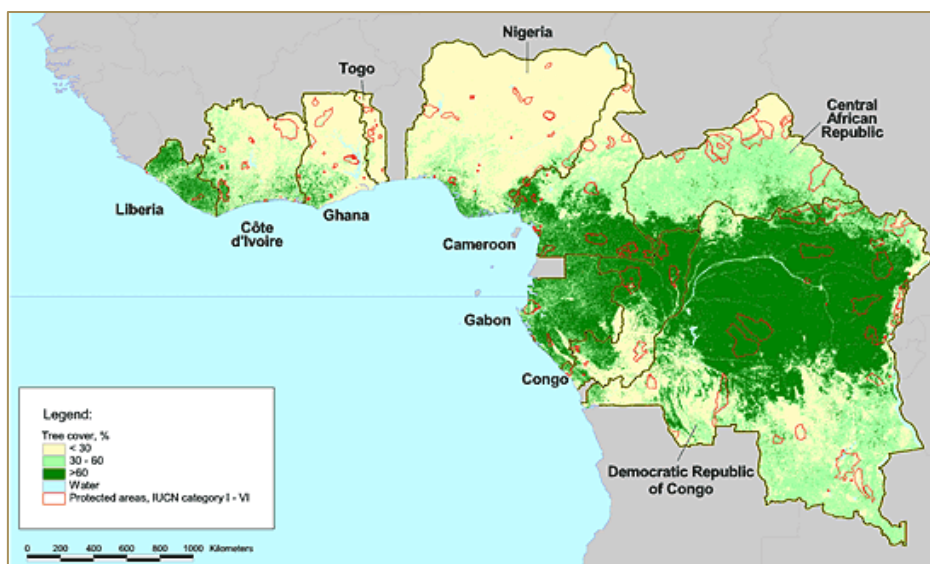


## African Forestry Sector Review



Source: Shutterstock, ITTO

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## Executive Summary

The demographic megatrend evident on the African continent is a phenomenon of our age. The population of the African continent exceeded 1.2 billion in 2016, and, on current trends, it is expected to exceed 2 billion by 2050. This growth trend in African populations is occurring against a background of rapid urbanisation. The UN projects that more than 1 billion Africans will live in cities by 2040, compared with 395 million in 2009.

While Chinese demand for wood has been the leading influence on the global wood economy in the past 20 years, and continues so to be, African demand will increasingly be in contention with China and other Asian economies. It is not improbable that the population of Africa will become the world's largest consumer market around the middle of this century. While the African continent produced some 32 million m<sup>3</sup> of Non-coniferous Tropical (NC. T.) roundwood in 2016, James Hewitt of Global Timber, a leading commentator on the global timber trade, estimates that some 50 million m<sup>3</sup> of roundwood were imported into the continent in the same year. The Forest Stewardship Council has projected that African demand for industrial roundwood could reach between 100 million and 400 million m<sup>3</sup> as soon as 2030, under variable scenarios for demographic and economic development. Some describe this vision of African demand as an impending 'supply crisis'. Not surprisingly, at least one large concession operator, Likoula Timber (Republic of Congo), has stated that its primary focus is now on supplying demand from within Africa itself. Yet the patterns of production and consumption are very different across the continent; we note that James Hewitt of Global Timber points to differences between those countries with significant tropical forests, the five countries bordering the Mediterranean, and those countries dependent on plantation timber and imports, mostly in Southern Africa. It is also the case that many African countries lack the facilities for secondary and tertiary processing of significant volumes of timber. One operator has commented to us that "only populated hot-spots like Kinshasa request bigger timber volumes". It should also be noted that logistics and infrastructure across Central and Western Africa need significant upgrading for the development of an efficient and profitable internal market.

The global trade data for NC. T. hardwood over the past 20 years have been dominated by Asian demand, significantly China, and growth in the production of tropical hardwood in Asia. Asia produced 71% of global NC. T. in 2016 and accounted for 63% of global imports of NC. T. roundwood, 62% of NC. T. sawnwood and 48% of NC. T. veneers. The trade data do not perhaps tell the whole story; illegal harvesting of wood and incomplete export data likely mean that global production and consumption are possibly understated. The natural forestry operator, Precious Woods, notes in its 2016 Report & Accounts that *"Illegal logging and trade grew to threatening dimensions at the beginning of the century, especially in tropical countries"*. Precious Woods cites a study by Chatham House, which estimated the global damage from illegal logging to producing countries at \$15bn–\$20bn annually.

The production data for African NC. T. roundwood confirm a pattern of growth over the past 20 years, with production growth trends strongest in sawnwood and veneers, as African producer countries have worked to increase the value addition in-country. While global NC. T. roundwood production expanded by more than 25% over the period 1996-2016, for a total of some 250m m<sup>3</sup> in 2016, the global import unit value (per m<sup>3</sup>) has more than doubled to ca.\$300/m<sup>3</sup> (even though this is down from the 2014 peak of \$450 m<sup>3</sup>).

The African NC. T hardwood production sector is led by the natural forestry producer countries across West and Central Africa, many of which are concentrated in the Congo Basin. Referencing data from the ITTO, these countries appear to be producing around 32 million m<sup>3</sup> of NC. T. roundwood annually. The natural forestry sector was initially shaped by the patterns established in the colonial era, with vast resource allocations made to operators. Since the latter end of the 20<sup>th</sup> century, however, African administrations have sought to create a better balance between the privileges enjoyed by concessionaires and the host country. Today, operators are more likely (but not always) to be expected to work to a sustainable forestry management plan, to commit to minimum levels of investment in infrastructure and social benefits, and to agree to certain environmental safeguards. The actors across the sector are predominantly European and Asian names, with some participation by Middle Eastern companies. Most are private, with just a few names – Olam International, Rougier, Precious Woods and Obtala (Argento Ltd) – being listed companies. Financial benchmarks for efficiency and profitability are not abundantly available, and the data for those operators that publish financial outcomes suggest that marginal profitability should be in a range of 30%-15% (at the gross margin or EBITDA levels), although published accounts reveal lower outcomes in some cases, thinning to ca.5% at the net level, and lower.

The CEO of Precious Woods Holding Ltd, Markus Brüttsch, observes that Precious Woods targets to achieve a *“triple bottom line”*. The company’s investors appreciate its focus on the achievement of a positive environmental impact, beneficial social engagement and acceptable financial returns. Mr. Brüttsch notes that, when he joined Precious Woods in January 2014, the company had negative EBITDA and a significant debt burden, yet for 2017 it has reported a net income margin of approximately 4%, with room for further improvement. The history of European companies operating in this sector suggests that achieving positive financial returns, while meeting best CSR standards, requires tight, focused operational and financial management, alongside skilled commercialisation of production. Just in March 2018, Rougier announced that it was in talks with its bankers, following operational difficulties in Cameroon. Those European (and other) operators with whole value chain strategies, may have more robust businesses by virtue of supply chain control, significant value addition, and superior value capture.

This is a sector characterised by significant logistical challenges, a strong focus on sustainability and certification in the European and North American markets (but less so in Asia), strong international demand, and high growth consumption patterns across the African Mediterranean and North African countries. European concession operators, and especially those listed on stock exchanges, are subject to very considerable scrutiny for compliance with global best practice, but many Asian concession owners appear to operate more opaquely. The challenge for African countries is to manage their forest reserves sustainably, to protect their national heritage of biodiversity and natural landscapes, while providing for the growth in their populations. African forests look to be under-represented in terms of FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification) certifications. For the companies operating in this complex sector, demand growth looks to be a given, but price formation may have been restricted by the ‘illegal’ supply of forest products, and by the dominant influence of Asian purchasing. The increasing focus of European and North American consumers, and government agencies, on certified supplies implies that, with continued growth in demand, there may be strengthening in prices for certified production. Ulrich Grauert, CEO of Interholco, has observed to us that “our experience is... prices have been strongly increasing since 2000... and the markets driving prices are... Asia, North Africa, Middle East and the USA. We... foresee steady price increases in almost all major species in the years to come.”

## African wood supply crisis?

According to the website of Komaza (a Kenya-based company intent on revolutionising African forestry by unlocking the potential for small-scale farmers to serve industrial wood markets), *"Africa faces an ominous wood supply crisis, with no end in sight"*. Komaza argues that Africa is already the world's largest wood consumer, with demand expected to double over the next two decades. In October 2012, Indufor Group (one of the world's leading forest information providers, specialising in forest and forest industry value chains) produced a report for the Forest Stewardship Council: *Strategic Review on The Future of Forest Plantations*. In this review, Indufor projected possible growth in demand for industrial roundwood for all regions of the world, including Africa, under three specific demand scenarios:

1. Population growth, GDP growth and GDP per capita growth will drive demand; forest products will be substituted by non-forest products, keeping per capita growth in demand static; green policies will not slow the growth in the use of wood. Indufor proposed scenario 1 as conservative but realistic. For Africa, scenario one forecasts demand for industrial roundwood to exceed 100 million m<sup>3</sup> in 2030.
2. Population growth and economic growth will drive demand; income per capita will grow in all regions, and wood demand will grow in tandem with growth in income per capita; measures to ensure environmental sustainability will increase demand for industrial roundwood in the mature economies only. Indufor proposed scenario 2 as realistic-optimistic. For Africa, scenario two forecasts demand for industrial roundwood to grow towards 300 million m<sup>3</sup> in 2030.
3. Population growth and economic growth will drive demand; income per capita will grow in all regions, and wood demand will grow in tandem with growth in income per capita; external demand for secondary wood products, such as pulp from Latam, Indonesia, Russia and Africa, will grow; measures to ensure environmental sustainability will increase demand for industrial roundwood in all countries and regions. Indufor proposed scenario 3 as an optimistic picture of industrial roundwood demand. For Africa, scenario three produces a demand forecast for industrial roundwood exceeding 400 million m<sup>3</sup> in 2030. Combined with global demand from the big emerging economies of China and India, some commentators believe that demand from across the African continent itself could lead to 'super-cycle' pricing for African hardwood.

## The demographic megatrend

The African continent is home to some 1.2 billion people, 16% of the human race (Source: United Nations, Department of Economic and Social Affairs, Population Division). By 2050, it is projected that this population will have expanded to perhaps 2.4 billion. Population growth for the continent leads the world. The fastest growth is in Sub-Saharan Africa (SSA).

Since 1990, the population of SSA has expanded by 96%; this is a little more than 2.5x the world average for the period of 38%. Estimates for the next decade are for growth of 28% in the total SSA population, which compares with a global average of 11%. In its Regional Economic Outlook (REO) (April 2015) for the SSA region, the IMF noted that "most of Sub-Saharan Africa is undergoing a demographic transition,



owing to declining infant mortality and fertility rates...leading to an increase in the share of the working age population". The REO postulated that by 2050:

- ▶ The youngest subgroup (ages 0–14) could double to ca.685 million
- ▶ The working age population (ages 15–64) would triple to 1.25 billion
- ▶ The number of elderly (older than 65) might quadruple to 100 million, reflecting improvements in life expectancy.

These projections were based on the medium-fertility scenario of the United Nations, which assumes a fertility decline in high-fertility countries similar to that observed for Asia and Latam after the 1950s. The report noted, however, that these projections were subject to uncertainty and that large upside risk was possible, given the persistence of high fertility rates in some SSA countries – Nigeria, for example. Under the high-fertility scenario of the United Nations, the SSA population could increase by more than six times by 2100, compared with the fourfold increase under the medium-fertility scenario.

Today, the population of the SSA region has a pronounced youth bias: 60% of the population is under 25 (Asia 41%, Europe 27%). Commentators point to both the imperative of securing sustainable food production and the economic potential of this youth bulge, which is expected to produce annual growth of 3% in the working population. According to the African Economic Outlook (AEO), in the coming decades, "Africa will have the most favourable demographics in the world". This is attributed to the fact that the working age population (15-64) is increasing faster than the total population. Forecasters note that this has the potential to boost annual growth in GDP per capita by up to a half of a percentage point over the next 15 years, depending on national authorities putting in place policy initiatives that will support the creation of employment opportunities. Over the past 15 years, the demographic impact on the continent's average annual GDP per capita growth has been estimated at 0.2%, and this is expected to double to 0.4% over the next 15 years. The AEO anticipates that "the potential demographic dividend will be particularly large in East, West and Central Africa as the transition to lower birth rates has been delayed across these regions, but is now accelerating, with a positive impact on the 'dependency ratio'".

The growth in populations is also seen as contributing to urbanisation, and the AEO anticipates that, by the mid-2030s, almost half of all Africans will live in cities. Already, it is estimated that the cities of the West African region are home to 133 million people (39% of ECOWAS population), of which some 21 million live in Lagos (11% of Nigerian population). In the first decade of the 21st Century, the urban population of West Africa was thought to have increased by some 48 million (OECD).

## Cooking fuel

Across Africa, it is not just industry demand for good-quality hardwood or pulp products that is driving demand for wood, but it also a shortage of available energy for domestic use. An estimated 93% of households in SSA depend on wood energy for their daily cooking needs.

Population reliant on traditional biomass as primary cooking fuel			
(millions)	2009	2015	2030E
Africa	657	745	922
Sub-Saharan Africa	653	741	918
Developing countries	2,679	2,774	2,770

Source: United Nations Department of Economic and Social Affairs (UNDESA); Sustainable Energy Consumption in Africa 2004; Arnold JEM, Köhlin G, Persson R. Woodfuels, livelihoods and policy interventions: changing perspectives; World Dev. 2006, 34:596–611

According to a 2015 study on the socioeconomic and environmental impacts of wood energy value chains in SSA: *“the vast majority of households in Sub-Saharan Africa (SSA) depend on wood energy – comprising firewood and charcoal – for their daily energetic needs. Such consumption trends are expected to remain a common feature of SSA’s wood energy production and supply chains, at least in the short to medium terms. Notwithstanding its importance, wood energy generally has low priority in SSA national policies. However, the use of wood energy is often considered a key driver of unsustainable management and negative environmental consequences in the humid and dry forests. To date, unsystematic assessments of the socio-economic and environmental consequences of wood energy use have underplayed its significance, thus further hampering policy debates...”*

[Source: Cerutti, P & S et al. (2015) *The socioeconomic and environmental impacts of wood energy value chains in Sub-Saharan Africa: A systematic map protocol. Environmental Evidence.*]

The report notes that, because of its generalised lack of access to modern energy sources, such as kerosene, liquefied petroleum gas (LPG) and electricity, SSA – with the exception of South Africa, where coal is an important fuel – has the largest proportion of its population relying on traditional biomass, mostly comprised of firewood and charcoal. SSA also represents the world’s highest regional per capita wood energy consumption, with an average consumption of 0.69 m<sup>3</sup>/year in 2011, compared with a global average of 0.27 m<sup>3</sup>/year. [Source: Iiyama M et al. (2014) *The potential of agroforestry in the provision of sustainable woodfuel in Sub-Saharan Africa. Curr Opin Environ Sustainability.*]

Noting that an estimated 93% of households in SSA depend on wood energy for their daily cooking needs, and firewood remains the preferred choice in rural areas. [Source: Mwampamba TH et al. (2013). *Dispelling common misconceptions to improve attitudes and policy outlook on charcoal in developing countries. Ener Sust Dev.*]

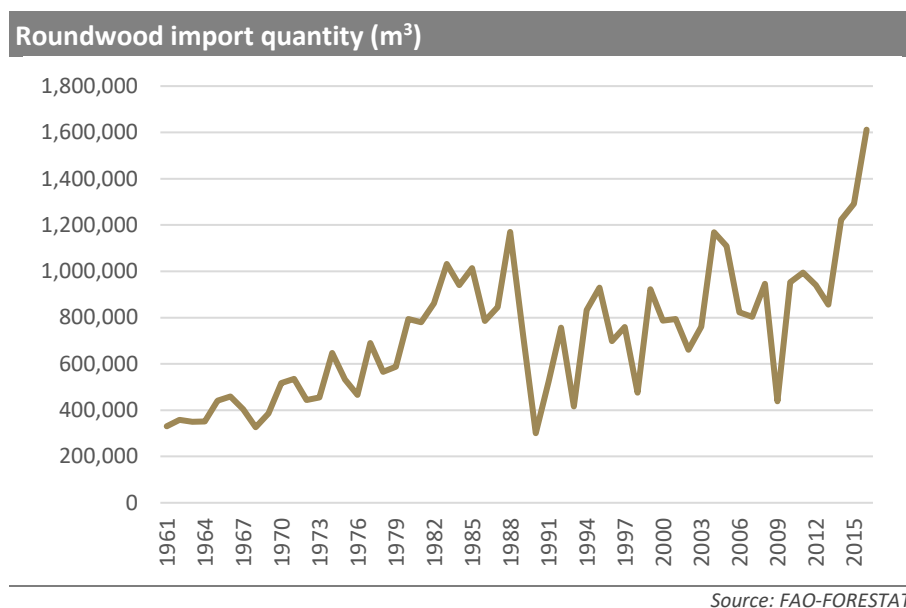
Charcoal is especially popular in urban markets because of its higher energy content, ease of storage and transport, and lower smoke production compared with firewood. Charcoal is likely to become even more important in the future, as fossil fuels become less attractive due to environmental and financial costs. Various case studies have reported an increase in charcoal use in SSA urban centres, and this trend is expected to increase in the future, due to the absence of affordable alternatives [Source: Girard P. *Charcoal production and use in Africa: what future? Unasylva.* 2002; 53:30–5.]. The Komaza website notes that *“households relying on firewood and charcoal for cooking and heating...is Africa’s leading cause of forest degradation...charcoal prices have increased 300-500% in the last 10 years...in the next decade alone, an area of trees that would cover all of California will be lost”*.

## African Continent: a net importer of wood?

Komaza argues that, by 2030, Africa could be importing up to 75% of its requirement for industrial wood. James Hewitt of Global Timber estimates that a Roundwood Equivalent (RWE) volume of almost 50 million m<sup>3</sup> of wood-based products was imported into Africa during 2016, up from about 20 million m<sup>3</sup> during the early years of the last decade. Hewitt notes that of this 50 million m<sup>3</sup>, roughly half was for use as paper, and should, therefore, be excluded from definitions of “wood” (or “timber” or “timber products”). This would suggest that wood imports for industrial demand could be in the region of 25 million m<sup>3</sup>. Hewitt also notes that the countries bordering the Mediterranean account for a significant element of this demand. If demand from the countries of the African Mediterranean is excluded, and paper-related products are also excluded, Hewitt assesses that a RWE volume of approximately 5 million m<sup>3</sup> was imported during 2016, and less than 2 million m<sup>3</sup> at the beginning of the last decade. Hewitt is clear, however, that “the quantity being imported is rising rapidly”. Perhaps not surprisingly, China is by far the leading supplier to SSA, accounting for half or more of all imports, according to Hewitt.

### *Import patterns – roundwood*

The 55-year history of roundwood imports (m<sup>3</sup>) to Africa shows a steeply rising trend in volumes since the start of the review period, and especially since 2012.

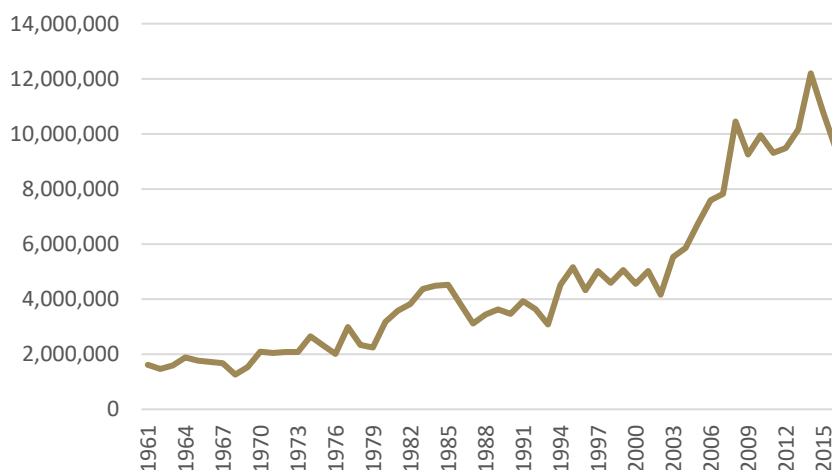




### Import patterns – sawnwood

The chart below reveals that the trend in sawnwood imports (m<sup>3</sup>) over the review period has also steepened, especially from 2003.

**Sawnwood import quantity (m<sup>3</sup>)**

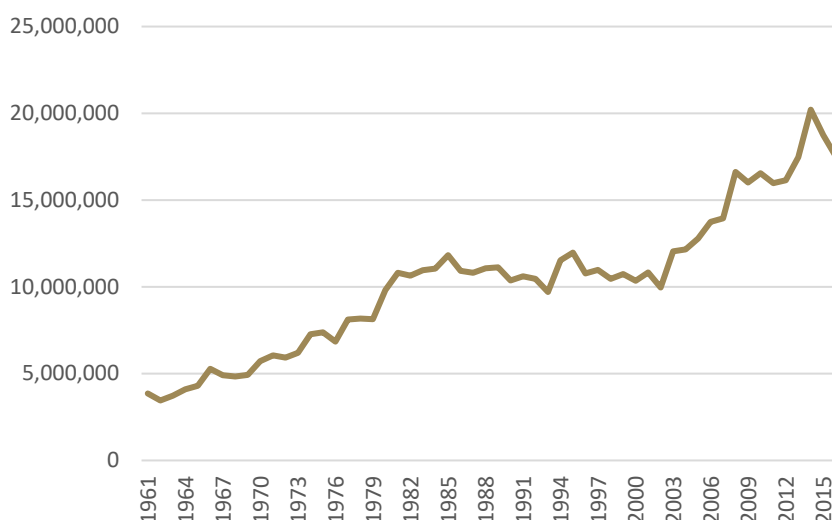


Source: FAO-FORESTAT

### Consumption patterns

The consumption chart for sawnwood below provides perhaps the most reliable indicator of growth in consumption of wood in Africa over the review period. These data (all m<sup>3</sup>) include African production of sawnwood, exports of sawnwood and imports of sawnwood. From under 5 million m<sup>3</sup> in 1961, consumption has increased more than four-fold over the period, and has doubled since 2003.

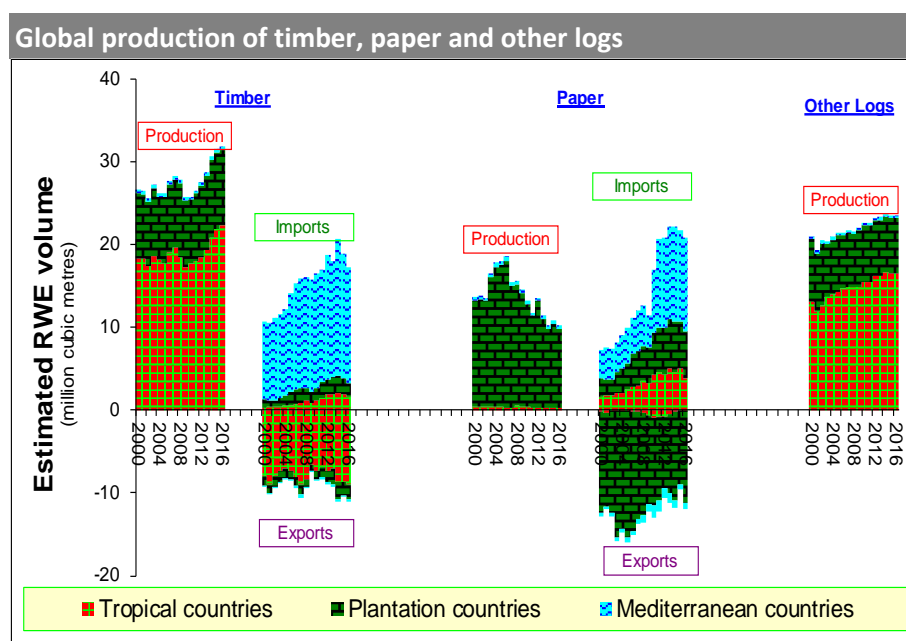
**Consumption of sawnwood (m<sup>3</sup>)**



Source: FAO-FORESTAT

The chart below presents the estimates of Global Timber for the consumption of wood-based products in Africa, subdividing Africa by countries largely dependent on tropical forests and wood plantations, and the five countries along the Mediterranean coast. The trends for each differ. The data are also subdivided by likely end-use – as timber or as paper.

James Hewitt of Global Timber notes that, when estimating local end-use from production, imports and exports, the unit of measure should be Roundwood Equivalent (RWE) volume (despite this being far from precise). Residues and off-cuts are generated by the milling of products that are exported from the country of production. The extent to which these by-products enter end-use in the country of production should be taken into account when estimating the RWE volume of the exported products and when estimating that country's consumption.



Source: Global Timber; Production: FAO ForeStat; Statistics for importing/exporting countries: UN Comtrade, Eurostat, China Customs and others]

## African domestic consumption growth drivers

**Demographics:** according to the African Development Bank's (AfDB) 2018 Economic Outlook, "Africa will become the youngest and most populous continent in the next few decades. Its labour force will rise from 620 million in 2013 to nearly 2 billion in 2063. A "demographic dividend" might provide a great opportunity for Africa – and the rest of the world, which is expected to experience significant labour shortages.

**Africa's middle class:** the African middle class is rising rapidly, fuelling the second-fastest growing economic bloc in the world. According to the World Bank's 2013 Africa Pulse report, consumer spending accounted for more than 60% of SSA's economic growth in 2012. McKinsey (2010) projected that household expenditure on the African continent was forecast to expand 63% to \$1.4tr by 2020. The continent could potentially become the world's leading consumer market by 2050. This is fuelled by interrelated social and demographic changes that drive the continent's growth engine, urbanisation and the rise of the middle-class African consumer, whose numbers have tripled during the course of the last 30 years, according to the definition of the AfDB.

**Urbanisation:** in January 2016, the International Growth Centre published *African Urbanization, An Analytic Policy Guide* by Paul Collier. It postulated that most African countries were still in the early stages of urbanisation. Collier noted that "not only will Africa's population move to the towns, but its overall population is still growing rapidly. In conjunction, these forces will generate rapid growth in the number of people living in urban areas". The UN, for example, has projected that Africa's urban population will triple by 2050 (The State of African Cities 2010). For the first time, in

2009, Africa's total population exceeded one billion, of which 395 million, almost 40%, lived in urban areas. The UN has projected that this urban population will grow to 1 billion in 2040, and to 1.23 billion in 2050, by which time 60% of all Africans will be living in cities. Collier argues that two-thirds of the urban space that Africa will have in 2050 does not yet exist, and so must be built during the next 35 years. The existing third has been built gradually over the past century. The challenge, according to Collier, will be to build twice as much in only one-third of the time. Collier postulates that, in the next few decades, African urbanisation will proceed around six times as fast as in the past century.

Population growth, rising wealth and increasing urbanisation can all be expected to increase household formation. Consumption of wood-based products should also increase, including structures, furniture, and garden and industrial products.

## Natural forestry sector

### Background and history

The African tropical forestry sector is largely concentrated in West and Central Africa, and more specifically within the extended Congo Basin, embracing Gabon, Cameroon, Democratic Republic of Congo (DRC), Republic of Congo and Central African Republic. The process of awarding concessions for harvesting natural forests was initiated during the colonial era, a period during which huge concessions were granted, with considerable privileges, including for recovery of natural resources and exploitation of local labour. Within the latter half of the 20<sup>th</sup> century, African governments sought more balanced arrangements with concession holders mandated to provide social and infrastructure benefits in return for the opportunity to harvest the timber resources. Concessions today are likely to include a technically sound logging plan, a commitment to a sustainable forestry management plan, commitments to construction of processing facilities, logistics infrastructure, local employment objectives and the delivery of social benefits/services.

A report by Alain Karsenty of Cirad in 2007 concluded that forest concessions across West Africa (Liberia, Ghana, Ivory Coast) and Central Africa (Cameroon, Congo, Gabon, CAR, DRC and Equatorial Guinea) provided formal employment for some 135,000 workers, and possibly informal employment for more than another 115,000 workers.

The concession companies were traditionally European, and many European names still retain significant forestry operations, including Rougier of France, Sodefor of Lichenstein, Cora' Wood of Italy, Wijma of the Netherlands, and Interholco of Switzerland. However, Asian names are also important within the sector today, including Olam of Singapore, the Rimbunan Hijau Group of Malaysia, which operates under a number of subsidiaries including Shimmer (Equatorial Guinea), Taman Industries (Republic of Congo) and Bordamur (Republic of Gabon), the Yihau Group of China (Gabon), and the Vicwood Group of Hong Kong (Congo Basin).

### Why tropical hardwood?

Wood is a commodity sought for its performance levels in terms of insulation, renewability and recycling, and its positive carbon footprint. Many tropical timber species offer superior properties and characteristics, including strength, durability and visual appeal. Tropical timber is highly resistant to climatic conditions and can be used often without resort to protection with chemical treatments. We are advised that the French rail operator, SNCF, is now choosing African species like Azobé /Okan, in preference to European Oak which requires chemical treatment to ensure longevity.

Tropical timber also offers a number of other benefits: with its aesthetic appearance and wide variety of colors and shades, it is a highly sought-after material for cabinetmaking and interior design work, and its strong mechanical performance qualities enable it to be used in construction for elements in demanding situations, such as window-frames, stairs, cladding, bridges or planking.

Today, tropical timber is established as an ideal solution for a very wide range of uses, both internally and externally.

## **Tropical timber market**

Based historically on a South-North axis, the tropical timber market has undergone a far-reaching transformation over the past two decades. It has opened up considerably to international markets with the development of South-South trade and the growing importance of markets in China, India, Malaysia and Vietnam, as well as the Middle East, South Africa and Turkey. This trend has also been accompanied by the development of new emerging markets, in Africa, Bangladesh, Indonesia and the Philippines. Containerisation, changing consumer habits and the globalisation of international trade have been the main factors behind these developments.

The various international markets have different and even divergent needs: on the one hand, demand for increasingly processed products for “mature” markets (square-edged, dried, finger-jointed, glued); on the other hand, continued “traditional” demand for raw products (logs, sawn timber) for “emerging” markets.

Producer countries, which have traditionally exported their raw materials as logs, have rolled out policies to further strengthen their industrialization. As a result, they now process the vast majority of their production on site, aiming to create more added value and more jobs locally. Certain producer countries have taken this approach even further: industrial operators have been encouraged to establish secondary processing units with a view to producing finger-jointed, glued, laminated blocks, decking and, more generally, industrial components for the window, door or stair markets.

## Recent M&A activity

The African forestry sector has been a hub of M&A activity over the last two decades. Concessions and other assets (sawmills or veneer factories, for example) seem to change ownership regularly, and sometimes in a climate of apparent distress. The announcement by Rougier SA, on 6<sup>th</sup> March 2018, that it is in talks with its creditors after experiencing difficult operating conditions in Cameroon, conforms with this pattern. Privatisation in some African countries has also played its part; for example, Cora' Wood acquiring CFG, the national forestry company of Gabon. However, given the largely private nature of the African tropical forestry sector, accessing deal sizes and other valuation metrics can be difficult.

The information that Hardman Agribusiness has been able to collect is shown in the table below. Valuing concessions on a per hectare (ha) valuation does not consider the financial state of the target company; distressed assets are likely acquired at a discount to market value, and sometimes acquisitions have been focused on competencies and trade relationships.

The enterprise value of a select peer group, made up of African natural and plantation forestry companies, as well as a number of American companies, is detailed in the table to give the concession valuations some further context.

African forestry valuations						
Acquirer company	Target company	Concessions (hectare)	Additional assets	\$m	Location	Value (\$ per ha)
Cora' Wood	CFG	n/a	Plywood factory	n/a	Gabon	n/a
Obtala (Argento Ltd)	WoodBois International	96,851	Trading business, sawmill and veneer factory	14.8	Gabon	153
KHLL	Olam Gabon Forestry	550,000	2 sawmills	18.0	Gabon	33
Olam	Tt Timber International	1,600,000	7 sawmills	24.8	Republic of Congo	16
Sample listed forestry peer group		Enterprise value (\$m) – 16/03/18				
Weyerhaeuser Co.		13,000,000	32,611		USA	2,509
Interfor Corp.		975,000	1,375		USA	1,410
West Fraser Timber Co.		7,000,000	5,387		USA	770
Border Timbers		47,886	28.0		Zimbabwe	585
Obtala (Argento Ltd)		409,316	69.4		Gabon & Mozambique	170
Precious Woods		600,000	70.4		Gabon & Brazil	117
Rougier		2,340,000	101.8		Congo Basin	44

Source: Hardman Agribusiness and Thomson Reuters



## 2014 sale of Olam Gabon interests to KHLL

The published details of the sale of Olam's forestry interests in Gabon to KHLL in 2014 provided some insights to the economics of operating natural forestry concessions in West and Central Africa (specifically for Olam), and of transaction valuations. The data implied an annual operating cost of \$23-\$24 per concession hectare, and fixed investment of nearly \$41 per concession hectare. The data do not allow us to estimate the value of the concession hectares exclusive of the saw mill assets and the SEZ assets, but a gross transaction value of \$33 per concession hectare implies broad alignment with the market value of Rougier (\$43.5/concession hectare) and with the price paid by Olam for the Tt Timber assets (\$15.5/concession hectare).

### Olam International sale of Gabon forestry interests to KHLL (2014)

<b>Gross consideration (\$m)*</b>	<b>18.0</b>
<i>2x sawmills in Makokou region*</i>	
<i>2.5 ha SEZ at Nkok*</i>	
<i>Concession hectares* (approximately)</i>	<i>550,000</i>
Transaction value (US\$) per concession hectare, including value of mills and other assets	33
Loss on sale (\$m)*	4.0
<b>Implied Book Value (\$m)</b>	<b>22.0</b>
Implied book value per concession hectare including mills and other assets (\$)	40
<b>Annualised manufacturing and overhead costs associated with assets (\$m)*</b>	<b>13.0</b>
Implied annualised \$ cost of operation, per concession hectare	23.6
<b>Average working capital in business (\$m)*</b>	<b>20</b>
Average \$ working capital in business per concession hectare	36.4
<b>Fixed capital invested in business (\$m)*</b>	<b>22.5</b>
\$ fixed capital invested per concession hectare	40.9

Source: Hardman Agribusiness and \* = Olam Press Release 24<sup>th</sup> January 2014

African natural forestry companies					
Company	Country of origin	Status	Market cap. (\$m)	Country of operation	Concession area (ha)
Alpicam	Italy	Private	n/a	Cameroon	400,000
Asia Congo	Malaysia	Private	n/a	Republic of Congo	650,000
Bois et Scierie du Gabon (BSG)	Malaysia	Private	n/a	Gabon	260,000
BSO	France	Private	n/a	Gabon	350,000
Cameroon United Forests (CUF)	Cameroon	Private	n/a	Cameroon	310,000
CBG	France	Private	n/a	Gabon	575,000
Cora' Wood Gabon	Italy	Private	n/a	Gabon	600,000
Gabon Wood Industries (GWI)	Malaysia	Private	n/a	Gabon	400,000
Groupe Blattner Elwyn	DRC	Private	n/a	DRC	1,300,000
Groupe Sefac	Cameroon / Italy	Private	n/a	Cameroon	400,000
IFB	France	Private	n/a	DRC	625,000
Industrie de Transformation du Bois (ITB)	Lebanon	Private	n/a	DRC	700,000
Interholco/ IFO	Switzerland	Private	n/a	Republic of Congo	1,159,643
KHLL	China	Private	n/a	Gabon	550,000
Leroy	Lebanon	Private	n/a	Gabon	600,000
Likouala Timber	Italy	Private	n/a	Republic of Congo	525,000
Obtala (Argento Ltd)	U.K.	Listed	45.5	Gabon, Mozambique	409,316
Olam International (Congoise Industrielle de Bois (CIB))	Singapore	Listed	5,828	Republic of Congo	2,000,000
Pallisco & CIFM	France	Private	n/a	Cameroon	388,949
Precious Woods	Switzerland	Listed, OTC	52.6	Gabon	600,000
Rimbunan Hijau Group (Shimmer – Equatorial Guinea) (Bordamur, IFK – Gabon) (CIBN, SOFIL, Taman – Republic of Congo)	Malaysia	Private	n/a	Equatorial Guinea, Gabon, Republic of Congo	500,000 900,000 1,350,000
Rougier	France	Listed	23.8	Cameroon, CAR, Gabon, Republic of Congo	2,400,000
SEFCA	Lebanon	Private	n/a	CAR	725,000
Sino Congo Foret (SICOFOR)	China	Private	n/a	Republic of Congo	800,000
Société de Développement Forestier (SODEFOR)	Portugal, Liechtenstein	Private	n/a	DRC	2,150,000
Société d'Exploitation Forestière Yuan Dong (SEYFD)	China	Private	n/a	Republic of Congo	1,140,000
Société Forestière et des Matières Ligneuses Africaines (SOFORMA)	Portugal, Liechtenstein	Private	n/a	DRC	1,900,000
Sunly	China	Private	n.a	Gabon	750,000
Wijma	Netherlands	Private	n/a	Cameroon	400,000
Transformation Reef Cameroun Sa	Netherlands	Private	n/a	Cameroon	286,212
Vicwood Group	Hong Kong	Private	n/a	Cameroon, CAR, DRC	2,000,000
Yihau Group	China	Listed	1,576	Gabon	1,000,000
<b>Total</b>					<b>29,104,120</b>

Source: Hardman Agribusiness and 'Recent evolutions of forest concessions status and dynamics in Central Africa' (Karsenty and Ferron, International Forestry Review 12:2, 2017.

## Plantation forestry sector

African plantation forestry companies				
Company	Listed?	Market cap. (\$m)	Country of operation	Plantation area (ha)
Border Timbers	Listed	8.6	Zimbabwe	47,886
Green Resources	Private	n/a	Mozambique, Tanzania, Uganda	40,000
Komaza	Private	n/a	Kenya	Not stated
Miro Forestry Company	Private	n/a	Ghana, Sierra Leone	30,000
New Forests Company	Private	n/a	Uganda, Rwanda, Tanzania	30,000
Rougier/Lignafrica/PFM	Listed (Rougier)	23.8	Gabon	17,000
SAPPI	Listed	3,868	South Africa	234,000
<b>Total</b>				<b>398,886</b>

Source: Hardman Agribusiness

## African plantation forestry sector

Unlike natural forests, forest plantations are forest areas that are established artificially through planting or seeding. The trees planted are generally from the same species (native or introduced), are of the same age and are evenly spaced out to optimise their eventual harvesting. Forest plantations are developed principally to produce timber and non-timber forest products (production plantations), or to provide services for various ecosystems (protection plantations). Industrial forest plantations seek to meet the growing demand for wood, clean energy and timber, on a sustainable and renewable basis. In this context, it is interesting to note the statement below from Olam International's website: *"Plantations on their own are adequate to sustainably meet world demand for wood in the long run, thus reducing any pressure on natural forests. Most of the increasing global demand for wood...is expected to be met by key plantation forest species like Pine, Teak and Eucalyptus"*. The statement goes on to note that the production of these plantation species is *"predominantly in Oceania, the USA, Brazil, Central America and Europe"*. The African plantation sector has yet to make a significant contribution to this supply source.

Plantation projects are typically developed around the best social and environmental standards, and are intended to support the sustainable production of natural resources. Plantations represent a direct response to the various requirements of national policies, industrial operators and local communities to effectively manage timber supplies and the corresponding costs.

### Rougier/Lignafrica/ Plantations Forestières de la Mvum

Rougier is working with Forest Resources Management (FRM) in the joint venture (JV) operation, Lignafrica. The JV company is focused on the development of industrial forest plantations in Africa. Lignafrica's expertise extends from the design of the plantation investment proposal to the associated project engineering and the full management of plantation development. The parties to the JV are positioned across the entire value chain: from conceptualisation, to R&D, forest management, harvesting, production optimisation, marketing of plantation timber and adding value to products, etc.

Lignafrica has been established to meet the growing need for timber and energy wood in Africa, against a backdrop of strong demand for renewable products and rising fossil energy prices. Since the end of 2011, Plantations Forestières de la Mvoum (PFM), the Lignafrica subsidiary in Gabon, has been working to develop an area of 40,000 ha awarded by the Gabonese government, located around 100 km from Libreville. Approximately 17,000 ha of current plantations of 30- to 55-year-old okoume trees are expected to produce up to 100,000 cbm of logs for timber over a full year. These plantations are scheduled to be harvested over 20 years and replaced with clonal teak. Since 2014, work has focused on developing the first teak plantations and harvesting the existing okoume plantations. At 31<sup>st</sup> December 2016, the nursery had around 100,000 teak plants, and 100 ha of clonal teak had been planted. In 2016, PFM signed a partnership agreement with GSEZ (Gabon Special Economic Zone), which will purchase almost all the okoume production from its plantations.

PFM is also engaged with an applied research programme for tropical timber plantations, with a focus on genetic improvements for planting materials.

## **Miro Forestry Company**

Miro is a vertically integrated, sustainable forestry and timber products business centred in West Africa. The company operates forestry plantations with over 30,000 ha of land, having commenced planting a mix of fast-growing timber crops in 2010. The company has established forestry infrastructure and an experienced management team.

Miro is focused on fast-growing, high-yield plantation timber for the production of sawn timber, utility poles, plywood and energy biomass for both local and international markets. The company seeks to deliver attractive returns to investors, as well as significant economic, social and environmental benefits to local communities.

Miro mixes commercial plantation forestry with the protection and regeneration of indigenous tree species and the promotion of bio-diversity and environmentally sustainable land-use management.

## **Border Timbers**

Established in 1979 through the merger of Border Eastern Forest Estates, Renfee Timbers (Pvt) Limited and Forestry Management Services, Border Timbers has developed a commercial plantation of some 47,886 ha in Zimbabwe. Forestry Management Services had taken over plantations established 1924 in the Imbeza area by the British South African Police Company. Border Timbers is a subsidiary of the Rift Valley Corporation (a private group) and is listed on the Zimbabwe Stock Exchange.

Border Timbers has three distinct operational divisions with a presence across the full value chain: forestry, sawmilling and manufacturing, focusing particularly on treated pole production. The forestry division manages a total of five plantations (three in Chimanimani and two in Penhalonga), with two sawmills fitted with kilns to dry and prepare logs (capacity to process 300,000 m<sup>3</sup> of logs annually). A retail outlet has been opened recently in Paulington.

Border Timbers currently employs 1400 people on a full-time basis and 500 on a seasonal basis. The company operates schools within the community and provides access to medical facilities. It reported 2016 revenues of \$26.14m, derived from the production of timber in four grades: crating, industrial, furniture and structural (for

the construction sector). A net biological asset write-down of \$16m was incurred following fire damage.

The company was placed under judicial management on 5<sup>th</sup> January 2015, and initially struggled to turn around its fortunes. Increasing costs, including for logistics, a slowdown in the Mozambique market and depreciation of the South African Rand all contributed to a tough operating environment. Revenues were reported up 47% in 2016.

## African non-coniferous tropical roundwood production

Since 1996, the production of non-coniferous tropical African roundwood has expanded by 16.0%, with growth slowing towards the end of the review period, as African governments have worked to reduce the export of logs. With limited sawmilling capacity in some countries, the quick conversion of logs into cash has slowed, and this may account for some reduction in the growth rate.

The leading position of Nigeria as the largest producer of NC. T. hardwood in Africa is confirmed in the table below. Nigeria also occupies the largest producer position for NC. T. sawnwood. In the production of NC. T. veneers, however, Nigeria is only a minor producer. The next largest producers are the countries of the Congo Basin, led by DRC, and then Cameroon, with Gabon following in sixth position. The ITTO data are incomplete, however: other sources suggest that, in 2016, for example, Equatorial Guinea produced 1,200,000 m<sup>3</sup> of roundwood.

Africa Ind. roundwood (NC. T.) production quantity (000 m <sup>3</sup> )			
	1996	2006	2016
Nigeria	8,479	9,418	10,022
Congo, Dem. Rep.	3,545	4,372	4,611
Cameroon	3,733	2,778	3,071
Ghana	1,450	1,800	2,560
Côte d'Ivoire	2,952	2,000	2,500
Gabon	2,700	3,500	2,200
Congo, Rep.	1,164	2,331	2,114
Mozambique	1,152	1,294	1,974
Mali	384	413	817
Central African Rep.	596	846	623
Liberia	230	360	500
Benin	304	512	498
Togo	300	166	210
Madagascar	381	110	52
<b>Total</b>	<b>27,370</b>	<b>29,900</b>	<b>31,752</b>
<b>Growth (%)</b>		<b>9.2%</b>	<b>6.2%</b>

Source: ITTO

Compared with world production growth, and Asian production growth specifically, African segment growth is not exceptional. It does, however, contrast with the very slow growth in the Latam region. As in the sawnwood segment, it is clear that Asian production (and demand) is the most influential in global terms. African roundwood production represents less than 13% of the global total.



World Ind. roundwood (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
<b>Africa</b>	<b>27,370</b>	<b>29,900</b>	<b>31,752</b>
Growth (%)		9.2%	6.2%
<b>Latam and Caribbean (LAC)</b>	<b>36,927</b>	<b>40,285</b>	<b>40,499</b>
Growth (%)		9.1%	0.5%
<b>Asia Pacific</b>	<b>134,048</b>	<b>147,341</b>	<b>175,815</b>
Growth (%)		9.9%	19.3%
<b>World</b>	<b>198,345</b>	<b>217,527</b>	<b>248,067</b>
Growth (%)		9.7%	14.0%

Source: ITTO

There are significant gaps in the data for the tropical hardwood sector, specifically regarding utilisation. Within the industry segment, there is a general understanding that the greatest percentage of wood cut is utilised in the country of origin, albeit with some particular exceptions.

NC. T. Ind. roundwood, sawnwood and veneer production (000m <sup>3</sup> )			
	1996	2006	2016
Africa Ind. NC. T. roundwood production	27,370	29,900	31,752
Africa NC. T. sawnwood production	4,381	4,955	6,722
Africa NC. T. veneer production	406	763	891
<b>Sawnwood &amp; veneer as % of total African roundwood</b>	<b>17.5%</b>	<b>19.1%</b>	<b>24.0%</b>
LAC Ind. NC. T. roundwood production	36,927	40,285	40,499
LAC NC. T. sawnwood production	18,357	17,933	6,014
LAC NC. T. veneer production	481	395	425
<b>Sawnwood &amp; veneer as % of total LAC roundwood</b>	<b>51.0%</b>	<b>45.5%</b>	<b>15.9%</b>
Asia Pacific Ind. NC. T. roundwood production	134,048	147,341	175,815
Asia Pacific NC. T. sawnwood production	27,109	22,461	25,672
Asia Pacific NC. T. veneer production	2,061	1,607	3,181
<b>Sawnwood &amp; veneer as % of total Asia Pacific roundwood</b>	<b>21.8%</b>	<b>16.3%</b>	<b>16.4%</b>
World production Ind. NC. T. roundwood	198,345	217,527	248,067
World production NC. T. sawnwood	49,847	45,350	38,407
World production NC. T. veneer	2,949	2,765	4,497
<b>Sawnwood &amp; veneer as % of total world roundwood</b>	<b>26.6%</b>	<b>22.1%</b>	<b>17.3%</b>

Source: ITTO

The data detailed in the table above suggest that utilisation of wood in Africa is similar to Asian region utilisation, with Africa in particular enjoying a rising level of sawnwood production. This may reflect efforts by the national authorities to encourage greater value addition within the country of origin. A variety of countries are working to reduce or to embargo the export of logs, including Mozambique and Gabon.

The data for export utilisation of total production follow a similar pattern to production utilisation, for all three producer continents reviewed. African exports as a percentage of total NC. T. roundwood produced appear to have remained steady, at around 20%, over the past decade, with NC. T. roundwood produced up by 16% and 6% over the past 20 and 10 years, respectively, for modest annual gains.

World Ind. NC. T. roundwood utilisation (000m <sup>3</sup> )			
	1996	2006	2016
Africa Ind. NC. T. roundwood production	27,370	29,900	31,752
Africa Ind. NC. T. roundwood export	4,776	3,905	4,144
Africa NC. T. sawnwood export	1,466	1,775	2,016
Africa NC. T. veneer export	180	263	201
<b>Total exports as % of African roundwood produced</b>	<b>23.5%</b>	<b>19.9%</b>	<b>20.0%</b>
LAC Ind. NC. T. roundwood production	36,927	40,285	40,499
LAC Ind. NC. T. roundwood export	436	442	1,086
LAC NC. T. sawnwood export	1,230	2,274	893
LAC NC. T. veneer export	104	134	27
<b>Total exports as % of LAC roundwood produced</b>	<b>4.8%</b>	<b>7.1%</b>	<b>5.0%</b>
Asia Pacific Ind. NC. T. roundwood production	134,048	147,341	175,815
Asia Pacific Ind. NC. T. roundwood export	11,914	9,315	7,001
Asia Pacific NC. T. sawnwood export	5,739	8,112	7,710
Asia Pacific NC. T. veneer export	773	509	1,231
<b>Total exports as % of Asian roundwood produced</b>	<b>13.7%</b>	<b>12.2%</b>	<b>9.1%</b>
World Ind. NC. T. roundwood production	198,345	217,527	248,067
World Ind. NC. T. roundwood export	17,126	13,662	12,313
World NC. T. sawnwood export	8,435	12,161	10,620
World NC. T. veneer export	1,057	906	1,459
<b>Total exports as % of world roundwood produced</b>	<b>13.4%</b>	<b>12.3%</b>	<b>9.8%</b>

Source: ITTO

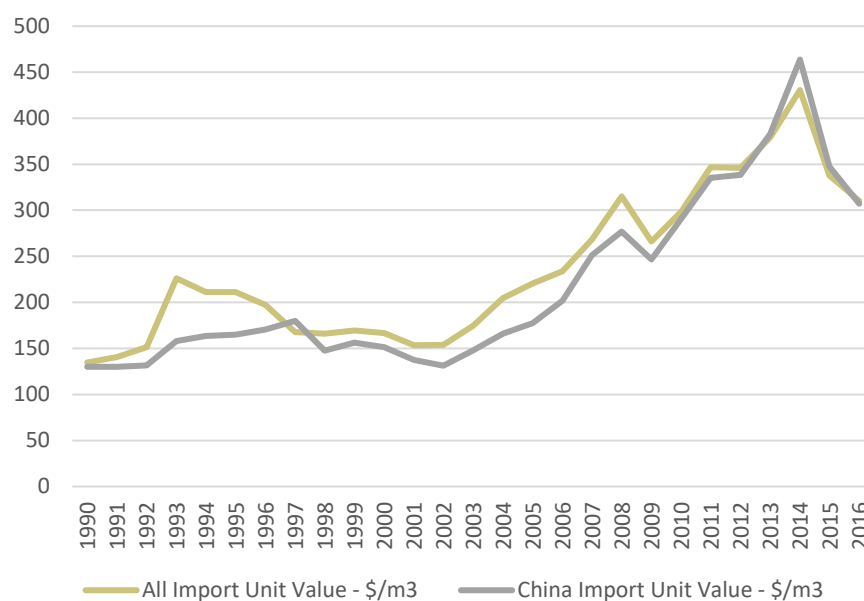
The ITTO data do not include imports into the Latam region, or Africa, with the exception of Egypt. The rising dominance of China as an importer of tropical hardwood over the 20-year review period is unmistakable, however.

World Ind. NC. T. roundwood import quantity (000m <sup>3</sup> )			
	1996	2006	2016
Asia Pacific	11,841	9,967	10,936
World	17,552	14,956	16,272
<i>Of which China</i>	<i>2,034</i>	<i>7,718</i>	<i>10,201</i>
<b>China as % of world Imports</b>	<b>11.6%</b>	<b>51.6%</b>	<b>62.7%</b>
European area	2,431.6	1,283.1	236.9
North America	8.9	15.0	7.5
Africa (Egypt only)	6.2	0.0	0.0
<b>Total world imports</b>	<b>17,552</b>	<b>14,956</b>	<b>16,272</b>
<b>Growth (%)</b>		<b>-14.7%</b>	<b>8.8%</b>

Source: ITTO

The role of China as the world's leading importer also appears to be reflected in the formation of unit prices, as revealed in the chart below. Since 2012, Chinese pricing looks to be driving the global trend.

NC. T. roundwood import unit value – China vs. world (\$/m<sup>3</sup>)



Source: ITTO

## African non-coniferous tropical sawnwood production

Against a background of declining global production (reported) of tropical hardwood, led by Latam, for which reported production volumes have declined by some two thirds over the 20 years 1996-2016, African production has expanded by some 53% since 2006.

World sawnwood (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
Asia Pacific	27,090	22,485	25,767
LAC	18,416	17,978	6,079
Africa	4,381	4,955	6,722
<b>World production</b>	<b>49,887</b>	<b>45,419</b>	<b>38,568</b>

Source: ITTO

African production now represents 17.4% of reported world NC. T. sawnwood production, up from 8.8% in 1996. As for roundwood, Nigeria is the leading African producer of sawnwood, followed by Cameroon. All of Côte d'Ivoire, Gabon and Ghana revolve in the next three places, with Gabon in particular showing strong growth in output since 2006.

African sawnwood (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
Nigeria	2,178	2,000	2,000
Cameroon	580	1,000	1,000
Côte d'Ivoire	596	442	871
Gabon	50	235	822
Ghana	550	527	524
Mozambique	29	37	397
Congo, Rep.	59	259	382
Mali	13	13	200
Congo, Dem. Rep.	85	92	150
Liberia	90	60	132
Benin	11	146	132
Togo	15	14	48
Central African Rep.	61	82	33
Madagascar	64	48	30
<b>Total African production</b>	<b>4,381</b>	<b>4,955</b>	<b>6,722</b>
<b>Growth (%)</b>		<b>13.1%</b>	<b>35.6%</b>
<b>World production</b>	<b>49,887</b>	<b>45,419</b>	<b>38,568</b>
<b>Total African production as % of world production</b>	<b>8.8%</b>	<b>10.9%</b>	<b>17.4%</b>

Source: ITTO

## The China effect

The importance of China in the trading of global commodities since the middle of the 1990s is well documented. The influence of China on the trade in tropical hardwood (legal and illegal) can only be described as dominant.

World import quantity (000m <sup>3</sup> )				
	Year	China	World total	China as % of world Imports
Ind. roundwood (NC. T.)	1996	2,034	14,305	14%
	2001	6,364	13,543	47%
	2006	7,718	11,270	68%
	2011	8,333	10,013	83%
	2016	10,201	11,180	91%
Sawnwood (NC. T.)	1996	544	5,108	11%
	2001	2,263	7,876	29%
	2006	2,436	6,831	36%
	2011	3,990	6,845	58%
	2016	6,579	8,955	73%
Veneer (NC. T.)	1996	310	1,006	31%
	2001	264	1,116	24%
	2006	86	753	11%
	2011	143	646	22%
	2016	877	1,433	61%

Source: ITTO

In the categories detailed in the table above, China now accounts for over 70% of world imports in two categories and 61% of veneer imports.

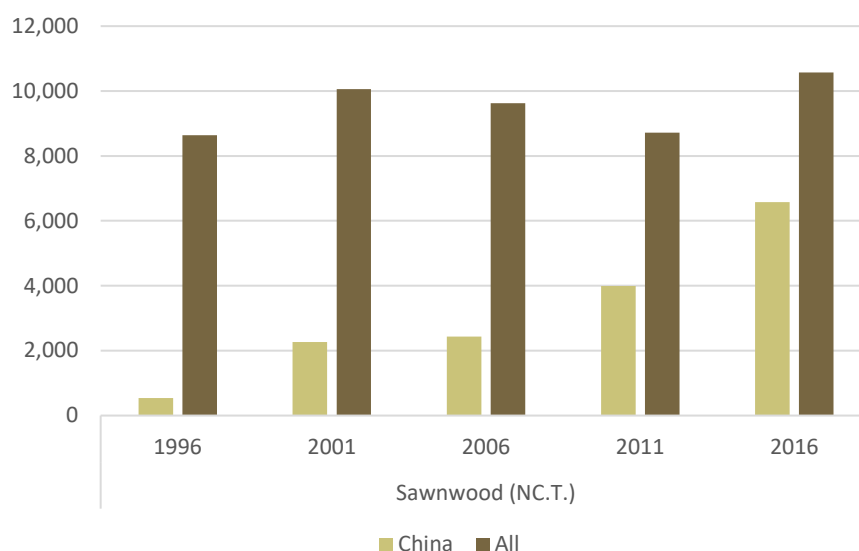
World import quantity (000m <sup>3</sup> )				
	Year	China	World total	China as % of world imports
All categories of NC. T. wood imports	1996	2,888	20,419	14.1%
	2001	8,891	22,535	39.5%
	2006	10,240	18,854	54.3%
	2011	12,466	17,504	71.2%
	2016	17,657	21,568	81.9%
Cumulative total	All	52,142	100,880	51.7%

Source: ITTO

Starting in 1996, China accounted for a sizeable 14.1% of world NC. T. tropical hardwood imports, but by 2016, this had risen to 81.9% of the total. In the 20-year period to 2016, China alone has accounted for 51.7% of cumulative world imports across all three categories of NC. T. tropical hardwood.

In just one category, NC. T. sawnwood, while world imports have been virtually static since 2001, at ca.10 million m<sup>3</sup>, imports to China have risen 12.1x, to represent more than 73% of the total.

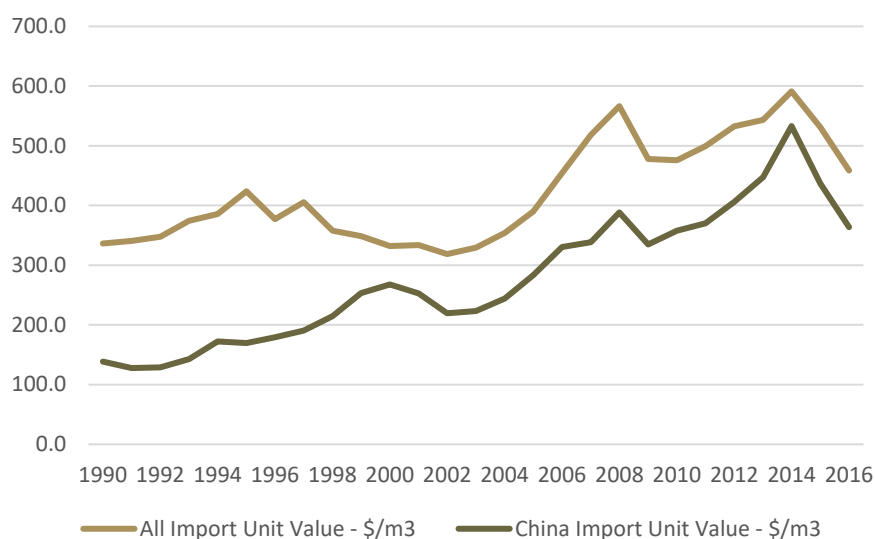
### NC. T. sawnwood imports, China vs. world (000 m<sup>3</sup>)



Source: ITTO

Chinese buyers are reputed to demand lower prices for their significant volumes. It is also reported that they are less inclined to pay premiums for certified wood. Not surprisingly, therefore, the chart below indicates that Chinese purchasing patterns are moderating price growth in the segment. However, producers advise us that demand for certified wood is increasing from Chinese buyers. It's unclear whether this reflects changing attitudes amongst domestic consumers within China or whether it more closely reflects the preferences in targeted export markets.

### NC. T. sawnwood import unit value – China vs. world (\$/m<sup>3</sup>)



Source: ITTO



## African non-coniferous tropical veneer trade history

Three countries dominate the production of veneers in Africa, led, since 2016, by Gabon.

African veneer (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
Gabon	4	200	270
Ghana	75	212	260
Côte d'Ivoire	222	262	222
Congo, Rep.	30	5	70
Madagascar	1	1	31
Cameroon	61	76	30
Congo, Dem. Rep.	10	3	3
Benin	0	1	1
Central African Rep.	0	1	1
Mozambique	2	1	1
Nigeria	1	0	1
Togo	0	1	1
<b>Total</b>	<b>406</b>	<b>763</b>	<b>891</b>

Source: ITTO

The dominant producer region is Asia, led by Vietnam, Indonesia and Malaysia. As with other tropical hardwood categories, the leading Asian producers significantly outweigh their African peers.

Asia Pacific veneer (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
Vietnam	50	134	1050
Indonesia	60	188	749
Malaysia	1800	612	568
India	7	270	270
Myanmar	1	20	210
Thailand	8	180	185
Papua New Guinea	5	80	62
Philippines	82	95	59
Cambodia	42	20	20
Fiji	6	8	8
<b>Total</b>	<b>2,061</b>	<b>1,607</b>	<b>3,181</b>

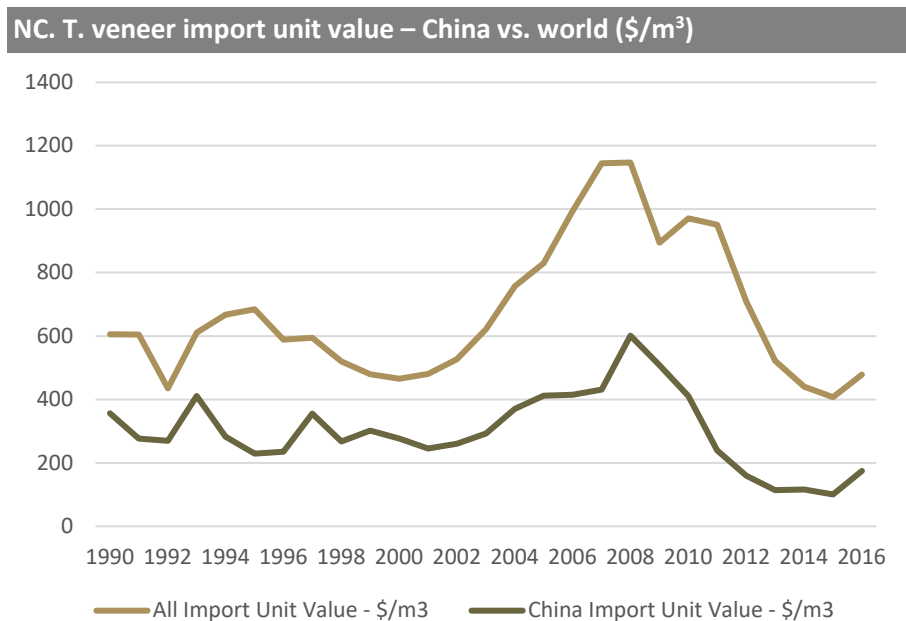
Source: ITTO

African production of veneers represents just under 20% of world production, based on ITTO data. The segment has enjoyed strong growth since 1996, more than doubling over the 20-year period to 2016, but, as with the other tropical hardwood segments, it is the production of veneers in Asia that sets the tempo for the segment, being almost 71% of the total in 2016.

Veneer (NC. T.) production quantity (000m <sup>3</sup> )			
	1996	2006	2016
Total African production	406	763	891
Growth (%)		87.9%	16.7%
Total LAC production	481	395	425
Growth (%)		-18.0%	7.7%
Total Asia Pacific production	2,061	1,607	3,181
Growth (%)		-22.0%	97.9%
<b>World production</b>	<b>2,949</b>	<b>2,765</b>	<b>4,496</b>
<b>Growth</b>		<b>-6.2%</b>	<b>62.6%</b>

Source: ITTO

In common with the other product segments, the buying behaviour of China looks to be a key driver. As detailed in the chart below, Chinese pricing of the commodity looks to have dragged down international pricing since 2008.



Source: ITTO

The price trends above should be read in the context of world consumption, as detailed below. Asian imports represented nearly 81% of the world total in 2016, led by China, which imported 877,000 m<sup>3</sup> (75.9% of Asia region imports).

Veneer (NC. T.) importing regions (1000m <sup>3</sup> )			
	1996	2006	2016
EU imports	214	308	245
Asia Pacific imports	701	391	1,155
North America imports	85	44	31
Africa imports	5	9	2
<b>World imports</b>	<b>1,006</b>	<b>753</b>	<b>1,433</b>
<b>Growth</b>		<b>-25.1%</b>	<b>90.3%</b>
<b>Asian imports as % of world imports</b>	<b>69.7%</b>	<b>51.9%</b>	<b>80.6%</b>

Source: ITTO

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## Market perceptions

Hardman Agribusiness has canvassed importers of African tropical hardwoods for their perspectives on the segment. The feedback is very mixed.

Sapele (*Entandrophragma cylindricum*), sometimes sapelli, is a popular African hardwood, reminiscent of mahogany, and a member of the same genus. It is often marketed as "African mahogany," and has seen strong demand as a mahogany substitute in recent years due to genuine mahogany (*Swietenia macrophylla*) becoming a CITES Appendix II-listed species. (CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.) We are advised that some 90% of Sapele production is utilised for the manufacture of furniture, finger-jointed material, interior construction, and doors.

Importers complain of very long supply chains when sourcing African hardwoods. The interval between placement of an order and receipt of the wood can extend to eight months, but some producers advise us that their average delivery times are between 3-6 months. Logistics and delays at African ports are cited as the most common reasons for delay (highlighted in the section below). Buyers prefer to have green wood kilned in Africa, but note that quality outcomes are variable. Cameroon and Congo Brazzaville, as supply sources, appear to be more highly rated than DRC, Gabon or Côte d'Ivoire. Distributors in the UK and Europe are also highly sensitive to reputational risk in dealing in African hardwoods, noting that the custody chain can be difficult to trace.

Some businesses which deal with end-users of African hardwoods also question whether there will be a market in these products after 2030; their concern is that supplies are likely to diminish as stocks reduce and African continental demand increases. Accordingly, there is a focus (amongst these businesses) on sourcing from plantation producers in Latam, from which Eucalyptus varieties, and engineered wood products, are in sync with consumer trends.

## West African infrastructure

Global Logistics Performance Index (1-low, 5-high)



Source: World Bank

The World Bank, in collaboration with the Turku School of Economics, publishes an overall Logistics Performance Index. This index reflects perceptions of a country's logistics based on the following:

- ▶ efficiency of customs clearance process;
- ▶ quality of trade and transport-related infrastructure;
- ▶ ease of arranging competitively priced shipments;
- ▶ quality of logistics services;
- ▶ ability to track and trace consignments; and
- ▶ frequency with which shipments reach the consignee within the scheduled time.

Logistics Performance Index (1-low, 5-high)	
Country/region	Index score
Ghana	2.66
Nigeria	2.63
Togo	2.62
Côte d'Ivoire	2.60
Congo, Rep.	2.38
Congo, Dem. Rep.	2.38
Liberia	2.20
Gabon	2.19
Cameroon	2.15
Equatorial Guinea	1.88
<b>Group average</b>	<b>2.37</b>
<b>SSA average</b>	<b>2.47</b>
<b>World average</b>	<b>2.86</b>

Source: World Bank

Germany (4.23), Luxembourg (4.22) and Sweden (4.20) lead the performance index, and Syria (1.6), Haiti (1.72) and Somalia (1.75) are the weakest performers. The map portrays a clear picture of the issues with African logistics.

With timber, processed or unprocessed, continuing to be one of the African continent's leading exports, poor infrastructure is a limiting factor in segment performance. The March 2018 announcement by the French operator, Rougier SA, that it was experiencing cashflow pressure was attributed in part to *"persistent difficulties in Cameroon..(including)...the chronic congestion of the port of Douala has profoundly disrupted the activities of the Cameroonian, Congolese and Central African subsidiaries. These operational difficulties were increased by the recent congestion of the container terminal which led its operator to limit access"*. Rougier has noted to Hardman Agribusiness that logistics costs could equal as much as 30% of gross revenues.

## The criticality of certification

The acute sensitivity of downstream distributors and traders of African tropical hardwood products to the provenance of the products they handle is mirrored also among the large professional producer firms, especially those firms focused on the export markets in Europe and North America. To quote Alain Karsenty in a recent report entitled 'Recent evolutions of forest concessions status and dynamics in Central Africa', certification is *"one part of the concession forest sector in Africa more and more 'externally driven' in terms of ecological and social norms, because of the concern of Western consumers and public opinion about the fate of tropical forests in connection to global climate change"*.

The Forest Stewardship Council (FSC) is an *"international, non-governmental organisation dedicated to promoting responsible management of the world's forests"*. A survey by GfK in 2014 found that 50% of the UK population recognised the FSC logo, and this is almost certain to have increased over the last few years. It is the only certification scheme to be endorsed by the biggest environmental charities, WWF, Greenpeace and The Woodland Trust.

The FSC certification scheme has two main components:

**Forest management:** this certification 'involves an audit of forest management by an independent organisation to check that it meets internationally and nationally agreed standards of responsible forest management. Forest products, like timber,

can then carry the FSC label, guaranteeing that it comes from a well-managed forest and enabling suppliers to pass on the benefits of certification to their customers.'

**FSC claims that “forest management certification confirms that the forest is being managed in a way that preserves the natural ecosystem and benefits the lives of local people and workers, all while ensuring it sustains economical viability (FSC, 2018)”.**

**Chain of custody:** this certification of the supply chain from forest to end-user 'ensures that FSC materials and products have been checked at every stage of processing so that customers purchasing FSC labelled products can be confident that they are genuinely FSC certified.'

European and North American markets are particularly environmentally and socially aware, and therefore achieving certification is a recognisable and straightforward way to demonstrate compliance with public- and private-sector procurement policies – such as the EU Ecolabel and US Green Building Leadership in Energy and Environmental Design (LEED).

**Latest figures from FSC state that some 200 million ha of forest are now certified (of which 7.2 million ha are in Africa), as well as some 34,000 chain of custody certificates.**

Timber can carry a varying standard of FSC certification:

- ▶ The FSC 100% label signifies that a product is made entirely from FSC-certified forest material.
- ▶ The FSC Mix label lets people know that certified wood has been supplemented with non-certified materials. However, this non-certified material needs to adhere to the reclaimed wood standard or the controlled wood standard.
- ▶ The FSC Recycled label denotes that a product is made entirely from recycled or reclaimed material, subject to requirements concerning the purchasing, verification and classification of the reclaimed material. At least 85% of reclaimed material must be verified as having been recycled.

There are **10 principles** to which any forest operation must adhere before it can receive FSC forest management certification:

- 1) 'The Organization shall comply with all applicable laws, regulations and nationally-ratified international treaties, conventions and agreements.'
- 2) 'The Organization shall maintain or enhance the social and economic wellbeing of workers.'
- 3) 'The Organization shall identify and uphold Indigenous Peoples' legal and customary rights of ownership, use and management of land, territories and resources affected by management activities.'
- 4) 'The Organization shall contribute to maintaining or enhancing the social and economic wellbeing of local communities.'

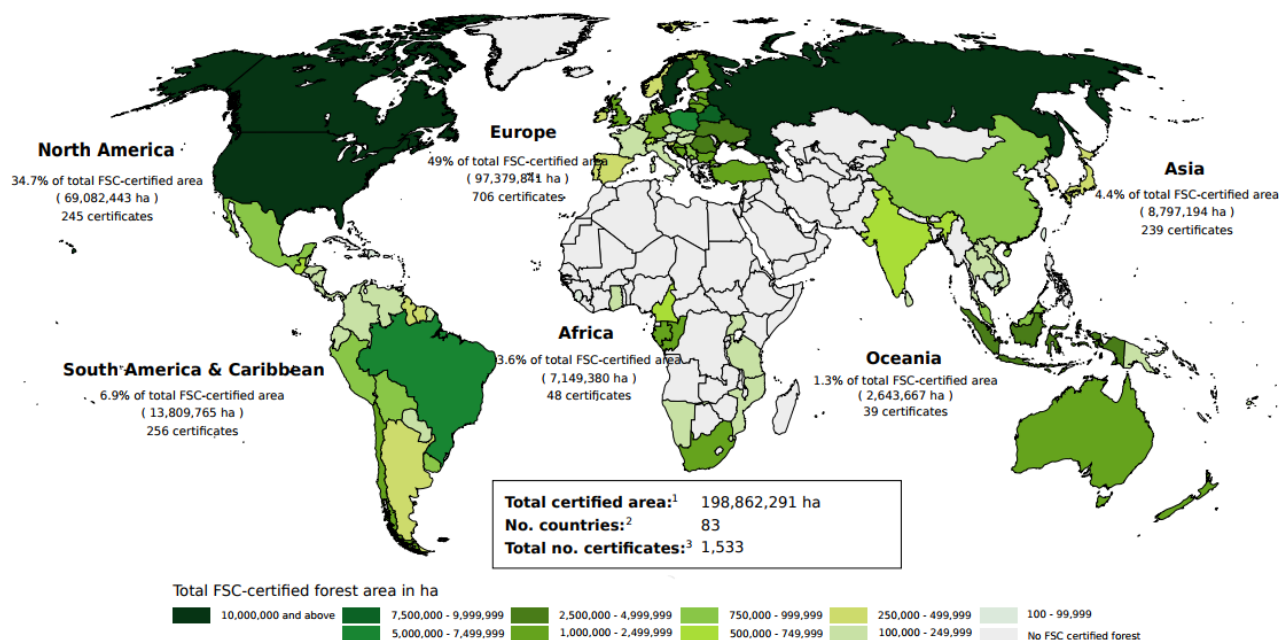


- 
- 5) 'The Organization shall efficiently manage the range of multiple products and services of the Management Unit to maintain or enhance long-term economic viability and the range of environmental and social benefits.'
  - 6) 'The Organization shall maintain, conserve and/or restore ecosystem services and environmental values of the Management Unit, and shall avoid, repair or mitigate negative environmental impacts.'
  - 7) 'The Organization shall have a management plan consistent with its policies and objectives and proportionate to scale, intensity and risks of its management activities. The management plan shall be implemented and kept up to date based on monitoring information in order to promote adaptive management. The associated planning and procedural documentation shall be sufficient to guide staff, inform affected stakeholders and interested stakeholders, and to justify management decisions.'
  - 8) 'The Organization shall demonstrate that progress towards achieving the management objectives, the impacts of management activities and the condition of the Management Unit are monitored and evaluated proportionate to the scale, intensity and risk of management activities, in order to implement adaptive management.'
  - 9) 'The Organization shall maintain and/or enhance the High Conservation Values in the Management Unit through applying the precautionary approach.'
  - 10) 'Management activities conducted by or for The Organization for the Management Unit shall be selected and implemented consistent with The Organization's economic, environmental and social policies and objectives, and in compliance with the Principles and Criteria collectively.'

## African production is under-certified

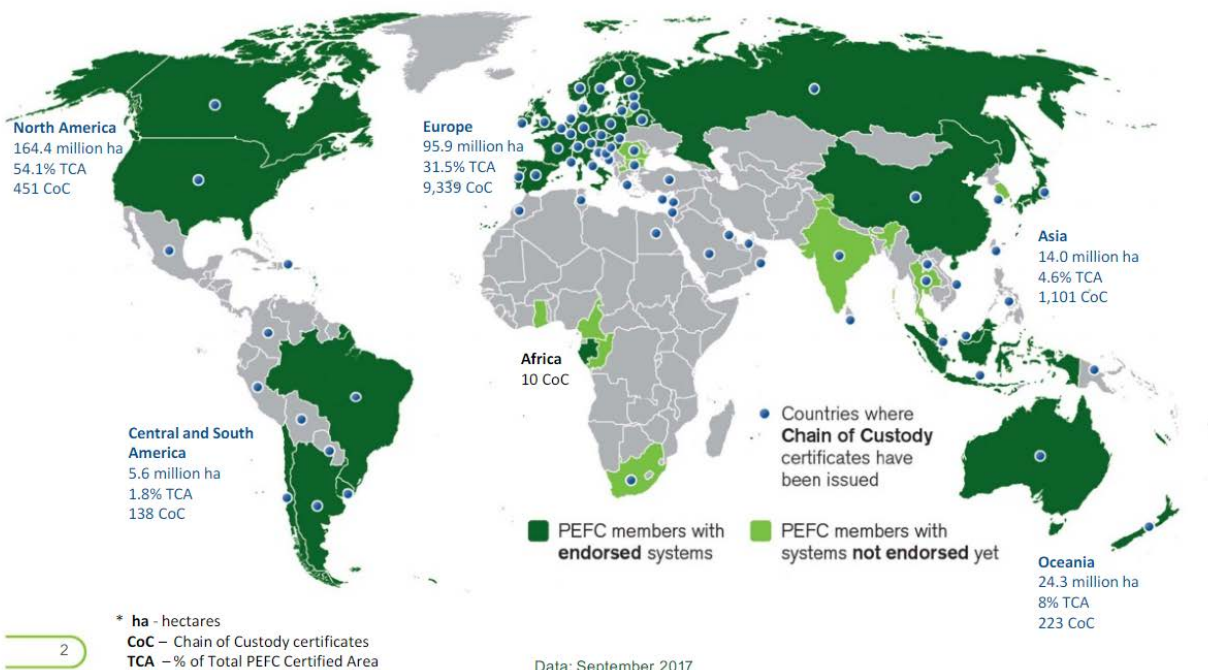
### FSC-certified forest area

Global FSC-certified forest area



Source: FSC

### PEFC-certified forest area



Source: PEFC

The **Programme for the Endorsement of Forest Certification (PEFC)** is another world-leading certification authority. PEFC is an international non-profit, non-governmental organisation dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification. With more than 300 million ha of certified forest area, PEFC is the world's largest forest certification system. Each national forest certification system undergoes rigorous third-party assessment against PEFC's unique Sustainability Benchmarks to ensure consistency with international requirements. This report focuses on the FSC certification system, given that it has a larger current presence in Africa.

## Certification in action

### *Rougier*

Rougier operates a certification policy aimed at ensuring that all its production meets the standards for proving legal chain of custody. Additionally, the company has worked to achieve FSC® 'responsible forest management' certification. The company notes, in its 2016 Report & Accounts, that *"...100% of the forest concessions entrusted to [it] or its subsidiaries in Africa...are legality certified, while more than half are responsible forest management certified"*.

#### ► Gabon

- FSC® 100% certification for all the forests in operation (877,000 ha)

#### ► Cameroon

- "responsibly-sourced timber" for the Southern massif around Djoum (265,000 ha)
- FSC® 100% certification for the Eastern massif around Mbang (285,000 ha)

#### ► Republic of Congo

- Verification of Legal Compliance (VLC) certification (586,000 ha)

Rougier argues that certification enables it to:

1. Provide its customers with compliance to all legal requirements.
2. Provide chain of custody guarantees for all products from its forest concessions, certified by an independent third party.
  - a. These guarantees are deemed essential in order to offer the assurances demanded by international markets concerning the legal origins of timber (Lacey Act in the US, EUTR in Europe, timber regulations in Japan and Australia, etc.).
3. Offer additional guarantees – particularly social and environmental – for customers requiring this, with FSC® 100% certified production in Cameroon and Gabon.
4. Achieve added value for customers serving particularly sensitive markets, with 'responsible forest management' certification.

Rougier Gabon achieved its first FSC® certification for 688,000 ha of forest concessions in 2008; since then, Rougier has boosted compliance with 'responsible management' of its forest concessions across Central Africa. During 2017, Rougier maintained its focus on certification and explored new areas for diversification, notably putting itself forward as a candidate for Pan-African Forest Certification audits in Gabon. The company observed that it wanted to strengthen further the guarantees offered to its customers, while "consolidating its various societal and environmental approaches in its forest concessions in Africa".

### *Precious Woods*

Precious Woods states on its website that the company "is committed to...Forest Stewardship Council (FSC). The FSC-logo guarantees highest standards in forest management according to environmental, social and economic standards". The company additionally states that "...sustainability means the creation of added value in economic, ecological and social terms – for investors, employees, business partners and stakeholder groups".

The total forest area under FSC certification was 194 million ha at the end of 2016, which is greater than the area of Germany, France, Spain and Italy combined. However, only about 11 % of that area covers tropical and subtropical forests, which means it is still highly under-represented in terms of FSC certification. Precious Woods manages slightly less than 6% of the total FSC-certified natural tropical forest areas. The FSC standard defines all essential criteria for sustainability in forestry. Certification covers forestry processes, as well as operational timber production and trading. The FSC standard is considered to be the most demanding of the certification standards and, as a consequence, it is perhaps the most respected standard.

Precious Woods guarantees 100% FSC-certified products from its Gabon operations. The company noted, in its 2016 Report & Accounts, that "FSC-certified tropical forestry...is based on careful planning and selection of the trees to be logged, without endangering the stock of tree species". Precious Woods states that average logging on its concessions equates to one to three trees per ha during a cycle of 25 or 35 years. The company notes that its contractual arrangements would permit a far higher quota, which would also result in lower costs. Over the past few years, an average of only 1.4 trees per ha have been logged in the protected zones of the concession, corresponding to 14.2 m<sup>3</sup>/ha.

Precious Woods looks to keep the share of the forest affected by logging to a very low level. The company states that "Cutting, access roads, and loading areas take up less than 2% of the area used, on average, which causes four times less damage than has been determined, on average, in Gabon by the Food and Agriculture Organization (FAO)".

Precious Woods argues that "...The tightening legal situation in importing countries will probably benefit trade with FSC-certified timber in the medium term".

### *Interholco*

The natural tropical forests that Interholco manages are 100% FSC certified. For all trading business (purchases from third parties) a robust Due Diligence system is in place, verified by NepCon and Controlled Union. This is to assure all its European based customers full compliance with EU-timber-regulation (EUTR).

Interholco's due diligence in procuring legal timber for its customers encompasses the following:

1. Access to information describing the wood and wood products, such as country of harvest, species, quantity, details of the supplier and information on compliance with the national legislation.

2. Systematic assessment of the risk of illegal timber in the supply chain, based on information identified above and taking into account criteria set out in the EU Timber Regulation and US Lacey Act.

3. Implementation of risk mitigation measures and procedures if high risk is identified, including requiring additional information or documents and/or requiring third-party verification. Certification or third-party legality verified timber gives the best proof of legal compliance for wood from high-risk areas.

In particular for non-certified wood, or wood products where non-negligible risk has been identified, Interholco seeks to assess the risk of each supplier. It physically inspects the concession of those suppliers and collects legal documents indicating compliance with the applicable legislation; it also requires suppliers to sign a declaration of legality. Based on the company's own risk assessment, if it still identifies risk, it asks for additional information, audits suppliers, or alternatively requests third-party verification. Interholco states that the "best proof for compliance with legality is 3rd party legality verified or certified timber, including a certified chain of custody".

## Other forest certification schemes/systems

### *Pan-African Forestry Certification (PAFC) Gabon*

PAFC Gabon is a member-based organisation, dividing the value chain into four 'colleges' – forest owners, professionals, social and environmental – to set standards for SFM in Gabon.

PAFC Gabon joined PEFC in December 2004, and in April 2009, the PAFC scheme became the first of its kind to meet PEFC's sustainability conditions, leading to it being endorsed by PEFC in November 2014, and valid until November 2019. Given the high percentage of forest cover, this is an important step to achieving sustainable forest management in the Congo Basin.

### *Pan-African Forestry Certification (PAFC) Cameroon*

Formed in October 2007, the PAFC Cameroon hopes to match the success of the PAFC Gabon.

### *Pan-African Forestry Certification (PAFC) Republic of Congo*

The process started with an official signing act during the last PEFC General Assembly in Helsinki in November 2017, in presence of the Forestry Minister of the Republic of Congo. The process has started in Brazzaville and first PAFC forest certifications are planned to be available from 2020 onwards.

### *African Ecolabelling Mechanism (AEM)*

The eco-labelling of sustainably produced products was created to function as a method of quality assurance in the industries of agriculture, fishing and forestry. Given the importance of these sectors to the economies of many African countries, and also their additional importance in the mitigation of climate change, the eco-labelling mechanism hopes to encourage sustainability among producers and consumers.

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### *Other*

- ▶ Origine et Légimité des Bois (Origin and Legality of Timber) (OLB) developed by Bureau Veritas.
- ▶ The Timber Legality and Treacability Verification (TLTV) by Société Générale de Surveillance (SGS) is reportedly now replaced with due diligence verification.
- ▶ Verification of Legal Origin (VLO) and Verification of Legal Compliance (VLC), developed by Rainforest Alliance, is being replaced reportedly by FLV (Forest Products Legality Verification), a verification system compliant with the EU Timber Legislation and US Lacey Act.
- ▶ We are advised that Rainforest Alliance's certification programme for forestry has been transferred to NEPCo.
- ▶ The EU's Forest Law Enforcement Governance and Trade (EU-FLEGT) Action Plan.
- ▶ The EU Timber Regulation (EU TR) and the US Lacey Act:
  - In 2008, the US amended the Lacey Act, to include plants, making it unlawful to trade, transport or possess any plant that was produced or traded in violation of any law or regulation.
  - In 2010, the EU created new legislation to ban illegal wood from being placed on the EU market. The "EU Timber Regulation" prohibits placing illegally harvested and produced timber products on the EU market, requiring 'operators', usually the importer, to practice due diligence to minimise risk. It also requests to assure traceability of wood products within the EU back to the 'operator'. The Regulation has applied since 3<sup>rd</sup> March 2013, and affects the timber trade of all 27 EU member states. It requires operators to have systems in place that assure that the timber is from a legal origin – or face sanctions.

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## Forest production efficiency

In making assumptions about production volumes (efficiency levels) of milled or processed wood products from roundwood (logs), the ITTO uses UNECE (United Nations Economic Commission for Europe) 2010 conversion factors (<https://www.unece.org/index.php?id=15890>), details of which we set out below. However, it should be noted that these conversion factors may not be reliable for less advanced countries.

- ▶ Roundwood Equivalent volume of 1.82 for sawnwood (leaving the sawmill)
- expressed as a percentage, 54.95%, of the source logs by cubic metre
- ▶ Roundwood Equivalent volume of 1.9 for veneer (leaving the sawmill)
- expressed as a percentage, 52.63%, of the source logs by cubic metre
- ▶ Roundwood Equivalent volume of 2.3 for plywood (leaving the sawmill)
- expressed as a percentage, 43.48%, of the source logs by cubic metre
- ▶ Roundwood Equivalent volume of 1.7-1.8 assumed for production efficiency of Chinese mills (in China) producing plywood
- expressed as a percentage, 57.14%, of the source logs by cubic metre
- ▶ Roundwood Equivalent volume of 2.0 is assumed for production efficiency of Congo Basin mills
- expressed as a percentage, 50%, of the source logs by cubic metre
- ▶ ATIBT\* also assumes Roundwood Equivalent volume of 2.0 for production efficiency of Congo Basin mills
- Roundwood Equivalent volume of 5.0 is assumed for production efficiency of smallholder farmers operating with just a chainsaw
- ▶ expressed as a percentage, 20%, of the source by cubic metre

*\* Association Technique Internationale des Bois Tropicaux – International Tropical Timber Technical Association*

The most recent collection and reporting of conversion factors by UNECE/FAO were undertaken in 2010, and this has been done at least nine times since 1963. The previous formal report was delivered in 1987, but changes that had occurred in the forest sector over the intervening 23 years made it appropriate for the FAO/UNECE Working Party on Forest Economics and Statistics to undertake a new assessment. Two key mandates of the UNECE/FAO Timber Section that use conversion factors are the regular reporting, analysis and dissemination of UNECE region forest product statistics, and periodic assessments of the forest sector outlook within the region. Conversion factors are also important for benchmarking manufacturing efficiency, conducting trade in wood products, and analysing the feasibility of a number of transactions and business processes.



The term “forest products conversion factors” is used to cover a broad spectrum of ratios utilised in the wood-based forest resource, manufacturing and energy sectors. UNECE/FAO defines a conversion factor as “*using a known figure to determine or estimate an unknown figure via a ratio*”. Ratios may not always be exact, but rather a good average; for example, a cubic metre (under bark volume) of freshly felled Norway spruce sawlogs may average 860 kgm of which 80 kg is bark and 780 kg is wood (with both bark and wood containing a certain amount of moisture), but might vary as a result of wood density, moisture content, the presence or lack of bark, etc. That is not to say that a single factor to convert roundwood to sawnwood cannot be used; it can be done with an accurate factor and when looking at a large population in the aggregate. When looking at a lower level, however, factors that account for various parameters are better suited (e.g. a mill or a sub-region that only processes small logs). Related to forest product conversion factors is the use of the “material balance”. Non-sawnwood volume might be utilised across several wood residues: a cubic metre of 15 cm sawlogs could have a material balance of 41% sawnwood, 43% chips (raw material for paper, panels, wood energy, etc.), 9% sawdust (for making energy pellets, particleboard, MDF, etc.) and, finally, 7% shavings (particle board, MDF, animal bedding and wood energy, etc.). The components balance with 100%. Although not part of the material balance, as the log volume was represented under bark, one might also apply a conversion factor to this scenario to estimate that 80 kg of bark (with moisture) are potentially available from each cubic metre of roundwood (measured under bark) for energy or other uses. Note that material balances are used at a manufacturing plant level or a sector level, or can be constructed to account for the cascading uses of wood raw material in a country, subregion or region (Mantau, 2008).

*Source: The paragraph above is substantially quoted from pages 11-12 of the link below*

<https://www.unece.org/fileadmin/DAM/timber/publications/DP-49.pdf>

Logs and their subsequent products do not lend themselves to exact conversion factors, due to the wide range of shape and form, the variability of physical properties (density, moisture content and shrinkage), and other natural variables that affect conversion factors, such as species, size, defects or provenance. Wood fibre is also hygroscopic; thus its volume and weight change once dried in a kiln or exposed to the atmosphere. In addition, there are external biases that have to be accounted for, such as differences in measurement procedures, which often reflect a unit volume differently from the way another standard does. Finally, there are differences that occur as a result of product-manufacturing efficiency levels and utilisation practices.

## Conversion factors – general use

Conversion factors have long been utilised by the forest sector as a tool for analysing forests and forest products’ manufacturing facilities. Virtually every aspect of forecasting and analysis in the forest sector is somehow touched by conversion factors. A practical example of this would be a timber sale appraisal that a sawmill is conducting to determine a bid price. The stand volume may be reported in cubic metres over bark, but the purchaser may need to convert these volumes into inside bark volumes, weight or board feet (a board foot is ostensibly the equivalent volume of a board that is 1 inch thick x 1 foot wide x 1 foot long (0.00236 m<sup>3</sup>)), to match their units of measure. To determine the value of the timber, the purchaser will need to know the cost of getting the timber from the stump to the mill site; thus weight to volume ratios are likely to be an important parameter for determining weight-based transport costs. Primary product recovery will need to be estimated using conversion factors from roundwood to the primary product. A material balance will be used to

determine the quantity and thus value of the residual products made, and, finally, ratios may be used to estimate the quantity of unmeasured products from the timber sale, such as bark and logging residue (top-wood, limbs, foliage), which may be profitable to utilise for energy or other purposes.

Analysts have used conversion factors in an effort to try to indicate illegally logged roundwood in the supply chain of manufacturing facilities in a sub-region, i.e. when the roundwood removal volume is less than the apparent consumption as determined via conversion factors, it is assumed that the disparity may be made up of illegally logged volume.

Conversion factors covering the input of raw material to output of forest products are a good indication of efficiency levels, and thus are often used to benchmark a manufacturing facility's effectiveness at converting raw materials into finished or semi-finished products.

*Source: The paragraphs above are substantially quoted from pages 11-12 of the link below*

<https://www.unece.org/fileadmin/DAM/timber/publications/DP-49.pdf>

## Company-specific efficiency indicators

The data presented below for two Congo Basin operators are drawn from the 2016 Report & Accounts for both companies.

Operating efficiencies							
Company	Precious Woods	Rougier			Pallisco & CIFM	Interholco	Total/ averages
Country	Gabon	Gabon	Cameroon	Republic of Congo	Cameroon / Ivory Coast	Republic of Congo*	
Present since	2007	1952	1969	2000	1972	1960	
Concession hectares	674,000	934,000	551,000	586,000	388,949	801,716	3,935,665
Annual production of logs (m <sup>3</sup> ) 2016	196,800	280,000	200,000	110,000	110,000	225,484	1,122,284
Annual logs/ha (m <sup>3</sup> )	0.29	0.30	0.36	0.19	0.28	0.28	0.28
Employees	790	1,500	900	500	500	983	5,173
Ha/employee	853	623	612	1,172	778	816	761
Logs (m <sup>3</sup> )/employee	249	187	222	220	220	245	220
Revenues (\$m)	35.2				36.3	83.3	
Revenues/employee (\$)	44,557				72,600	84,711	
Rev./concession ha (\$)	52				93.3	103.9	
Implied \$ price per log m <sup>3</sup>	179				330	346	
Logs processed in mill (m <sup>3</sup> ) 2016	124,200					171,000	
Sawnwood (m <sup>3</sup> ) 2016	39,400				24,000	54,000	
Recovery rate/yield	31.7%					31.6%	

Source: 2016 Annual Reports /Accounts/ Company Reports

\*Concession ha shown are operated ha only; excludes conservation areas.

These data suggest that an annual harvest of 0.29 m<sup>3</sup> per ha of concession is the typical for the segment, and that one Full Time Equivalent (FTE) staff member is required to manage an average concession area of 761 ha. Logs produced (m<sup>3</sup>) on an FTE basis are suggested at 214 m<sup>3</sup> per FTE, but the Rougier data for Gabon may be an outlier; 220 m<sup>3</sup> per FTE may be a more reliable indicator. Revenue per concession hectare is shown as a wide range, at \$50 to \$100 approximately. Similarly, revenue per FTE ranges from ca.\$45,000 to \$85,000.

## African natural forest producer country statistics

	Cameroon	Cote D'Ivoire	CAR	Congo Brazzaville	DRC	Equatorial Guinea	Gabon	Ghana	Liberia	Nigeria	Togo
Population	25.0	24.2	5.6	5.0	83.3	0.8	1.8	27.5	4.7	190.6	8.0
GDP (PPP) (\$bn)	81.6	96.3	3.4	29.2	68.0	29.4	36.8	130.2	3.9	1,118.0	12.4
GDP (Official FX 2016) (\$bn)	30.7	39.9	2.0	7.8	40.4	10.1	14.5	45.5	2.1	394.8	4.8
GDP Real Growth Rate (%)	4.0	7.6	4.7	-3.6	2.8	-7	1	5.9	2.6	0.8	5
GDP Per Capita (PPP) (\$)	3,400	3,900	700	6,700	800	34,900	19,300	4,600	900	5,900	1,600
Inflation Rate (%)	0.7	1.0	3.8	-0.4	41.7	1.7	2.5	11.8	12.8	16.3	0.8
Total Land Area (million ha)	47.5	32.2	62.3	34.2	234.5	2.8	26.8	23.9	11.1	92.4	5.7
Total Forest Land 2015 (million ha)	18.8	10.4	22.2	22.3	152.6	1.6	22	9.4	4.2	7	0.2
Forest Area of Country (%)	40%	32%	36%	65%	65%	57%	82%	39%	38%	8%	4%
Forest Area Lost since 2000 (million ha)	3.3	n/a	0.2	0.2	4.7	0.2	n/a	0.4	0.5	6.1	0.3
Total Country Exports (\$bn)	4.7	12.7	0.15	5.4	5.7	5.9	4.3	10.5	0.84	47.8	1.6
Total Value - NC.T. RW, SW & V Exports (\$bn)	0.9	0.2	0.07	0.4	0.1	n/a	0.5	0.2	0.04	0.4	0.04
Value of RW, SW & V Exports as a % of Total Exports	19%	2%	47%	7%	2%	n/a	12%	2%	5%	1%	3%
NC.T. RW, SW & V Production (000m <sup>3</sup> )	4,178.1	3,593.0	657.3	2,543.1	4,764.0	n/a	3,292.3	3,344.0	632.4	12,023.0	259.1
NC.T. RW, SW & V Exports (000m <sup>3</sup> )	1833.4	362.7	140.6	935.3	158.3	n/a	686.6	435.6	154.6	661.1	73.4
RW, SW & V Imports (000m <sup>3</sup> )	0.2	0.6	0.0	0.1	1.4	n/a	0.2	38.2	0.1	2.1	0.3
<b>Wood Trade Balance (000m<sup>3</sup>)</b>	<b>1,833.2</b>	<b>362.1</b>	<b>140.6</b>	<b>935.3</b>	<b>156.9</b>	<b>n/a</b>	<b>686.4</b>	<b>397.5</b>	<b>154.5</b>	<b>659.0</b>	<b>73.0</b>
<b>Wood Consumption (000m<sup>3</sup>)</b>	<b>2,344.9</b>	<b>3,230.9</b>	<b>516.7</b>	<b>1,607.9</b>	<b>4,607.1</b>	<b>n/a</b>	<b>2,605.9</b>	<b>2,946.5</b>	<b>477.9</b>	<b>11,364.0</b>	<b>186.0</b>
<b>Consumption as % of Production</b>	<b>56%</b>	<b>90%</b>	<b>79%</b>	<b>63%</b>	<b>97%</b>	<b>n/a</b>	<b>79%</b>	<b>88%</b>	<b>76%</b>	<b>95%</b>	<b>72%</b>

Source: CIA 2017, FAOSTAT 2015, ITTO, 2015 (Roundwood, Sawntwood, Veneer: RW, SW, V)

## Company profiles

It is instructive to review the financial data presented within this section, all of which are for European operators, in the context of the opinions expressed in “The contemporary forest concessions in West and Central Africa: chronicle of a foretold decline?”, by Alain Karsenty, for FAO 2016:

*“...The markets for African timber have profoundly changed during the last 15 years. China, and increasingly other emerging Asian markets, are replacing the traditional western outlet, and especially the EU market. As a consequence, Asian interests are gradually taking over European ones, and most of the area and the industrial production are now taken by Asian companies. Since the profitability of the activity is low (when complying with the regulations in force), many European companies have sold their activities to Asian companies who, on the one hand, are sometimes less concerned about some regulations and, on the other hand, have more effective trading networks”.*

Detailed financial data for the private operators are not always available, and the data published for the listed names are not always consistently stated by the companies, making comparisons difficult. Overall, the published data that are available imply tough economics, with marginal net returns, typically in low single figures. However, the wide range of efficiency indicators suggests that concession profiles and individual concession operational efficiency could result in significant differences of outcomes between the different operators.

Readers will also note that some operators have sophisticated end-to-end value chain businesses, operating all along the value chain, from forest location to delivering finished manufactured products to industrial and private consumers. The implication for the European operators, with strong supporting sustainability and certification credentials, is that an end-to-end commercial strategy allows for the fullest capture of value in the product.

Featured companies		
Company	Country	Total concession area (ha)
Bois et Scierie du Gabon (BSG)	Gabon	260,000
Cora' Wood Gabon	Gabon	600,000
Groupe SEFAC	Cameroon	400,000
Interholco/ IFO	Republic of Congo	1,159,643
Koninklijke Wijma	Cameroon	400,000
Likoula Timber	Republic of Congo	525,000
Obtala (Argento Ltd)	Mozambique, Gabon	409,316
Olam International (CIB)	Republic of Congo	2,000,000
Pallisco and CIFM	Cameroon	388,949
Precious Woods	Gabon	600,000
RH Group	Equatorial Guinea, Gabon, Republic of Congo	2,750,000
Rougier SA	Cameroon, Central African Republic, DRC, Gabon	2,400,000
Société de Développement Forestier	DRC	2,150,000
Société d'Exploitation Forestière Yan Dong	Republic of Congo	1,140,000
Vicwood Group	Cameroon, DRC, Equatorial Guinea	2,000,000

Source: Company reports and websites

## Bois et Scierie du Gabon (BSG)

The Malaysian-owned Bois et Scierie du Gabon (BSG), formed in 1990, and headquartered in Libreville, operates 260,000 ha of forest concessions in Gabon. The company produces 200,000m<sup>3</sup> of round logs annually. Three sawmills and a kiln-drying plant produce 72,000 m<sup>3</sup> of sawn timber from a wide variety of species (the group lists over 30 species on its website). BSG targets a number of the traditional export markets: Asia, the Middle East and Europe.

## Cora' Wood Gabon

Corà has been operating in the Italian and international markets since 1919. Based in Vicenza, Corà operates along the full value chain, from forest sourcing to industrial processing and manufacturing. In 2000, Corà announced plans to expand into Africa and this led to the formation of Cora' Wood Gabon; In 2001, the Italian company acquired Gabon Forestry Company (CFG), then the national forestry company of Gabon.

- ▶ Cora' Wood Gabon has offices and plants in Port Gentil, forestry operations up-country (Lastourville area), a logistics warehouse in Ndjolè and a small branch in the capital, Libreville. Port Gentil, the previous head office of CFG and the location of the factory, is situated on an island off the Gabon coast, well-linked to the river transport coming down from up-country.
- ▶ Cora' Wood Gabon's operations can be divided into three main divisions:
  - 600.000 hectares of forestry concessions, sub-divided into different distribution areas in the centre and south of the country.
  - Production of rotary cut veneer and plywood panels: Cora' Wood Gabon's core business and the typical business of CFG, which was the primary Gabonese producer of Okoumé plywood panels. The plant in Port Gentil covers about 820,000 m<sup>2</sup>, including 80,000 m<sup>2</sup> of covered storage space. The raw material is transported down-river and is unloaded into two stockpiling basins, where the logs needed for production are extracted. The main wood species used for the production of stripped sheets and plywood panels is Okoumé.
  - The wood species used for log, sawn and semi-finished production are Okoumé, Bahia, Movingui, Iroko and other tropical hardwoods.

## Groupe SEFAC

Headquartered in Cameroon, with a strong connection to the Italian import market through its exclusive broker, Vasto Legno Spa (based in Milan), Groupe SEFAC describes itself as a world leader for sawn timber in Ayous, of which it produces 40,000 m<sup>3</sup> annually. It lists an extensive portfolio of other species, with more than 20 listed on its website. The group holds five forest concessions, with a total area of approximately 400,000 ha in the southeast of Cameroon. The group has two factories:

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- ▶ Libongo, near Moloundou, lies in the centre of a group of concessions with a total area of 314,655 ha. Its products are transported by truck to Douala, 1,200 km from Libongo.
  - ▶ Bela – near Yokadouma and 17 km from Libongo; it is served by a concession with an area of 92,287 ha. Its products are also transported by truck to the port of Douala.

The group is certified by OLB for its forestry management and its chain of custody is certified by both OLB and FSC.

The OLB system was developed in 2004 by Bureau Veritas Certification to meet demand for an official third-party certificate regarding its wood products' legality.

The OLB certificate is based on companies respecting their standards in regard to forest management and logging activities, employment, security and environmental impact. Wood traceability within the company until the sale or primary processing is also fundamentally important to gaining certification.

## Interholco AG

Interholco AG (IHC), domiciled in Baar, Switzerland, describes itself as “one of the leading international suppliers of African logs and lumber”. Since its formation in 1962, IHC has become associated with the supply of African logs and lumber, including such species as Sapelli, Sipo, Bossé, Tiama, Iroko, Wengé, and Khaya/Acajou. A new product line has been developed around such heavy species as Azobé, Tali, Bilinga and Padouk. IHC's customers include manufacturers of flooring, windows, stairs, furniture, bridges and terrace decking, as well as importers and boat builders. IHC has its own production facility in the Republic of Congo, from which it supplies high-quality and FSC-certified African logs, lumber and other wood products. IHC operates seven sales offices in Europe, Africa and Asia. During the period 2014-16, IHC achieved sales of between €64m and €69m.

IHC – group operating results (Euro m), year to end-December			
	2014	2015	2016
Revenues	69.07	65.78	64.25
<i>Growth</i>		-4.8%	-2.3%
Operating costs	49.70	44.52	42.59
<i>As % of revenues</i>	72.0%	67.7%	66.3%
<i>Growth</i>		-10.4%	-4.3%
<b>Gross profit</b>	<b>19.36</b>	<b>21.26</b>	<b>21.66</b>
<i>Gross margin (%)</i>	28.0%	32.3%	33.7%
Wages & employee benefits (including pension)	10.82	11.47	12.81
<i>As % of revenues</i>	15.7%	17.4%	19.9%
<i>Growth</i>		6.0%	11.7%
Payments to providers of capital	1.29	3.24	4.26
<i>As % of revenues</i>	1.9%	4.9%	6.6%
<i>Growth</i>		150.8%	31.7%
Expenses to governments (including taxes)	3.35	4.01	4.40
<i>As % of revenues</i>	4.9%	6.1%	6.8%
<i>Growth</i>		19.5%	9.8%
Social, Security, Health, Housing, Community Development	1.20	1.43	1.99
<i>As % of revenues</i>	1.7%	2.2%	3.1%
<i>Growth</i>		19.2%	39.2%
Forest Management (capitalised)	0.52	0.56	0.51
<i>As % of revenues</i>	0.7%	0.8%	0.8%
<b>Economic value retained</b>	<b>2.72</b>	<b>3.33</b>	<b>-0.02</b>

Source: Interholco Sustainability Report 2016

The financial data detailed in the table above, stated in accordance with GRI standards, reveal gross margins averaging 31%, and employee and social costs nudging 22% of revenues. Economic value retained as a percentage of revenues is shown in a range of 0%-5%. This is a business model that requires tight management of costs and efficient valorisation of production.

## Origins/Danzer Group

IHC originated out of the German/Austrian group, Danzer Holding AG, domiciled in Dornbirn, Austria. Danzer has a workforce of some 1,500 and serves an international customer base from 18 sales offices worldwide. The Danzer Group was created in 1932, when Karl Danzer founded a veneer trading company in Paris. Danzer has since developed into one of the world's biggest producers of hardwood veneers, as well as being one of the biggest international traders in tropical roundwood, sliced wood and veneers. Since 1962, Danzer Group's international trade in tropical timber has been based in Switzerland, through Interholco AG. The Danzer Group, including IHC,



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is wholly owned by the Karl Danzer foundation. The combined operations are thought to generate sales of ca.\$220m pa, of which Danzer accounts for ca.\$150m.

Companies within the Danzer Group operate 13 veneer mills and five sawmills around the world, and a number of large timber concessions. The first African forest concession was acquired in 1960. Today, IHC operates concessions totalling some 1.16 million ha in the Republic of Congo. All timber products from Industrie Forestière d'Ouessou (IFO) in the Republic of Congo FSC-certified. The SIFORCO company, with a concession of approximately 1.9 million ha of natural forest in the DRC, was sold to Groupe Blattner Elwyn in 2011/12. Financial details were not disclosed. The SIFORCO operation attracted a degree of controversy and was regularly under focus with Greenpeace and other environmental NGOs.

### Service ethic

IHC puts considerable emphasis on its service ethic. The company claims that it is able to meet the specific requirements of its customers because the sales team maintains a close dialogue with the production managers in the company's sawmills. All sawn lumber is produced on modern, high-strain band mills, including the use of computerised scanning and optimisation for sawing solutions, at both the primary breakdown and edging machine centres, in order to maximise utilisation of resources. With specific customer requirements integrated into the production flow, IHC contrives to achieve optimal yields/commercially recovered wood from logs processed. A constant review of customer demand for species within the IHC range, and an ability to match customer specifications to sawmill output, are the key strategies practised by the company to meet changing market needs. Kiln-dried lumber is shipped in containers around the world, supported by a pre-shipment process of pre-drying and large kiln-drying.

### Responsible forestry

IFO states that it "*practises selective logging*" and that it does not use "*a clear-cut system in the forest*". 'Selective' means that it harvests about 0.5 trees per ha (5-10 cubic metres of volume per hectare). The harvest covers only 1/30 of the production forest area, once every 30 years. More than 27% of the forest area is a conservation or protection area, and is not harvested.

IHC notes that "*on average, industrial timber represents 0.3 m<sup>3</sup> (0.4 cubic yards) per hectare of production forest per year in the Congo Basin.*" Such a system is meant to permit regeneration and ingrowth of younger trees to occur naturally in a fast-growing tropical rainforest environment. It is said that the foundation for good forest management in the tropics is maintaining enough young trees and using natural regeneration, rather than planting trees in a dense and diversified forest.

IHC states on its website that "*The protection of...high-class wood resources and their economic productivity by means of responsible forestry is very important*". It further states that it has "*initiated extensive measures worldwide in order to guarantee...a reliable supply from sustainable and legally harvested forests*". Today, IHC notes that it operates "*...strict procurement rules for all wood products in compliance with the EU Timber Regulation, avoiding any controversial wood*".

### Certification and verification

IHC is Chain of Custody (CoC)-registered to supply FSC, PEFC and LVT (Legality-Verified Timber) products. Its decision to avoid controversial sources (based on the Controlled Wood and Controlled sources categories) has meant that it has progressively increased procurement volumes of FSC®- and PEFC-certified timber.

Today, IHC claims that about 94% of its procured wood sources are third-party-verified and that 87% of wood products sourced are FSC®-certified. The FSC promotes well-managed forests, i.e. environmentally responsible, socially beneficial and economically viable forest management. PEFC is another international standard for sustainable forest management.

The legal verification system comprises a due diligence process to audit the legality of procurement sources and to progressively increase the volume of third-party legality verified timber sources. In 2014, IHC was one of the first companies to obtain NEPCo LegalSource™ certification, demonstrating that its due diligence system conforms to EU TR requirements.

### *Industrie Forestière d'Ouessou (IFO) – Republic of Congo*

IHC holds a FSC® Forest Management certification for its 1.16 million ha forest management unit in the Republic of Congo. This is reported to be the largest FSC-certified timber concession in the tropics.

## Koninklijke Wijma

### **A century of experience**

Koninklijke Houthandel G. Wijma & Zonen B.V. (Wijma) is headquartered in Kampen, a former Hanseatic League port, and today a city and municipality in the province of Overijssel in the Netherlands. It is located at the lower reaches of the river IJssel.

Wijma, a fully integrated and whole value chain (forest to consumer) forestry operator and forestry products manufacturer, is known for its wide range of consumer and industrial products, manufactured from high-quality tropical hardwood. The company website notes that *“For over 100 years, four generations have been responsible for building up a wealth of experience in the sustainable harvesting and processing of hardwood from tropical forests”*.

<http://www.wijma.com/en/organisation>

### **Commitment to responsible forestry**

The Wijma Group manages its own concessions in Cameroon, more than 315,000 ha of which are FSC®-certified.

Noting that the natural forests in West Africa may have up to 100 different tree species per hectare, each with its own age and dimensions, Wijma undertakes a detailed assessment of those trees scheduled for felling, before an area designated for harvesting is cleared. At the same time, an evaluation is made as to how forest tracks can best be laid to minimise any possible damage to the forest. Felling of logs is carried out using the Reduced Impact Logging (RIL) method, in order to do as little damage as possible to the forest environment. The company notes that *“On average, one to two fully grown trees are felled per hectare”*. By harvesting fully grown trees, openings in the foliage appear, which means more light reaches the ground. This helps stimulate the natural growth of saplings. After the felling operations, all logging tracks are closed off to discourage poaching and illegal felling. The forest is then given another 25 years to recover in the most natural way possible.

Wijma states that it *“acts responsibly with the resources placed at its disposal, shows absolute transparency when it comes to the origin of its timber and does not buy illegal timber flows”*. The company further states that it *“strives towards*

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*internationally recognised certificates showing the legality of the forests it manages". The company asserts that it complies "with the principles and criteria of FSC". Sustainably managed forests can be certified in line with the principles and criteria of the FSC. This means that the forest management meets the highest requirements in terms of social, environmental and economic aspects.*

## **A focus on profitability**

Wijma claims to maintain an acute focus on profitability. It notes that *"Only proper financial capacity and healthy returns will enable Wijma to acquire economic as well as social viability"*. In the context of the recent experiences of other names in the European-owned segment of the African tropical hardwood sector, Wijma is right to focus on its bottom line.

## **Forestry**

Wijma states that it operates forestry activities in a large number of countries at the very start of the supply chain in tropical hardwood. Through careful management and responsible harvesting of tropical forests in West Africa, Wijma asserts that it *"can fall back on a large number of sustainably viable sources"*. At its production sites in Africa, harvested timber is sawn, and then dried, before undergoing further processing. A network of sales offices (Netherlands, Germany, France and the UK) is responsible for the subsequent sale and distribution of finished products.

## **Business segments**

### *Civil engineering*

Because of their physical properties, African hardwoods such as Azobé, Tali or Okan are ideally suited for use in land- and marine-based engineering projects. Wijma offers a professional range of products, which provide resistance to direct contact with soil and water. These include sheet-piling, shoring materials, jetties, railway sleepers and dragline mats.

### *Prefabricated products*

Galleries, landings, platforms and support structures, noise barriers, guard rails and lock gates are offered as complete solutions. The company provides consultancy services, including advice on woods and structural details, as well as detailed constructional calculations and drawings. Customers will receive delivery of prefabricated constructions for self-construction, or construction by Wijma.

### *Wood products*

Wijma produces sawn timber products for the manufacture of frames, frameworks and interior constructions. Sawn timber varieties include, among other hardwoods, Sipo, Sapeli, Iroko, Moabi, Khaya and Samba.

### *Flooring*

Wijma supplies load-bearing floors for such applications as trailers and stage platforms.

### *Garden products*

The Wijma range includes durable planting poles, garden fences, patio decking and garden furniture. Typically manufactured from Tali, Padouk or European Oak, Wijma offers retailers the opportunity to develop a proprietary range of FSC- or PEFC-certified products, pre-packed for the retail sector.

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## Likoula Timber

Based in the northeast of the Republic of Congo, Likoula Timber holds two concessions totalling 525,000 ha. According to the company website, it produces 150,000 m<sup>3</sup> of lumber per year at its Betou manufacturing location. Three sawing lines of 4,500 m<sup>3</sup> capacity and drying capacity of 2,000 m<sup>3</sup> make up Likoula's production facility. 95% of the harvested timber is processed and exported as lumber, semi-finished or finished products, with only the highest grade being sold as logs. All production 'is in line with international standards', but Likoula states that it is now targeting the 'rapidly increasing internal demand' from Africa itself, rather than traditional Asian and European export markets.

## Obtala Ltd (Argento Ltd)

Obtala Ltd is an African-focused, vertically integrated agriculture and forestry company. It is listed in London and trades on the junior AIM market. The group's primary focus is forestry, but it also has 1,735 ha of agricultural land in Tanzania, focused on cultivating fruit for export to the Middle East. 75%-owned Montara Continental owns 100% of Argento Ltd, the group's forestry division. It has operations in Mozambique, with 312,465 ha of forestry concessions. Following the acquisition of WoodBois International in June 2017, the company operates 96,851 ha in Gabon.

- ▶ **Mozambique:** Argento has leases of 50 years on 312,465 ha of forestry concessions in Northern Mozambique, which makes it one of the largest operators in the region. In a 2014 report, Honour Capital valued the concessions at \$308m; there is a mixture of low-value and high-value species in the concessions. A new sawmill is under construction in Nampula, Mozambique, and this is scheduled to come on stream in 1Q 2018. The group has recently signed a JV agreement with FundInvest SA, an investment company established by the Government of Mozambique, to combat illegal logging and promote timber processing.
- ▶ **Gabon:** in June 2017, Obtala acquired WoodBois International, a global timber trader, with 96,851 ha of forestry concessions in Gabon, for a total consideration of \$14.6m. Further to the concessions and a sawmill with a capacity of 24,000 m<sup>3</sup>, a new veneer factory has been built, which is expected to come on stream in 1Q 2018.
- ▶ **Ivory Coast:** on 20<sup>th</sup> January 2018, Obtala announced that, through Argento, it had entered an MOU to acquire Nouvelle Scierie Moderne de Sassandra, a forestry produce company operating in the Ivory Coast since 1987, which has been a key supplier of timber to the trading division of WoodBois for the last decade. Its principal asset is a sawmill in Oume, at the centre of a 70,000-ha plantation owned by SODEFOR, the state forestry company. The price agreed in the MOU for the proposed acquisition is S\$1.2m, less the amount of timber purchased by Argento in the period 16<sup>th</sup> December 2017 to 31<sup>st</sup> March 2018.

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## Olam International (Congoise Industrielle des Bois)

A subsidiary of Olam International, the Singapore-listed commodities trading and facilities management group, Congoise Industrielle des Bois (CIB), has been operating in the Republic of Congo since 1968, with operations headquartered in Pokola, in the North of the Country. CIB operates 2 million ha of natural forests; 1.3 million of these are FSC-certified and are among the largest continuous tropical hardwood FSC-certified areas in the world. CIB is continuing to certify the remaining hectares, while 92,000 ha in the North Pikounda concession are preserved as carbon sink under a REDD+ programme in partnership with the Government.

It is interesting to note the plantation section on the Olam International website: *"plantations on their own are adequate to sustainably meet world demand for wood in the long run, thus reducing any pressure on natural forests. Most of the increasing global demand for wood will come mainly from developing Asian markets like China and India, demand that is expected to be met by key plantation forest species like Pine, Teak and Eucalyptus".*

## Pallisco & CIFM

### Rapid growth in FMU area during this century

Pallisco Company (LLC) was established in Cameroon in 1972 in order to supply high-quality logs and sawn timber to the PASQUET Group in France. An initial logging operation and sawmill were located in the East of Cameroon. Through the 1980s, the operations developed progressively, first with the establishment of drying facilities and then a processing unit CIFM (Mindourou Industrial and Forestry Centre). By 2001, the Pallisco company was operating five Forest Management Units (FMUs), covering approximately 122,600 ha in East Cameroon, and this was expanded to some 176,000 ha by July 2003.

### A focus on certification

In July 2005, Pallisco and CIFM were certified OLB (Origin and Legality of timber) of BVQI-Eurocertifor. During the 2005 year, Pallisco acquired further FMUs, and its forestry area grew to 189,396 ha. By October 2006, the company's entire forest area totalled 341,708 ha. In 2007, CIFM began the production of planed timbers. From September 2007, Pallisco and CIFM were able to offer their customers a range of 100% OLB-certified timber products, including logs, sawn timber, and dry and planed timber. In October 2008, Bureau Veritas Certification awarded the FSC forest management certificate and chain control to Pallisco and CIFM.

### Revenue profile

As of 2016, Pallisco & CIFM operated seven FMUs for a total of 388,949 ha of forest. Pallisco harvested 110,000 m<sup>3</sup>, and CIFM produced 24,000 m<sup>3</sup> of sawn wood. With some 500 employees, the 2016 revenues of the two companies look to have been ca.\$36.3m (\$21.05m for Pallisco, implying a price of \$191/m<sup>3</sup> of production, and \$15.23m for CIFM, implying a price of \$635/m<sup>3</sup>).

The revenue data imply revenues per FMU hectare of \$93.3 and revenues per employee of \$72,600. Hectares per FTE employees of 778 are at the higher end of the range for Rougier, Precious Woods and Pallisco; the average for this group is 748

ha per FTE. Logs (m<sup>3</sup>) produced per FMU hectare, at 0.28 m<sup>3</sup>, are close to the group average of 0.29 m<sup>3</sup>, and production per FTE of 220 m<sup>3</sup> is also close to the group average.

## Precious Woods

Founded in 1990 and headquartered in Switzerland, Precious Woods has forestry operations in Brazil and Gabon. In 2007, Precious Woods acquired majority stakes in Compagnie Equatoriale des Bois (CEB) and Thanry Gabon Industrie (TGI), as it expanded its operations into Gabon. In Gabon, Precious Woods manages a concession area of 600,000 ha and harvests around 200,000m<sup>3</sup> of wood p.a., employing ca.800 people. In Brazil, Precious Woods has 506,637 ha in Itacoatiara, employing around 500 people. Both operations are FSC-certified.

- ▶ Precious Woods Gabon operates sawmills directly adjacent to the managed forest area, which have been further expanded since 2011. The company also has a veneer plant in Libreville. In mid-October 2008, CEB received the Forest Stewardship Council (FSC) certificate, which guarantees sustainable forest management. The whole Precious Woods Gabon production chain has been FSC-certified since 2009.
- ▶ Precious Woods Gabon offers its employees and their families onsite living space, electricity, drinking water, shopping facilities, basic medical care and simple leisure activities. In addition, the local population receives financial support.
- ▶ The last reported data for Precious Woods Gabon imply a business with annual revenues of ca.\$40m-\$45m p.a. in revenues, suggesting average unit value per m<sup>3</sup> of wood produced (sawnwood and veneers) of ca.\$535, but readers will note that values per m<sup>3</sup> of veneer will be higher than for sawnwood. ITTO data for Gabon indicate that sawnwood export values per m<sup>3</sup> in 2016 averaged \$459, while per m<sup>3</sup> of veneer averaged \$876. The EBITDA range shown in the table below may vary with volumes and pricing.
- ▶ Operating in Africa comes with operational risk; statements from the company's 2017 half-year report highlight this; *"the road from the sawmill to the port is still interrupted and can only be reached by a detour of about 140 km. (Furthermore) the transport capacities on the rail were reduced due to maintenance"*.

## Financial performance

Precious Woods, like IHL and Rougier, provides a window on the economics of the sector for European operators, working to the highest standards. EBITDA margins for Precious Woods are significantly in advance of those reported by Rougier (see further below), but at the net level, margins narrow considerably, within the range also reported by IHC.

#### Precious Woods' 1H 2017 statement (Precious Woods Gabon only)

Period data (all financials in €m)	1H 2017	1H 2016
Sawmill production volumes (m <sup>3</sup> )	20,316	19,087
Veneer Plant Production Volumes (m <sup>3</sup> )	17,597	15,573
Net sales	<b>17.0</b>	<b>14.7</b>
Sales value/m <sup>3</sup> (€)	448.4	424.1
Sales value/m <sup>3</sup> (US\$) (€=\$1.23)	551.5	521.7
EBITDA	<b>5.3</b>	<b>3.2</b>
Margin (%)	31.2%	21.8%

Source: Precious Woods Website

It is instructive to review the financial data above, and the remarks of Markus Brüttsch, CEO of Precious Woods (noted below), in the context of the opinions expressed in "The contemporary forest concessions in West and Central Africa: chronicle of a foretold decline?", by Alain Karsenty, for FAO 2016 (and replicated at the beginning of this 'Company profiles' section).

Markus Brüttsch :

*"We always promote the triple bottom-line impact...to have a huge impact in environment and social engagement has a huge appreciation...for 2017, we report a net income margin of approx. 4%, which is really good for our sector – and we do have room for improvement."*

## Rimbunan Hijau (RH) Group

Forest500 describes the Rimbunan Hijau Group as 'one of Malaysia's largest conglomerates, with operations in 16 countries and active in numerous sectors from forestry to media. It is one of Malaysia's biggest forestry companies in the Sarawak region, and has over a million hectares of concessions in Malaysia. The company is also a major player in Papua New Guinea, with its subsidiaries accounting for at least 25% of log exports'. The company's operations in Africa are located in Equatorial Guinea, Gabon, and Republic of Congo. Veneer production for export appears to be the company's primary product focus.

## Rougier SA

### Recent developments

On 6<sup>th</sup> March 2018, Rougier announced that it had been experiencing significant operational disruption to the activities of its Cameroonian, Congolese and Central African subsidiaries, from the congestion in the port of Douala and in the container terminal in Cameroon. These operational impediments, along with late VAT credit reimbursements by some African administrations, resulted in such significant cash pressure that the company deemed it necessary to initiate discussions with its main creditors in France.

Our understanding is that Rougier is owed some €8m in respect of VAT credits by the Government of Cameroon, and another €7.6m, also in respect of VAT credits, by the Republic of Congo and the Republic of Gabon. According to a televised interview with Francis Rougier on 13<sup>th</sup> March, these delayed VAT payments by the three African administrations can be linked to cashflow constraints as a result of reduced



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revenue flows from national oil operations following commodity price volatility in recent years.

On 12<sup>th</sup> March, Rougier further announced that Poitiers Commercial Court had approved the company's "...request to benefit from safeguard proceedings and Rougier Afrique International's request to benefit from court-ordered receivership proceedings". The Court has set a 12-month observation period through to 12<sup>th</sup> March 2019. The other French and African companies within the Rougier Group are not affected by this ruling. The company is now proposing to present a plan to the Commercial Court that "...will enable it to move forward with a strategic realignment under the best conditions, while benefiting from the confidence of its partners and creditors". Rougier has stated that it "intends to continue to be a major player within its industry". The court-ordered receivership proceedings for Rougier Afrique International primarily concern the activity selling African production for export markets, and will also be covered in a plan presented to the Commercial Court. For Rougier SA and Rougier Afrique International, these situations will involve significant restructuring measures, which are to be announced shortly. During the observation period, Rougier SA and Rougier Afrique International, working with the court representatives, will continue with the company's re-organization. Rougier will regularly inform the market of any significant developments with this situation. In this context, trading in Rougier shares will continue to be suspended.

Francis Rougier, Group Chief Executive Officer, stated "We are satisfied with the decision by the Commercial Court, which has approved our requests. This sends out a strong message for us to be able to give the company every chance of succeeding again. The protection measures have been requested in order to carry out a significant restructuring, which we will be moving forward with in order to turn the situation around, reorganize the company and safeguard as many of the 3,000 jobs as possible".

The President of the Commercial Court, Mr. Patrick de Lassie, stated, in the 13<sup>th</sup> March televised interview regarding the plight of Rougier, that the court wanted to put in place a safeguarding procedure that would also seek to safeguard jobs in Africa. The safeguarding procedure relates to those companies that are not in a state of insolvency, but that are facing difficulties, which, if not resolved, could result in insolvency.

## History

In 1930, seven years after its initiation as a producer of wooden cheese boxes for the dairy industry in the Poitou region of France, Rougier began to manufacture plywood from Okoume, imported from Gabon. In 1952, the company acquired its first logging licences in Gabon itself and, as the business grew, it listed on the Paris Stock Exchange in 1959. A decade later, Rougier expanded into Cameroon and, by the 1970s, the company was recognised as the leading European producer of chipboard and plywood from exotic species. In 2008, Rougier was awarded FSC® certification of 688,000 ha of forest concessions in Gabon and with FSC® chain of custody certification for Rougier International and Rougier Panneaux. Rougier Sylvaco obtained the same certification the following year. By 2012, Rougier owned eight industrial sites in Africa and managed 2.1 million ha of forest concessions. All products from these concessions were then either certified or in a process of responsible labelling. Then, in 2015, the company was awarded a concession of 270,000 ha of natural forest in the Central African Republic.



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## Rougier today

Today, Rougier is managing concessions across four West African/Central African countries (Gabon, Cameroon, Republic of Congo and Central African Republic), totalling some 2.4 million ha.

On 10<sup>th</sup> February 2017, Rougier signed a major log supply contract with Gabon's Nkok Special Economic Zone (a JV between the Gabonese Republic, Olam International and Africa Finance Corporation). The agreement is seen as instrumental in the development of the production and processing of timber resources in Gabon. Later that month, Rougier began to supply Okoume logs for industrial firms operating in the Special Economic Zone, under a commitment to deliver 110,000 m<sup>3</sup> of Okoume annually, for a seven-year period. The award of the contract to Rougier was reportedly based on the quality of Rougier's concessions and facilities, its capacity to supply high volumes of quality timber each month, and its expertise and track record in responsible forest management.

The logs supplied by Rougier are expected to permit the industrial operators based in the Nkok SEZ to undertake the secondary and tertiary processing of timber, for construction materials, doors and windows, furniture, etc. This significant contract is expected to provide underpinning for the further development of Rougier's operations in Gabon. We note that the Nkok SEZ goals include the following:

- ▶ The provision of a responsive ecosystem for a diversified, value-added timber industry in Gabon, including a furniture manufacturing cluster.
- ▶ Over 1,000 ha set aside for development, management and trade (national, sub-regional and international).
- ▶ 1 Single Window Clearance for quick and easy paperwork.
- ▶ 40 ha dedicated for the manufacturing of luxurious "Made in Gabon" furniture.
- ▶ 500 m<sup>2</sup> shed per manufacturer minimum,
- ▶ 5 000 m<sup>2</sup> common kiln dry facility.
- ▶ 5 000 m<sup>2</sup> of common high-tech furniture manufacturing equipment.
- ▶ 9 000 m<sup>2</sup> common exposition hall.
- ▶ 17 units for veneer production and two plywood production units.
- ▶ Workshop and training for manufacturing/in-house specialist designers per market at disposal of all/easy access to loans for manufacturers/regular supply of quality wood to manufacturers/reliable electricity and water at subsidised tariffs.

Rougier – financial results							
IFRS consolidated (€m)	2012	2013	2014	2015	2016	1H 2017	Comments
<b>Revenues</b>	<b>142.6</b>	<b>141.7</b>	<b>157.8</b>	<b>164.7</b>	<b>149.4</b>	<b>76.0</b>	Revenue growth has been modest over the review period.
Rougier Afrique International				139.2	124.7	61.1	
Rougier France				27.9	29.3	17.7	
<b>EBITDA</b>	<b>7.9</b>	<b>7.1</b>	<b>15.1</b>	<b>12.1</b>	<b>8.9</b>	<b>4.2</b>	Logistics costs can absorb as much as 30% of gross revenues; this is a core focus for management.
Margin (%)	5.5%	5.0%	9.6%	7.3%	6.0%	5.5%	Marginal returns are thin.
Income from ordinary operations		-1.7	7.0	2.9	0.2	0.0	
Disposal real estate					1.3	3.3	In 1H 2017, an investment property in France was sold for €3.3m.
Asset impairment			0	-1.5	-1.55	0	
Non-recurrent income/expenses					-0.7	-0.6	
<b>EBIT</b>	<b>-1.4</b>	<b>-5.3</b>	<b>6.1</b>	<b>1.0</b>	<b>-0.75</b>	<b>2.7</b>	
Cost of net financial debt			-3.00	-3.20	-3.40	-1.50	
Other financial income/expenses					-0.70	-0.60	
Tax					-1.45	0.00	
Net income	-5.20	-9.00	-1.20	-3.30	-6.30	0.60	
Net income (group share)		-5.9	-1.3	-2.5	-3.9	1.5	
Cashflow from operations (after financing costs and income tax)	3.8	2.7	7.0	6.8	1.3		
As % of revenues	2.7%	1.9%	4.4%	4.1%	0.9%		
Shareholders' equity	69.5	61.1	59.4	57.7	51.8		Declining equity.
Shareholders' equity (group share)			44.6	43.6	41.3		
Net financial debt	48.1	50.3	60.1	57.1	56.1		
<b>Debt: equity ratio</b>	<b>69.2%</b>	<b>82.3%</b>	<b>101.2%</b>	<b>99.0%</b>	<b>108.3%</b>		A significant and rising debt burden as losses affect equity.

Source: Rougier Company Report

## Influences on marginal returns

**Logistics:** up to 30% equivalent of gross revenues can be expensed on logistics; we note that the distance between the forestry concessions in Northern Congo to Douala Port is 1,400 km, and this journey has to be made mostly on dirt roads.

**Intra-Africa sales:** Rougier sells 30%-40% of its Gabon production and 30% of the Cameroon production within Africa.

**Sales/product mix:** the sale of high-quality logs (27% of consolidated revenues in 2015) is part of the company's strategy for managing working capital. Second- and third-grade logs are processed through the Rougier mills, while first-grade logs are sold unprocessed.

**Commercial utilisation:** the achieved recovery rate from a felled tree is typically around 40%, with 60% waste. To achieve higher utilisations, logs need to be processed in scaled mills/factories with the appropriate facilities for the commercial utilisation of waste products, including smaller pieces of wood (good for high-pressure gluing), pelletising and biomass/co-generation.

**Raising economic recovery rates** and boosting revenues per tree are significantly influenced by the scale and investment in processing facilities. Rougier has also stressed the importance of investment in training to raise human productivity, along with capex in the processing infrastructure.

An increased focus on value-added production, including the production of plywood and veneers, can raise commercial recovery to ca.50% and 60%, respectively.

**Productivity:** successive years of Rougier's Report & Accounts list productivity as a major issue in African forestry. While Rougier has benefited from being able to operate large, contiguous concession blocks, the company recognises that it has work still to do in terms of raising productivity in its processing facilities.

**EBITDA:** the EBITDA profitability of Rougier's distribution business in France is considered to be low, but the company argues that the African forestry operations (where 97% of Rougier staff are employed) are capable of achieving EBITDA margins of ca.15%.

## Société de Développement Forestier (Sodefor)

According to Forest500, Sodefor is the largest logging company in the DRC, with concessions of over 2 million ha. The company processes its timber to produce sawn wood and plywood.

Sodefor and three other major forestry companies in the DRC, Société Forestière et des Matières Ligneuses Africaines (Soforma), Compagnie Forestière de Transformation (CFT) and Société Forestière et Agricole de la M'Bola (Forabola), are all separate entities but are linked via a common shareholder (Norsudtimber S.A.).

Soforma operates the third-largest area of concessions and oversees around 996,000 ha of forest in the Cuvette Centrale region, while CFT and Forabola rank fourth and fifth, respectively, in terms of area under concession.

## Société d'Exploitation Forestière Yuan Dong (SEYFD)

Yuan Dong Woods Industry (SEFYD) was established in 2005. The company has concessions of 1,140,000 ha of natural forest in the Republic of Congo, as well as a number of processing plants in the northwest of the country. The company has offices in Brazzaville, Doula and Sangmelima, and it employs 800 people. The company operates along the full value chain: logging, processing, transportation, exporting and furniture manufacturing. A range of 20 species is advertised on the company website.

## Vicwood Group

Established in 1963, Vicwood Group has developed from its original status as a local plywood producer in the Philippines to an international group headquartered in Hong Kong. The group is made up of eight companies and affiliates, ranging in location from China to Cameroon, Congo and Equatorial Guinea in Africa, and North America. Vicwood Group has one of the biggest production sites in China (1.2 km<sup>2</sup>), highlighting its dominance in a world-leading Asian market. The group's African concessions total approximately 3 million ha. The Group states the importance of a presence in the full value chain, and it maintains control of its entire production chain, from the procurement of raw materials to marketing.

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