



CHINA AND THE GLOBAL MARKET FOR FOREST PRODUCTS

IMPLICATIONS FOR FORESTS AND LIVELIHOODS

中国和全球性林产品市场 对森林保护和人民生计的意义

FOREST PRODUCTS TRADE BETWEEN CHINA & AFRICA

AN ANALYSIS OF IMPORTS AND EXPORTS

KERSTIN CANBY

JAMES HEWITT

LUKE BAILEY

EUGENIA KATSIGRIS

SUN XIUFANG



Forest Trends (<http://www.forest-trends.org>): Forest Trends is a non-profit organization that advances sustainable forestry and forestry's contribution to community livelihoods worldwide. It aims to expand the focus of forestry beyond timber, and promotes markets for ecosystem services provided by forests such as watershed protection, biodiversity and carbon storage. Forest Trends analyzes strategic market and policy issues, catalyzes connections between forward-looking producers, communities and investors, and develops new financial tools to help markets work for conservation and people. It was created in 1999 by an international group of leaders from forest industry, environmental NGOs and investment institutions.

GlobalTimber.org.uk (<http://www.globaltimber.org.uk>): Trade can have a positive and negative impact on illegal logging and sustainable forest management. GlobalTimber.org.uk seeks to address this issue by providing statistics and analysis on the global trade in wood-based products, especially that from Africa and East Asia. It gives insight into trade in illegal timber, particularly in relation to importing countries such as Japan, the UK, and the U.S. GlobalTimber.org.uk indicates which trade flows are likely to have most leverage on forest governance.

FOREST PRODUCTS TRADE BETWEEN CHINA & AFRICA

AN ANALYSIS OF IMPORTS & EXPORTS

Kerstin Canby, James Hewitt, Luke Bailey, Eugenia Katsigris and Sun Xiufang

February 2008



Forest Products Trade between China & Africa: An Analysis of Import & Export Statistics © 2007 Forest Trends.

Reproduction permitted with attribution.

ISBN: 1-932928-27-8

Cover photo by Schalk Kapp.

SPONSORING INSTITUTIONS

Swedish International Development Cooperation Agency

UK Department for International Development

UK Foreign & Commonwealth Office, Beijing, China



This research was made possible through the generous support of the United Kingdom Department for International Development (DFID), the UK Foreign Commonwealth Office (FCO) and the Swedish International Development Agency (SIDA). The opinions expressed in this analysis are those of the authors alone and do not reflect the positions of UK DFID, FCO or SIDA, nor the governments of Sweden or the United Kingdom.

ACKNOWLEDGEMENTS

The authors would like to thank our many partners who have collaborated on background studies or provided valuable advice during the drafting of this paper. We would like, in particular, to recognize the support and efforts of Gene Birikorang, Alain Karsenty, Catherine Mackenzie, Hege Salevesen and Robert Kozak. Stephanie Reed and Tom Bennet of Forest Trends provided support in the drafting and editing of this report.

PREFACE

In early November, 2006, more than 41 African heads of state and government were invited to Beijing to discuss trade and investment cooperation in what was the biggest diplomatic gathering ever hosted by China. Even though schools and businesses closed early, traffic in Beijing came to a near stand-still during the two days that African dignitaries were ferried between meetings and the grand cultural sites in and around the city.

As part of a wider strategic approach to Africa, China announced a doubling of aid to the continent, interest-free government loans, and billions of dollars of preferential loans and buyer's credit loans. Chinese President Hu Jintao pledged China would further open up its market to Africa by increasing the number of tariff-free export products and establishing three to five trade and economic cooperation zones in Africa. A five billion dollar development fund was planned to encourage Chinese companies to invest in African ventures, and more than 2,500 business deals were discussed.

The two-day summit highlighted just how important Africa has become to China. China's trade with Africa has exploded over the last few years as demand for imports—in particular commodities such as oil and gas, minerals and timber—has risen to fuel China's burgeoning manufacturing sector. At the same time, Africa is now a growing market for Chinese goods, with Africans increasingly turning to cheaper Chinese goods instead of European, U.S. or even African-made products. According to China's Customs agency, trade between China and African nations amounted to US\$40 billion in 2005 and was expected to exceed US\$55 billion in 2006—a ten-fold increase since 1995. China's Ministry of Commerce estimates that this figure could reach US\$70 billion by 2007.

While often mentioned in the press as one of the important commodities to which China would like to secure access, the extent and nature of the trade in forest products between China and Africa has been poorly documented to date. Governments, industry interests and development agencies eager to learn more about existing trade patterns and expected trends in efforts to better understand their impact have been hampered by a scarcity of reliable information and lack of rigorous, publicly accessible analysis of the trends. It is expected that the spectacular growth in virtually all aspects of trade and investment will affect Africa's forest sector—increasing the demand on forest resources and changing how these forests will be managed.

This report aims to document existing trade patterns of forest products between China and Africa. It will help to set a benchmark to inform discussion and future analysis on the issues surrounding the trade in forest products between China and Africa. This overview is based on key customs data and research studies compiled and conducted by Forest Trends, the Rights and Resources Group and other partners through their joint program, "China and East Asia: Transforming Trade and Policy for Forests and Livelihoods." The report complements existing research studies by Forest Trends, the Center for International Forestry Research (CIFOR), Peking University and others that document the overall role of China in the global market for forest products. The results from this earlier body of work conclude that domestic and export-driven demand for Chinese manufactured wood products will continue to grow dramatically at least in the short and

medium terms, and in-turn so will the demand for both domestically produced and imported timber.¹ Africa will play a fundamental role in meeting this increasing demand for imported timber, especially as countries which have historically supplied China see their natural forests dwindle before sustainable plantation programs are able to come on-line, or their verified legal supplies are diverted towards environmentally sensitive markets in Europe, Japan, Australia, New Zealand and North America.

We want to cast light on this important relationship to help governments, industry and civil society understand the role of China in the trade of African forest products. This report should be seen as a benchmark, with a goal to catalyze a more in-depth look by Forest Trends and others into the nature and impacts of wood products trade between Africa and China. Starting with this basic understanding of trade trends and moving on to future analyses of its impacts, we aim to strengthen the African forest sector's focus on sustainable forestry and conservation while at the same time encouraging satisfactory livelihood opportunities for forest-dependent communities. This report should be seen as just a starting point.

A handwritten signature in black ink, appearing to read 'M. B. Jenkins', with a stylized flourish at the end.

Michael Jenkins
President, Forest Trends

¹ Readers interested in this topic are encouraged to consult the body of research listed in Annex 2 and available on the Forest Trends website (http://www.forest-trends.org/programs/pacific_rim.php).

EXECUTIVE SUMMARY

Recent reports of China's efforts to secure access to natural resources in Africa suggest that timber has already become an important traded commodity between China and the African continent. Many hold a general impression that Africa exports a significant and growing amount of timber to China. However, the true magnitude of the China-Africa forest product² trade and its trends over time has been poorly documented to date. Greater insight into the importance of Africa within China's overall forest product trade and the importance of China for each African forest product-exporting nation is needed.

In this report, we examine the recent trends of the China-Africa forest product trade as revealed by customs data and reports of Chinese investment and trade-related activities in specific African nations. The results indicate that the China-Africa forest product trade is significant in some, but not all, of the ways generally assumed. In several instances, trade growth is less than many would have expected, and trends have often been highly variable. Key findings include:

1. *African share of Chinese wood supply:* China's imports of Africa's forest products are substantial (2.6 million cubic meters (m³) roundwood equivalent³ (RWE) in 2006), but have been highly variable from year to year.⁴ Imports of African forest products make up only a small proportion (2.9%) of the total RWE volume of China's forest product imports from all around the world and have been growing more slowly than these imports overall (especially compared to Russia, the largest supplier of wood to China).

Examining timber exports only (where pulp and paper are excluded), Africa's share of China's imports rises to 5.0% by volume, demonstrating that timber constitutes a greater proportion of Africa's forest product exports to China than other supplying countries.

If one were to remove from the equation China's imports of temperate Russian softwood logs and sawn wood—about half of China's timber imports—the share of African to total imports would register as 9.4%.

2. *Value of African timber:* Africa's forest product exports to China command a higher share of China's total imports by value (4.9%) than they do by volume (2.9%), suggesting the export of relatively higher value timber to China relative to other supplying countries.

This comparison is more pronounced when performed with tropical hardwoods: Africa's share of China's tropical hardwood log and lumber imports by value (14.5%) is more than double its share by volume (6.5%).

² The term “forest products” is often used broadly to cover non-timber products such as mushrooms, botanicals and wildlife. However, in this paper “forest products” is used to refer to timber products (which denotes solid and/or reconstituted wood products, including logs, panels, furniture and sawn wood) plus pulp and paper from virgin fiber. Unless otherwise stated, this excludes recycled pulp and wastepaper, which are a very important fiber source for China but do not figure heavily in African exports. See footnote 9 for more detail.

³ Roundwood equivalent volume (RWE) is a measure of the amount of logs (roundwood) required to manufacture wood-based goods. RWE units provide a basis for comparison across different product types, accounting for the volume of wood lost during processing. Using various conversion factors, one can estimate the volume of logs (often given in cubic meters) that were needed to produce a quantity of plywood, pulp, paper, or other processed forest products.

⁴ All statistics referring to China's imports are based on Chinese Customs data, compiled by Forest Trends.

3. *Export market orientation*: For most major exporting countries in Africa, European markets still dominate. In 2006, Africa exported 4.4 million m³ RWE of natural (non-plantation) timber products to the EU, compared to 2.1 million m³ RWE sent to China.⁵

The relative importance of the EU market as compared to China, however, varies greatly between regions and individual countries. Important wood producing countries in the western region (e.g. Ghana, Côte d'Ivoire, Nigeria and Cameroon) tend to export to the European Union (EU) markets, with little trade to China. Indeed, Côte d'Ivoire and Ghana export virtually no wood to China.

Mozambique represents the other extreme, with more than 90% of its timber product exported to China. Approximately 70% of Equatorial Guinea's, 50% of the Republic of the Congo's and more than 40% of Gabon's timber are exported to China (2005).⁶

4. *Growth trends*: Since 1997, growth in African timber exports to China has not shown the same rapid growth as China's overall timber imports, and is in fact quite variable from year to year. Considering the continent as a whole, Africa's exports to China grew rapidly from a small baseline during 1995–1997. Since that expansion, the trade trend could best be described as fluctuating around a relatively flat trend.

Given the scale of traded volumes, drops in the overall figures might be the result of just one or two producer/trader enterprises curtailing exports to China. A drop in exports in 2004 can be partially explained by the cessation of a handful of enterprises' exports from Liberia to China (which were approximately 0.5 million m³ RWE in 2003) due to UN sanctions barring Liberian timber exports (Forest Trends 2006a).

5. *Major supplying countries*: Gabon has historically been the leading African supplier to China. Cameroon, Equatorial Guinea, Mozambique and the Republic of the Congo make up the remainder of the "top five." Regionally, China imports most of its forest products from central Africa, likely due to a preference for endemic tree species such as okoumé.

6. *Product mix*: Logs dominate the mix of African forest product exports to China (85% by volume in 2006) and play an even greater role in this mix than in China's overall forest product imports from all countries (36% by volume in 2006). Even in African countries that have the capacity to produce value-added timber products (as evidenced by processed wood exports to Europe), Chinese markets are not buying them. Pulp and paper are the second largest category of wood products exported to China, virtually all coming from South Africa and Swaziland.

8. *Imports of processed wood products from China to Africa*: Many have speculated that China's manufacturing industry will be able to send cheap manufactured wood products back to supplier countries, effectively displacing any emerging African manufacturing capabilities. Comparison of the import/export balance of the China-Africa trade, however, shows that China is a net importer of forest products when it comes to Africa: for every 100 m³ RWE imported, 68 m³ is exported. While Chinese exports of manufactured wood products to Africa have been increasing dramatically, it is starting from a very small base. However, with the exception of South Africa, none of the top ten exporting countries are significant importers of manufactured forest

⁵ Figures on exports from Africa to China, Europe and/or the rest of the world are based on China Customs Statistical Yearbook, Eurostat, World Trade Atlas and other data, compiled by James Hewitt for Forest Trends.

⁶ When possible, this report gives 2006 figures. In some cases, 2005 figures must be relied on regarding Africa's forest product exports to countries outside China and the EU.

products from China. The greatest volume of these imports (45%) goes to North African countries such as Egypt (top African importer of plywood and fiberboard); Nigeria, Egypt and South Africa (paper); and South Africa (furniture).

While China's overall forest product imports from Africa have not grown substantially over the period studied, they have become increasingly important within particular countries, such as the Republic of the Congo, Equatorial Guinea, and Mozambique. Chinese demand for wood has given support to African exporters of logs, but has not promoted the development of Africa's domestic processing and manufacturing capacity in the forest sector. In order to ensure that these growing exports provide economic and livelihood benefits to local stakeholders, particularly forest-dependent communities, such growth will need to operate through sustainable forestry mechanisms. In many African countries, trade flows of wood products to the rest of the world, often through China, are increasing the stress on already weak systems of forest governance and law enforcement. These flows have been shown in other reports to be heavily correlated with increases in unsustainable or illegal harvesting, biodiversity loss, and the abuse of forest communities' rights.

We hope that this report helps government, industry and civil society better understand the important position that China holds in the middle of the global wood commodity chain. China and also the ultimate users of many of China's exports that contain African wood, such as European and North American consumers, should use their market leverage to help increase international demand for wood products which can be shown to support sustainable forestry operations that also provide satisfactory livelihood opportunities.

TABLE OF CONTENTS

CHAPTER 1: CHINA & THE GLOBAL MARKET FOR FOREST PRODUCTS	1
Overview	1
China's Role in the Middle of the Global Wood Products Commodity Chain	1
Meeting the Supply Gap through Substitution, Efficiency & Imports	3
CHAPTER 2: AFRICA'S FOREST PRODUCT EXPORTS TO CHINA	6
Significant Volume & Value, but Low Share of China's Total Imports	6
Comparison of Exports by Country	8
The Mix of African Forest Product Exports to China	9
African Exporter Country Perspectives	14
CHAPTER 3: CHINA'S FOREST PRODUCT EXPORTS TO AFRICA	15
CONCLUSION	18
ANNEX 1: COUNTRY PROFILES	21
Gabon	21
Republic of the Congo	22
Equatorial Guinea	24
Cameroon	25
Mozambique	26
Liberia	28
Côte d'Ivoire	29
Ghana	29
Nigeria	30
China's Pulp & Paper Imports from South Africa & Swaziland	31
ANNEX 2: PAST PUBLICATIONS OF THE PROGRAM "CHINA & FOREST TRADE IN THE ASIA-PACIFIC REGION"	32
SOURCES	36

LIST OF FIGURES & TABLES

Figure 1: China's Timber Product Exports by Volume & Destination	2
Figure 2: China's Timber Product Exports by Volume & Product Type	2
Figure 3: China's Timber Product Imports by Volume & Product Type.....	3
Figure 4: China's Plywood Exports by Value & Destination	4
Figure 5: China's Forest Product Imports from Africa by Volume	6
Figure 6: Africa's Share of China's Timber Imports by Volume	7
Figure 7: China's Imports from Africa by Type & Value (ex-Angola).....	7
Figure 8: Major Supplier Countries: Forest Products Exports to China by Volume	8
Figure 9: China's Forest Product Imports from Africa by Volume & Type.....	9
Figure 10: Logs' Share of China's Forest Product Imports by Volume	9
Figure 11: China's Processed Wood Imports from Africa by Volume & Type	12
Figure 12: Plantation-based Exports from Africa by Volume & Origin.....	13
Figure 13: Percent of Countries' Timber Exports to China by Volume	14
Figure 14: The China-Africa Forest Products Trade Mix, 2006	15
Figure 15: China's Forest Product Exports to China by Volume & Type.....	16
Table 1: Top 10 African Forest Product Exporters to China by Volume, 2006	8
Table 2: Top 5 African Log Exporters to China, 2006.....	10
Table 3: Top 10 African Sawn Wood Exporters to China, 2006.....	12
Table 4: Top 5 African Veneer Exporters to China, 2006	12
Table 5: Top 5 African Destinations of Chinese Forest Product Exports, 2006	16
Table 6: Top 5 African Destinations of Chinese Plywood Exports, 2006.....	16
Table 7: Top 5 African Destinations of Chinese Paper Exports, 2006.....	16
Table 8: Top 5 African Destinations of Chinese Fiberboard Exports, 2006	16
Figure A1: China's Imports of Gabon's Timber Products & Market Share.....	21
Figure A2: Gabon's Timber Exports by Destination & Type	22
Figure A3: China's Imports of the Rep. of the Congo's Timber Products & Market Share ..	23
Figure A4: The Rep. of the Congo's Timber Exports by Destination & Type.....	23
Figure A5: China's Imports of Equatorial Guinea's Timber Products & Market Share	24
Figure A6: Equatorial Guinea's Timber Exports by Destination & Type	25
Figure A7: Cameroon's Timber Exports by Destination & Type.....	26
Figure A8: China's Imports of Cameroon's Timber by Volume & Type.....	26
Figure A9: China's Imports of Mozambique's Timber by Volume & Type	27
Figure A10: Mozambique's Timber Exports by Destination & Type	27
Figure A11: Liberia's Timber Exports by Destination & Type	28
Figure A12: Côte d'Ivoire's Timber Exports by Destination & Type	29
Figure A13: Ghana's Timber Exports by Destination & Type	30
Figure A14: Nigeria's Timber Exports by Destination & Type.....	30
Figure A15: China's Forest Product Imports from Swaziland by Volume & Type.....	31
Figure A16: China's Forest Product Imports from South Africa by Volume & Type	31

CHAPTER 1: CHINA & THE GLOBAL MARKET FOR FOREST PRODUCTS

OVERVIEW

China's strong economic growth, large population base and rapidly expanding processing capacity, coupled with export demands from markets in the United States, Europe and elsewhere for low-cost furniture, plywood, paper and other products, has led it to become the wood workshop of the world, capturing almost a third of the global trade in furniture over the last eight years.

In order to meet this domestic and export-oriented demand, huge amounts of raw wood materials must be either produced domestically or imported from abroad. In early 2006, China's National Development and Reform Commission (NDRC), a department of the State Council with a mandate to develop national economic strategies and long term economic plans, publicly stated that its research confirmed a 140–150 million m³ per annum gap in China's own domestic production of wood and the total demand (Asia Pulse 2006). This situation reflects the spectacular increase in domestic and export-oriented consumption noted above, but also China's relatively low level of forest resources per capita. New government policies in the late 1990s designed to protect the country's forests with ecosystem services such as biodiversity and flood protection have also played a role in widening this gap. As a result, domestic supply of industrial wood has failed to keep up with China's industrial manufacturing capacity. Instead, China has imported materials. From 1997–2006, Chinese imports of forest products and secondary fiber⁷ increased from 40 million m³ to 142 million m³ RWE⁸, roughly equivalent to the country's official industrial roundwood removal per annum.

In order to secure the long-term supply of raw wood products for its industry, ambitious domestic plantation programs have been initiated, and the government is aggressively promoting trade and development programs to major supplying countries such as Russia and Africa. Government and industry players are becoming more involved in basic development assistance and investment support for major infrastructure projects such as roads and ports to facilitate the transport and trade of basic commodities such as logs to China-based mills.

SUMMARY OF CHINA'S ROLE IN THE MIDDLE OF THE GLOBAL WOOD PRODUCTS

COMMODITY CHAIN

China sits squarely in the middle of the world's wood products commodity chain (Forest Trends 2006b). It is now the world's leading importer of logs, and its exports of wood-based products have tripled in volume and quadrupled in value—helping to create the growing demand for furniture, plywood, wood moldings and flooring from both its own domestic market as well as the rest of the world, especially from North America, Japan, Europe and the Middle East.

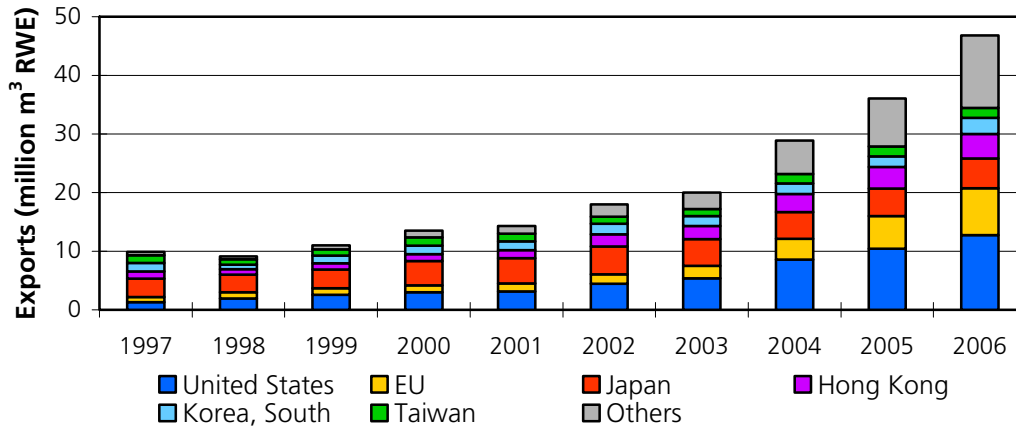
China now exports nearly the same volume (in roundwood equivalent terms) of timber products (not including pulp and paper) as it imports—46.8 million m³ and 46.7 million m³ respectively in 2006. In 2005,

⁷ The term secondary fiber refers to wastepaper and recycled pulp—fibers on their second (or more) time through the pulp and paper commodity chain. See footnote 9 for more on secondary fiber.

⁸ In this report, all subsequent figures cited as cubic meters are given in roundwood equivalent (RWE) volume. See footnote 3 for more detail.

the ratio was closer to 80%. This does not mean that all imported wood materials are destined for the export market, as many of the exported products are developed from a mix of domestic and imported materials, and many imported products are also ultimately consumed within China itself.

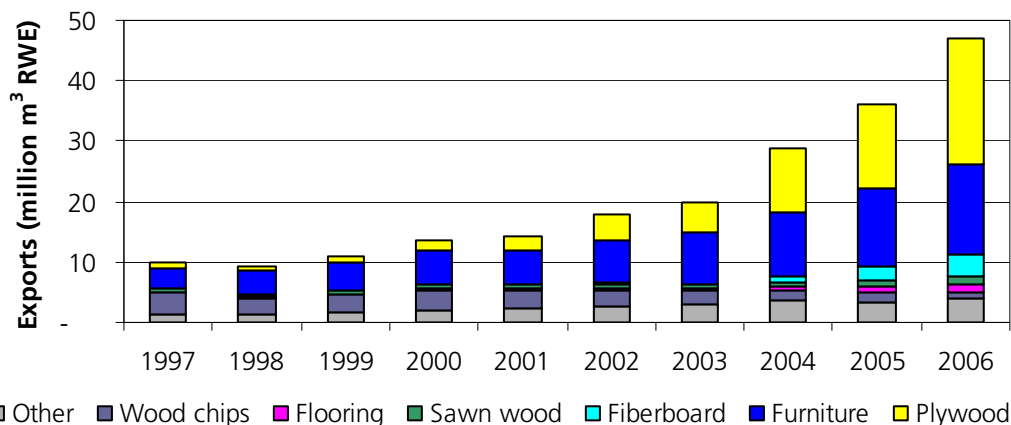
Figure 1: China’s Timber Product Exports by Volume & Destination



Source: *China Customs Statistical Yearbook*, compiled by Forest Trends.

The U.S. is still the largest importer of Chinese timber products (Fig. 1). By 2006, both EU and U.S. markets for Chinese manufactured timber products had grown nearly 1000% since 1997. Japan’s imports only increased 180% over the same period. These increases have been almost entirely driven by large demand for plywood and furniture, although the increases in demand for fiberboard and other products ran high but started from a small base (Fig. 2). The rapid increase in exports to “other countries,” up 1800% since 1997 includes countries such as United Arab Emirates, Saudi Arabia and Russia. Individually, these countries’ imports have been relatively small in the past decade; however, they are fast becoming an important market for China. This can have implications on the degree of leverage that environmentally sensitive markets in Europe and North America can have—the purchasing power of many small countries may be able to circumvent the demands for certified legal/sustainable wood products.

Figure 2: China’s Timber Product Exports by Volume & Product Type



Source: *China Customs Statistical Yearbook*, compiled by Forest Trends.

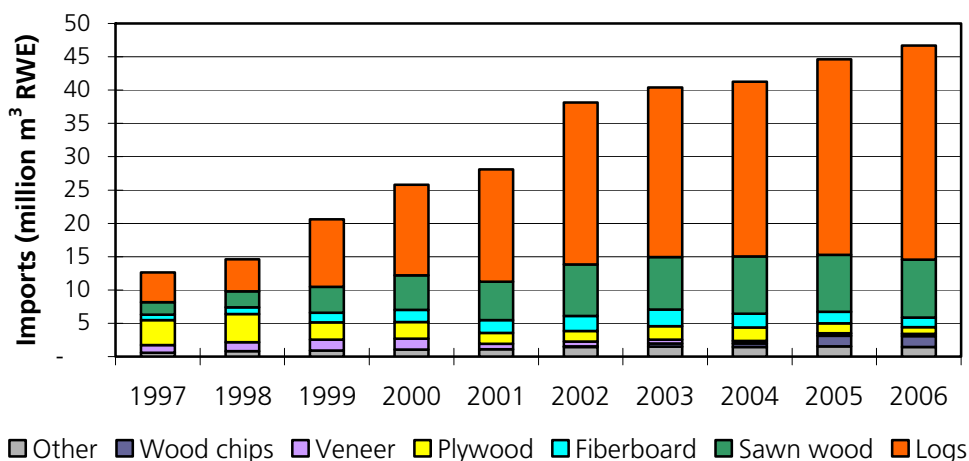
MEETING THE SUPPLY GAP THROUGH SUBSTITUTION, EFFICIENCY & IMPORTS

The NDRC's estimate of a 150 million m³ supply gap accompanied a State Council *Guobanfa* ("State Directive"), which called for several initiatives to fill this gap by: boosting domestic production, increasing wood imports, and encouraging substitution and greater efficiency (China State Council 2005).

Increased Imports

Importing more wood is likely to be the easiest short-term approach to bridge this projected supply gap. Imports have already increased dramatically in the past 20 years. Between 1997 and 2006, China's forest product imports more than tripled in volume, and more than doubled in value. Timber product import volumes increased to 46.7 million m³ in 2006, almost tripling since their 1997 levels (Fig. 3). The increase in imports continues to be fueled by logs rather than any form of processed wood products, even sawn wood.

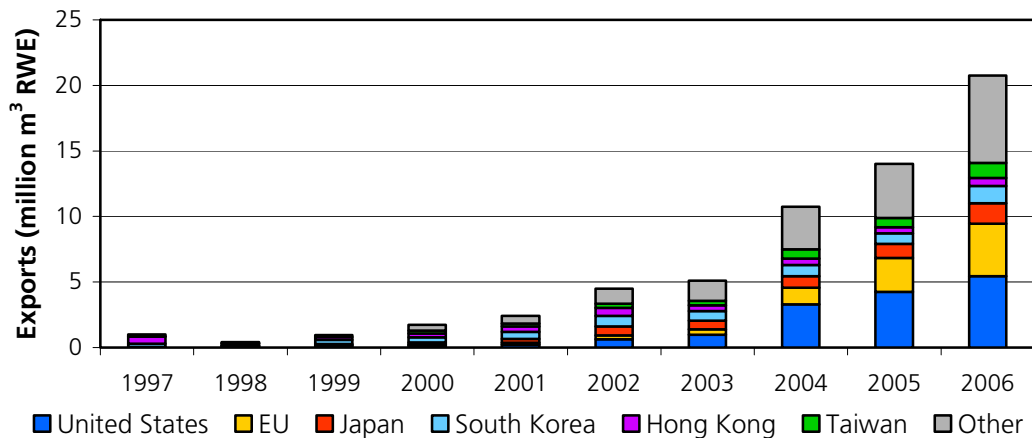
Figure 3: China's Timber Product Imports by Volume & Product Type



Source: *China Customs Statistical Yearbook, compiled by Forest Trends.*

The nature of Chinese forest product imports has also changed as China is increasingly able to capture more of the value chain in its own manufacturing processes. Through the late 1990s, for example, China imported large quantities of plywood. Today, however, China imports large quantities of logs and other marginally processed wood, to feed its own plywood industry. Between 1994 and 2006, plywood production rocketed from 2.6 to 20.8 million m³, and the country became a net exporter of plywood by 2001. The export market for plywood parallels this production growth (Fig. 4). Plywood exports overall have increased twenty fold since 1997, and grew by 48% between 2005 and 2006 alone. This has had a serious impact on plywood manufacturers globally as they are not only losing their share of Chinese markets, but also being out-competed in other markets by cheaper Chinese plywood.

Figure 4: China's Plywood Exports by Value & Destination



Source: *China Customs Statistical Yearbook*, compiled by Forest Trends.

Increased Domestic Production

What China cannot produce itself, it will have to import. There are serious doubts about whether China will reach its domestic production targets—particularly its plantations targets—while simultaneously maintaining policies that discourage or deny production from low-income forest owners. There is a growing realization among Chinese government officials and researchers that the current approach to forestry development has its limits. Nevertheless, China now has the opportunity to boost domestic forest production in both public lands and collective forests. By doing so, it could diminish pressure on some supplying countries, while at the same time helping to alleviate China's rural poverty and reduce the growing income gap within the country. For an in-depth discussion of this topic, please refer to Forest Trends' report, *China and the Global Market for Forest Products* (Forest Trends 2006b).

Substitution & Efficiency

In April 2006, immediately after the NDRC research was publicized, China's Ministry of Finance imposed a 5% tax on disposable wooden chopsticks—a seemingly small utensil, but the 45 billion pairs of chopsticks thrown away each year within China alone have an annual timber equivalent of more than 2 million m³. Another 15 billion pairs are exported, mainly to Japan. At the same time, additional taxes on wood flooring were introduced.

From an environmental efficiency point of view, Chinese sawmills (particularly the new export-oriented “supermills” along the Russian-Chinese border and at some ports) are some of the largest and most efficient in the world. Little wood material is lost, and in fact there is great demand in China for the byproducts of log conversion: wood chips, shavings and sawdust to support pulp, paper and newsprint sectors.

China is the number one importer of the world's wastepaper, taking in large amounts from the United States, Europe and Japan where China's steady demand has buoyed up the global market price of wastepaper and thus has catalyzed greater investment in paper recovery. The ready availability of wastepaper has enabled China to increase its output of packaging material with relatively small investments (compared to the cost of sourcing virgin fiber). Secondary fiber, comprised of locally-produced and imported wastepaper, now

comprises 63% of China's papermaking fiber supply and is growing at an annual average rate of 13% per year.⁹ Imported wastepaper now makes up 33% of the total papermaking fiber supply, having grown at an annual average of 30% for the past four years. The majority of this secondary fiber is used in packaging for China's light manufactured exports.¹⁰ Nonetheless, it should be emphasized that market forces, rather than environmental altruism, have likely been driving the use of such a vast amount of wastepaper.

⁹ Unless mentioned otherwise, secondary fiber is excluded from forest product trade statistics in this report, as its consumption is less directly tied to forest degradation. In 2006 secondary fiber composed more than a third of China's forest product imports, this exclusion is significant for cases comparing China-bound African forest product exports to China's forest product imports as a whole. Secondary fiber is not an important factor in the Sino-African forest product trade, however (about 3% of African exports and 1% of Chinese exports). It is excluded from data presented in this report for consistency and relevance to forest conservation.

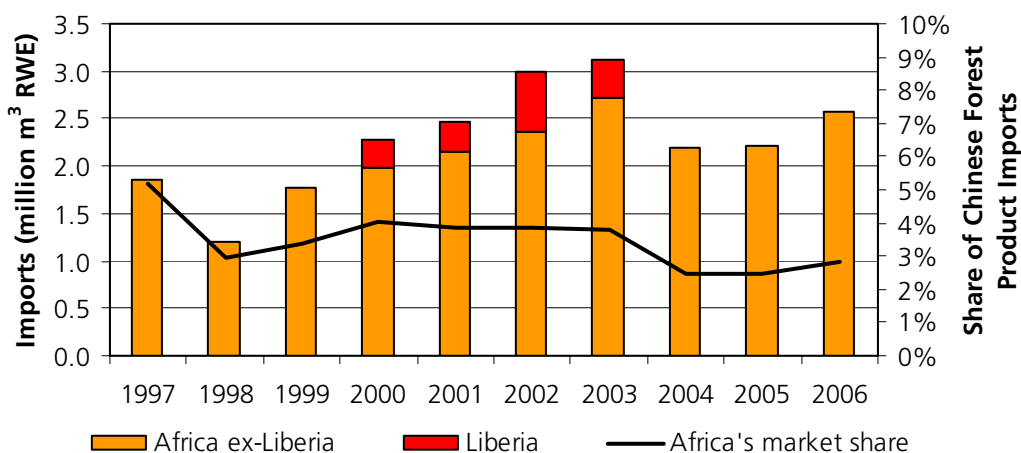
¹⁰ However, some of China's other fiber sources may be environmentally damaging, such as pulp and pulpwood sourced from Russia and Indonesia used to produce high quality paper. While these sources are a small proportion of China's papermaking fiber supply, they likely come from natural forests with little guarantee of sustainable—let alone legal—forest management and production.

CHAPTER 2: AFRICA'S FOREST PRODUCT EXPORTS TO CHINA

SIGNIFICANT VOLUME & VALUE, BUT LOW SHARE OF CHINA'S TOTAL IMPORTS

In 2006, Africa exported 2.6 million m³ of forest products to China, worth US\$737 million. Volumes have been relatively variable over the past 9 years, with fluctuations and noticeable drops in 1998 and 2004, and exhibiting more variation than the relatively consistent growth seen from other supplying countries to China during the same time period. Following five years of annual growth, from 1998 to a high of 3.1 million m³ in 2003 (valued at US\$586 million), the volume of Africa's forest product exports fell by 30% in 2004 (Fig. 5). Value also dropped in 2004, but to a much lesser extent (12% fall from 2003 value). The cessation of all Liberian wood exports in 2004 (of which about 0.5 million m³ were sent to China in 2003) has a significant effect, but does not wholly account for the dip in 2004. Africa accounted for approximately 3% of China's forest product imports by volume in 2006.

Figure 5: China's Forest Product Imports from Africa by Volume

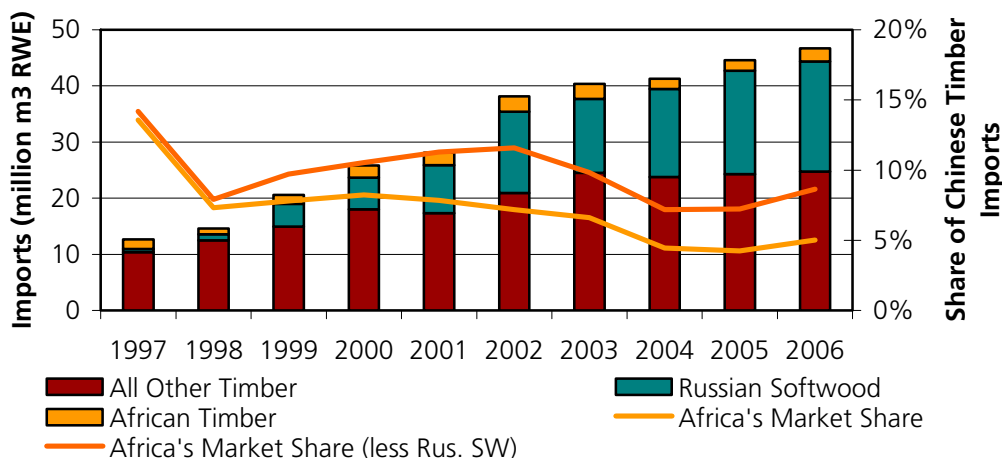


Source: China Customs Statistical Yearbook, compiled by Forest Trends. Note: Liberia's exports to China are shown in red. Black trend line displays the percent by volume of Chinese forest product imports sourced from Africa (right axis).

When one excludes pulp and paper, the portion of Chinese timber imports from Africa rises, but still remains small. Since 2004, Africa has supplied China with 4–5% of its imported timber products (Fig. 6). This figure hovered between 6–8% between 1998 and 2003 before declining in 2004. However, the overwhelming dominance of Russian softwood in China's import mix belies the importance of African tropical hardwoods for products such as veneer and furniture. Excluding Russian softwoods, which account for nearly 40% of China's imported timber, the share of Africa's exports grows to 8.6% in 2006 after having peaked at 12% in 2002.

When pulp and paper are included in the calculations, Africa accounts for only 3% of China's forest product imports by volume and 5% by value (2006). The higher share in value reflects the relatively high average value of African timber products—mainly sought-after species of tropical hardwood.

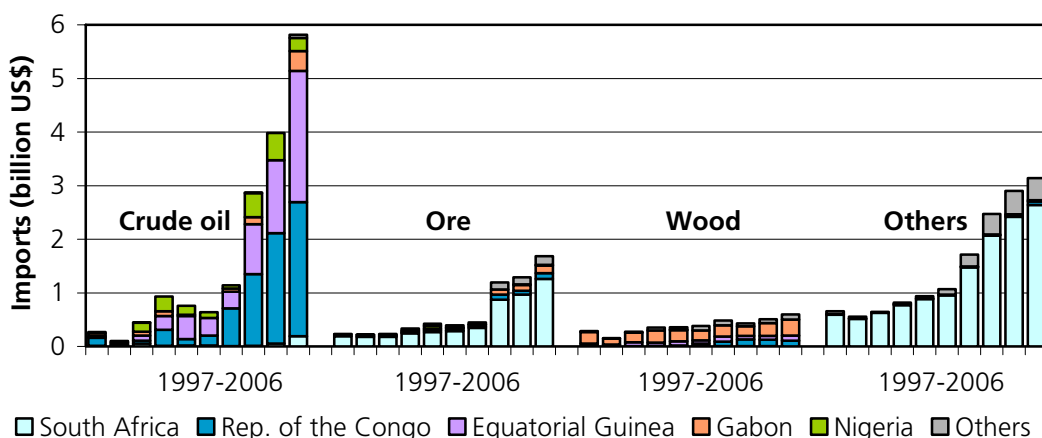
Figure 6: Africa's Share of China's Timber Imports by Volume



Source: China Customs Statistical Yearbook, compiled by Forest Trends.

While examining China's timber trade with Africa versus other forest products supplying countries, it is important to keep in mind that wood makes up a small amount of China's overall imports from Africa. Since 2003, China has imported more crude oil from Africa than all other African products combined. In 2006, crude represented 75% by value of all China's imports from Africa. Crude has also grown much faster than other commodities. Its calculated annual growth rate is 39% for 1997-2006, compared to 25% for ore and 8% for wood. The brunt of this supply comes from one country—Angola—which supplied an average of 60% of China's oil imports per year over this period. Most of the other significant oil suppliers (particularly Equatorial Guinea and the Republic of the Congo) also export forest products to China, though oil has been a much busier industry (Fig. 7). Thus, while Chinese imports of wood do have serious consequences for African forests and livelihoods, crude oil is the key commodity in Africa's exports to China.

Figure 7: China's Imports from Africa by Type & Value (ex-Angola)



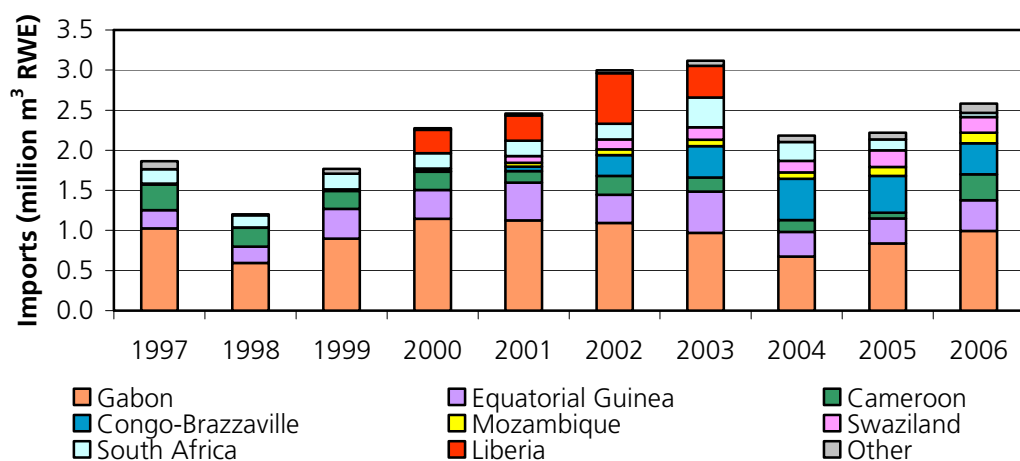
Source: United Nations Commodity Trade Statistics Database, compiled by James Hewitt.

Notes: Excludes Angola, which supplied an average of 60% of Africa's oil exports to China each year of the period studied. Angola's exports to China of all other goods were negligible.

COMPARISON OF EXPORTS BY COUNTRY

Gabon, the Republic of the Congo and Equatorial Guinea are the top African forest product exporters to China (Figure 8). The time series data shows fluctuations in individual countries' forest product export volumes to China over the period studied. The volume of timber products exported to China from individual countries is often relatively small, well within the capacity of one enterprise or trader, leading to the possibility that drops in the overall figures is the result of just a few producer/trader enterprises curtailing exports to China.

Figure 8: Major Supplier Countries: Forest Products Exports to China by Volume



Source: *China Customs Statistical Yearbook, compiled by Forest Trends.*

Gabon has historically been the most important African supplier to China and the only African country that occasionally ranks within the top five supplying countries to China. In 2006 it was China's fifth largest log supplier. Cameroon, Equatorial Guinea, Mozambique and the Republic of the Congo are the other top African countries sending substantial volumes of forest products to China (Fig. 8, Table 1). Though not a significant timber exporter, Swaziland ships a large amount of pulp to China, while South Africa exports paper and smaller volumes of pulp. These two countries make up virtually all of China's pulp and paper imports from Africa. Annex 1 provides more details on the nature and extent of individual African countries' exports to China.

Table 1: Top 10 African Forest Product Exporters to China by Volume, 2006

Rank	Country	Share
1	Gabon	38.5%
2	Republic of the Congo	14.9%
3	Equatorial Guinea	14.9%
4	Cameroon	12.6%
5	Swaziland	7.6%
6	Mozambique	5.1%
7	South Africa	2.0%
8	Guinea	1.2%
9	Central African Rep.	1.0%
10	Côte d'Ivoire	0.5%
	Other	1.7%

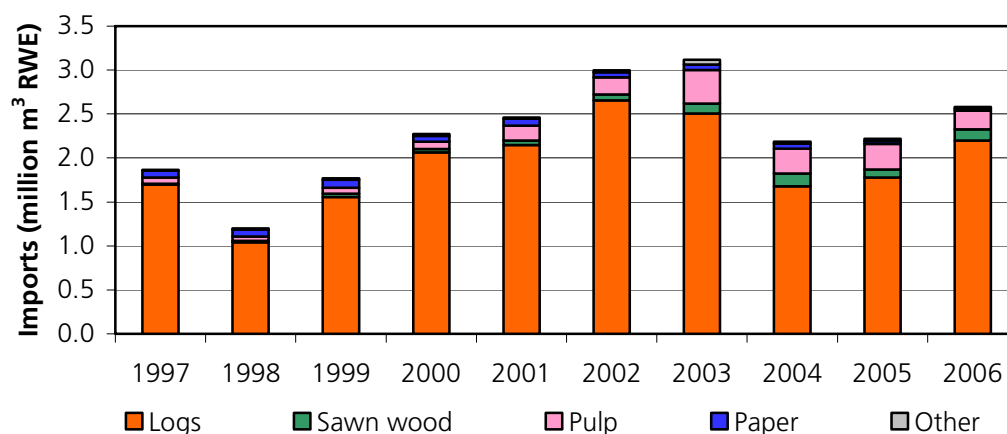
Source: *China Customs Statistical Yearbook, compiled by Forest Trends*

Note: Percentages represent each country's share by volume in China's forest products imports from Africa.

THE MIX OF AFRICAN FOREST PRODUCT EXPORTS TO CHINA

China imports mainly logs from Africa. Logs accounted for over 85% of the total imported to China in 2006 (Figure 9). Sawn wood, veneer, and pulp account for most of the remainder. Exports such as fiberboard and wood chips have been limited over the past 10 years. South Africa and Swaziland exported 99% of all African pulp and paper exports, with a volume of 240,000 m³ RWE and a value of US\$32 million in 2006. While log volumes have been relatively unstable, sawn wood and pulp volumes have increased although from a very small base, and paper imports have fallen steadily.

Figure 9: China's Forest Product Imports from Africa by Volume & Type

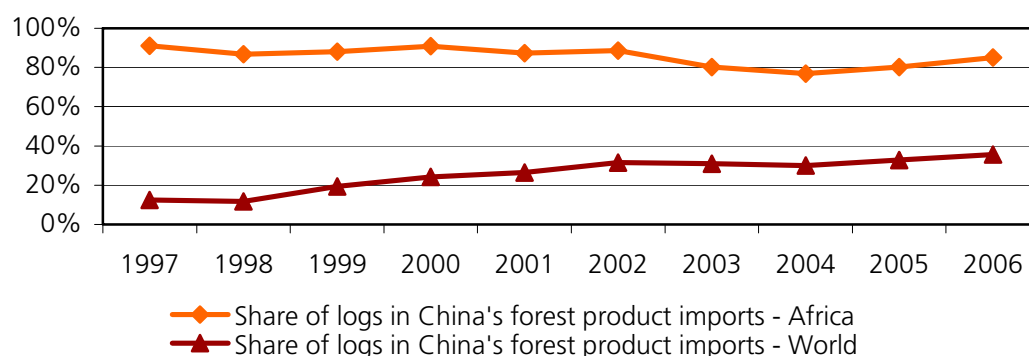


Source: *China Customs Statistical Yearbook, compiled by Forest Trends.*

Logs Dominate China's Imports of African Wood Products

Across China's global forest product import mix, China's strong wood manufacturing industry has boosted demand for primary materials such as logs and pulp in lieu of processed goods like veneer and paper. Logs' share in China's global forest product imports reached 36% in 2006, up from 12% in 1997 (Fig 10). Even imports of sawn wood, a minimally processed good, have stagnated. The dominance of logs is more pronounced in Africa's exports to China (where logs accounted for 85% by volume in 2006) than in China's forest product imports as a whole.

Figure 10: Logs' Share of China's Forest Product Imports by Volume



Source: *China Customs Statistical Yearbook, compiled by Forest Trends.*

More than 79% of log exports to China come from central African countries, especially those rich in okoumé, although eastern Africa supplies some as well (Table 2). This dichotomy arose historically as Ghana, Côte d'Ivoire and Cameroon had developed log export bans long before demand from China became an important force in the region.

Gabon and Equatorial Guinea have remained among the top three exporters of logs since 1997. Other important supplying countries included Cameroon until 1999, Liberia until the 2003 log export ban mandated by the UN Security Council, and the Republic of the Congo. As with forest product volumes, however, log export volumes to China from individual African countries have shown strong variations over time.

Virtually all of Africa's non-plantation logs exports are valuable tropical hardwoods. The price per cubic meter of Africa's log exports to China reached a 10-year high in 2006 of US\$303/m³ (trading 2.2 million m³ of logs for US\$666 million).

Among the African tropical hardwoods sought by China, okoumé is of particular significance. *Aucoumea klaineana* (also known as gaboon or angouma) grows across west and central Gabon and in the southern forests of the Republic of the Congo, and Equatorial Guinea. IUCN has listed okoumé as vulnerable, due primarily to impacts of commercial logging and agricultural expansion (White 1998). The volume extracted each year has more than doubled since 1997, mainly for export markets such as China. Logs of this species are mainly cut into veneers for facing plywood and furniture. As the main source of this valuable wood, concession operators in Gabon the Republic of the Congo and Equatorial Guinea are heavily focused on exporting okoumé, with 40–68% of all okoumé exports being sent to China (2006). In total, some 900,000 m³ or 40% of China's 2006 log imports from Africa were okoumé.

Table 2: Top 5 African Log Exporters to China, 2006

Rank	Country	Share
1	Gabon	43.6%
2	Equatorial Guinea	17.3%
3	Republic of the Congo	16.7%
4	Cameroon	13.6%
5	Mozambique	5.8%
	Other	3.0%

Source: Chinese Custom Statistical Yearbook, compiled by Forest Trends.

Note: "Other" category includes, in descending order of importance, Central African Republic, Guinea, Madagascar, Democratic Republic of the Congo and Tanzania.

Box 1 - Drivers of China's Strong Preference for Logs over Processed Wood

The economics of importing logs do not quite add up at first glance, especially in light of increasing scarcities, high prices and high transportation costs. Bulky, moisture-retaining logs are a heavy and costly commodity to ship, especially considering that the sawn wood extracted from them is generally only half the total roundwood volume. What then explains China's preference for buying logs instead of processed wood?

The drivers of this preference for unprocessed wood will be numerous and complex, but a few factors can be identified:

1. China has some of the world's largest and most efficient wood manufacturing operations, with a large capacity to utilize the non-sawn wood materials created by primary log conversion. This "waste," including wood chips, shavings, and sawdust, is used in making pulp, paper, newsprint, reconstituted wood products, and hog fuel to power manufacturing operations.

2. The low cost of relatively skilled Chinese labor is also huge competitive factor for the Chinese manufacturing industry.
3. China also sees the import of logs as an economically rational approach to create wealth and employment. The wood processing sector is labor intensive (especially for furniture production) and creates an estimated 12–15 million jobs per year. By expanding domestic processing throughout the wood products value chain, China also seeks to mitigate job loss in rural areas. This employment is so important to the Chinese government that it helps otherwise unprofitable wood processing companies stay open. As is done for several sectors in China, these companies are often supported with financial incentives like government subsidies (e.g., for plantations and modern, high-cost machinery), tax breaks or debt forgiveness.
4. Until recently, the growth of the wood manufacturing business has also not been hindered by the cost of compliance with environmental regulations.
5. A number of other factors favor the use of logs by facilitating China's access to them. The foreign forestry operations that supply China often do not require a high level of investment, and global networks of suppliers can easily provide a wide variety of log species to Chinese importers—often through operations which are able to easily avoid official monitoring.

China is also close to one of the world's crucial sources of softwood timber—the boreal forests of Siberia and the Russian Far East. There, available processing capabilities can only handle less than a fifth of actual cuts so the remainder can be expected to be exported as logs—for the time being (CIBC 2007). While, in an attempt to develop their own wood products sector, Russia has announced very steep tariff hikes on log exports to be phased in over the next two years, the degree to which this can actually be implemented is unclear at present.

Central Africa is another region where China is aggressively seeking timber. Here, too, trade with China is almost exclusively in the form of logs. However, for many forested African countries this is not the only timber export—Gabon, Cameroon, Republic of the Congo, Nigeria, Ghana, Côte d'Ivoire register significant exports of sawn wood and other processed timber (see Annex 1). Most are produced by European companies and destined for the EU. In other words, the Chinese imports of logs are not related to a lack of industry infrastructure within Africa, but rather to China's preference for and access to logs, as described above. Africa's willingness to export logs to China does not bode well for Africa's long-term economic development or its forests, and foregoes opportunities to gain substantial returns from their natural exports for its impoverished economies.

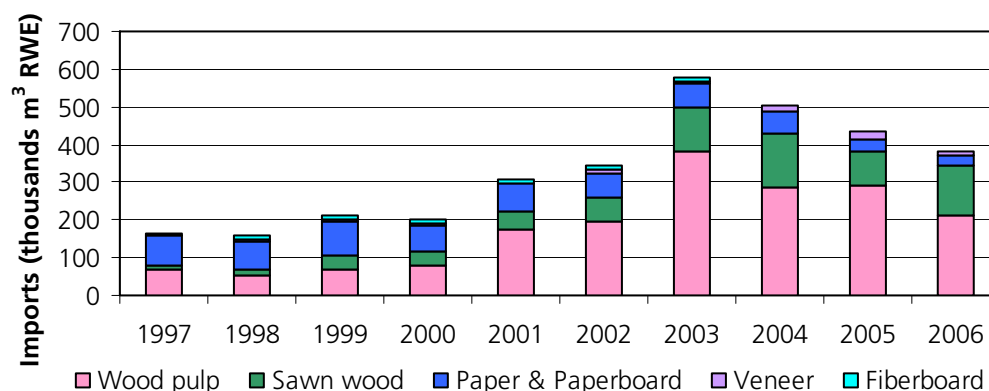
Excerpted from "Why China Prefers Logs: Explaining the Prevalence of Unprocessed Wood in China's Timber Imports" (Forest Trends 2007b).

Analysis of Processed Exports

Among Africa's limited volume of processed (i.e. non-log) forest product exports to China, wood pulp and sawn wood are the two largest classes of export, followed by paper and paper board. Veneer and fiberboard trail behind. Suggestive of increased value-added processing within Africa itself, Africa's export volumes of sawn wood to China have grown from 9,600 m³ RWE in 1997 to 129,000 in 2006, with a peak of 143,000 in 2003 (Fig. 9, above).

The recent growth in Africa's exports to China matches overall shifts in China's forest product imports to products lower on the value chain—pulp instead of paper and logs instead of veneer.¹¹ The drop in African paper exports to China over the period and the seeming inability of sawn wood and veneer exports to "take off" similarly match the trend of China moving toward imports lower on the value chain (Fig. 11).

Figure 11: China's Processed Wood Imports from Africa by Volume & Type



Source: China Customs Statistical Yearbook, compiled by Forest Trends.

Processed Timber Products: Sawn Wood & Veneer

Top log exporters Gabon and the Republic of the Congo are also among the main sawn wood exporters to China as well. Equatorial Guinea, which exports large volumes of logs and veneer, does not export significant amounts of sawn wood to China (Tables 3-4).

Table 3: Top 10 African Sawn Wood Exporters to China, 2006

Rank	Country	Share
1	Gabon	23%
2	Cameroon	19%
3	Republic of the Congo	12%
4	Guinea	10%
5	Cote d'Ivoire	10%
6	Ghana	8%
7	South Africa	4%
8	Mozambique	4%
9	Tanzania	3%
10	Benin	2%
	Other	5%

Table 4: Top 5 African Veneer Exporters to China, 2006

Rank	Country	Share
1	Gabon	44%
2	Republic of the Congo	17%
3	Equatorial Guinea	17%
4	Ghana	14%
5	Cameroon	6%
	Other	0.2%

Source: China Customs Statistical Yearbook, compiled by Forest Trends.

¹¹ See Sun, Xiufang, Eugenia Katsigris and Andy White. 2004. Meeting China's Growing Demand for Forest Products: An Overview of Import Trends, Ports of Entry, and Supplying Countries, with Emphasis on Asia-Pacific. Washington, D.C.: Forest Trends.

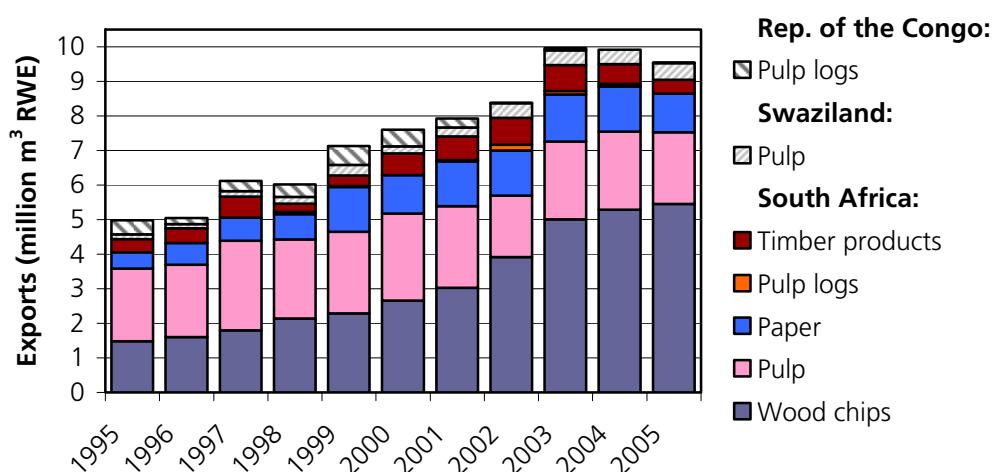
Trends in Exports of Plantation-Grown Wood

96% of Africa's plantation-grown wood is destined for Japan, the EU and other markets; in 2006 China only imported 4% of Africa's plantation wood, mainly in the form of paper and pulp from South Africa and Swaziland. Swaziland and South Africa are the top suppliers of African plantation-grown wood to China (Figure 12).

Plantation pulp: In 2006 13% of Africa's pulp exports were sent to China. Up until 2001, South Africa was the sole African exporter of pulp to China. Since then, Swaziland's wood pulp exports to China have become quite substantial, as South Africa's have dropped. Swaziland now accounts 91% of China's pulp imports from Africa, with the remaining 9% coming from South Africa.

Paper (from plantation pulp): South Africa is the only country in Africa which makes paper from virgin fiber in export quantity, although its exports to China have dropped over time as China has expanded its own paper industry. In 2006 only 4% of South Africa's total paper exports were bound for China.

Figure 12: Plantation-based Exports from Africa by Volume & Origin



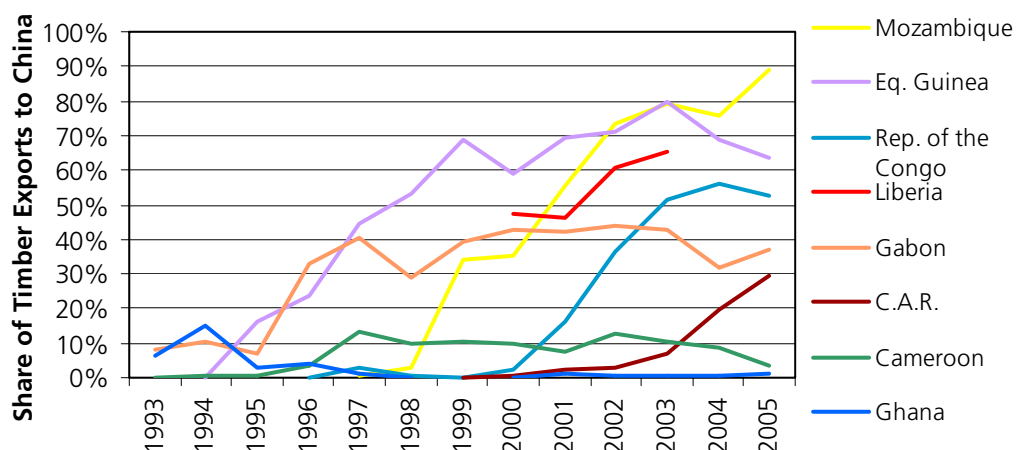
Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt. Note: Exports from African countries to the world. Excludes Madagascar (whose exports were negligible compared to the other three countries during the period show), and fuel wood and teak from all countries.

Africa is a very minor supplier of hardwood pulpwood to China, which sources mainly from South East Asia and Australia (Forest Trends 2007a: 12–13). Africa's exports of pulp logs from South Africa and the Republic of the Congo have seen declines over the last five years. While the Republic of the Congo has formerly been a substantial exporter of such logs to Europe, these exports have been in precipitous decline over the last five years.

AFRICAN EXPORTER COUNTRY PERSPECTIVES

While Africa does not play the greatest role in supplying China's wood products industry, China is a dominant market for several African countries. For example, while in 2005 Gabon only accounted for 2% of China's imports of timber, these exports represented 37% of Gabon's total log exports (Fig. 13). The Republic of the Congo and Equatorial Guinea's export markets also show strong dominance by China—53% and 64% of their timber exports go to China, respectively (2005). While exporting much smaller volumes, Mozambique exported 89% of its timber exports to China in 2005.

Figure 13: Percent of Countries' Timber Exports to China by Volume



Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas and other data, compiled by James Hewitt.
Note: Graph shows the percent share of each country's timber product exports that are sent to China. 2006 figures unavailable. Figures include plantation teak. C.A.R.: Central African Republic.

Annex 1 provides further detail on the specific trade flows between China and several individual African countries, including countries with high ratios of log to total timber exports to China such as Gabon, Congo-Brazzaville, Equatorial Guinea, Cameroon and Mozambique; South Africa and Swaziland, the two main suppliers of processed products; and four major forested countries in West Africa that do not export significant quantities to China: Liberia, Côte d'Ivoire, Ghana and Nigeria. The Central Africa Republic is not included in the annex, due to relatively low volumes of exports to China compared to the other exporting countries.

CHAPTER 3: CHINA'S FOREST PRODUCT EXPORTS TO AFRICA

Chinese exports of forest products (specifically manufactured wood products) have been growing strongly since 2000 (Fig. 2, above) and significant amounts are starting to reach Africa, albeit at much lower volume than the timber sent from Africa to China. The composition of China's forest product exports to Africa is heavily weighted towards processed products, in strong contrast to Africa's log-dominated exports to China. Key recipient countries and regions, with the exception of South Africa, are quite different from the top African nations exporting forest product to China. S

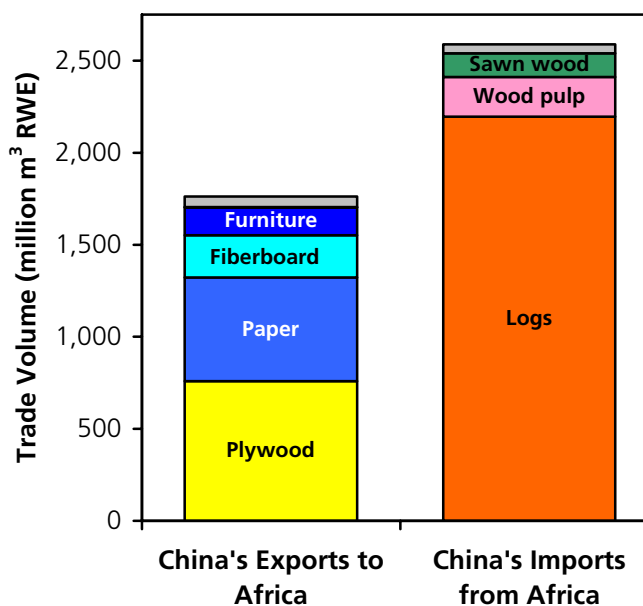
While the volume of trade to Africa did not surpass one million m³ RWE until 2006 (just 1.4% of China's forest product exports that year) growth has come quickly since 2003. Overall, Chinese forest product exports to Africa grew at a compound annual growth rate (CAGR) of 57% by volume over the period studied. This contrasts with the much slower CAGR of Africa's forest product exports to China (3.7%) and surpasses even China's rapid growth in forest products exports to the world (19%).

In 2006, Africa imported about 1.76 million m³ RWE of forest products valued at US\$434 million from China, but exported 2.6 million m³ RWE valued at US\$737 million to China. For every 100 m³ RWE of forest products that Africa exported to China, Africa imported 68 m³ from China. By value, for every US\$100 in goods exported from Africa to China, US\$59

worth was exported from China to Africa (Fig. 14). However, as China's exports are composed of processed products as opposed to the logs it imports, China's exports to Africa have a higher dollar value per cubic meter. If the high growth rates of Chinese imports to Africa and the sluggish growth rates of African exports to China continue, this gap may narrow quickly. As China's exports are composed of processed products, as opposed to the logs it imports, China's exports to Africa have a higher dollar value per cubic meter.

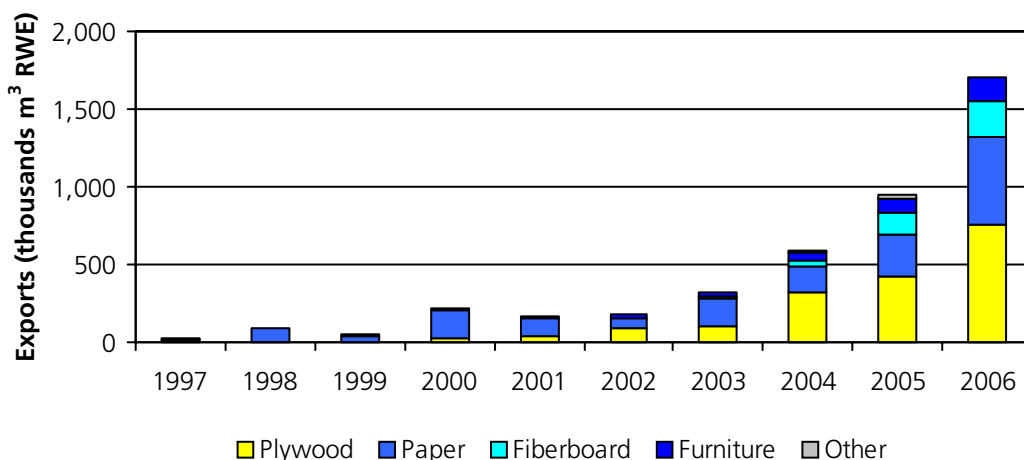
Top export product groups (in order of declining 2006 volumes) were plywood, paper and paperboard, fiberboard and wood furniture. Each of these areas has shown growth over the period studied, with plywood (now China's leading forest product export to Africa) exhibiting especially strong growth (Fig. 15). Paper products were the highest volume export area during the first part of the period; they have continued to grow but now rank second since being surpassed by plywood. Throughout the period studied, China did not export any logs to Africa, and only negligible amounts of wood pulp and sawn wood.

Figure 14: The China-Africa Forest Products Trade Mix, 2006



Source: China Customs, compiled by Forest Trends.
Note: Grey section at top of each column represents "Other" category.

Figure 15: China's Forest Product Exports to China by Volume & Type



Source: China Customs, compiled by Forest Trends.

Forest-rich areas in Africa which export to China are generally not significant importers of China's manufactured forest products. North African countries such as Egypt and Algeria account for 45% of Africa's total forest product imports from China, 62% of plywood, 35% of fiberboard, and 35% of wood furniture (Tables 5-8).

Table 5: Top 5 African Destinations of Chinese Forest Product Exports, 2006

Rank	Country	Share
1	Egypt	32%
2	South Africa	16%
3	Nigeria	10%
4	Algeria	9%
5	Djibouti	4%
–	Other	29%

Table 6: Top 5 African Destinations of Chinese Plywood Exports, 2006

Rank	Country	Share
1	Egypt	46%
2	Algeria	16%
3	South Africa	11%
4	Angola	4%
5	Mauritius	4%
–	Other	19%

Table 7: Top 5 African Destinations of Chinese Paper Exports, 2006

Rank	Country	Share
1	Nigeria	30%
2	Egypt	24%
3	South Africa	10%
4	Ghana	4%
5	Kenya	4%
–	Other	28%

Table 8: Top 5 African Destinations of Chinese Fiberboard Exports, 2006

Rank	Country	Share
1	Egypt	30%
2	South Africa	27%
3	Sudan	12%
4	Djibouti	6%
5	Nigeria	5%
–	Other	20%

Source: Chinese Customs data, compiled by Forest Trends.

Mutual scale of China-Africa trade flows does occur in a few areas, the most significant of which is South Africa. Reflecting its more developed markets, this country imported 16% of all of Africa's forest product imports, by volume, from China in 2006. It also received 39% of China's furniture exports to Africa. Central African countries (which account for 69% and 79% by volume of African exports to China of forest products and logs, respectively) do not make a single appearance among the top ten recipients of the forest products category overall or within specific types of exports from China.

CONCLUSION

The primary goal of this report has been to provide a baseline to inform further discussion and investigation of the issues surrounding the trade in forest products between China and Africa. The statistical data provided in this report can serve as a starting place to prioritize more in-depth work on the trends and impact of the forest products trade between China and Africa.

While the trade flows have varied across countries and regions due to differences in forest resources, geography and economic development, a common finding is that the China-Africa forest product trade is significant in some, but not all, of the ways generally assumed. In several instances, trade growth is less than many would have expected, and trends have often been highly variable. Key findings include:

1. *African share of Chinese wood supply:* China's imports of Africa's forest products are substantial (2.6 million m³ in 2006), but have been highly variable from year to year. Imports of African forest products make up only a small proportion (2.9%) of the total volume of China's forest product imports from all around the world and have been growing more slowly than imports overall (especially compared the largest supplier of wood to China: Russia).

Examining timber exports only (where pulp and paper are excluded), Africa's share of China's imports rises to 5.0% by volume, demonstrating that timber constitutes a greater proportion of Africa's forest product exports to China than other supplying countries.

If one were to remove from the equation China's imports of temperate Russian softwood logs and sawn wood—about half of China's timber imports—the share of African imports would register as 9.4%.

2. *Value of African timber:* Africa's forest product exports to China command a higher share of China's total imports by value (4.9%) than they do by volume (2.9%), suggesting the export of relatively higher value timber to China relative to other supplying countries.

This comparison is more pronounced when performed with tropical hardwoods: Africa's share of China's tropical hardwood log and lumber imports by value (14.5%) is more than double its share by volume (6.5%).

3. *Export market orientation:* For most major exporting countries in Africa, European markets still dominate. In 2006, Africa exported 4.4 million m³ of natural (non-plantation) timber products to the EU, compared to 2.1 million m³ sent to China.

The relative importance of the EU market as compared to China, however, varies greatly between regions and individual countries. Important wood producing countries in the western region (e.g. Ghana, Côte d'Ivoire, Nigeria and Cameroon) tend to export to the European Union (EU) markets, with little trade to China. Indeed, Côte d'Ivoire and Ghana export virtually no wood to China.

Mozambique represents the other extreme, with more than 90% of its timber product exported to China. Approximately 70% of Equatorial Guinea's, 50% of the Republic of the Congo's and more than 40% of Gabon's timber are exported to China (2005).

4. *Growth trends:* Since 1997, growth in African timber exports to China has not shown the same rapid growth as China's overall timber imports, and is in fact quite variable from year to year. Considering the continent as a whole, Africa's exports to China grew rapidly from a small baseline during 1995-1997. Since that expansion, the trade trend could best be described as fluctuating around a relatively flat trend.

Given the scale of traded volumes, drops in the overall figures might be the result of just one or two producer/trader enterprises curtailing exports to China. A drop in exports in 2004 can be partially explained by the cessation of a handful of enterprises' exports from Liberia to China (which were approximately 0.5 million m³ in 2003) due to UN sanctions barring Liberian timber exports.

5. *Major supplying countries:* Gabon has historically been the leading African supplier to China. Cameroon, Equatorial Guinea, Mozambique and the Republic of the Congo make up the remainder of the "top five." Regionally, China imports most of its forest products from Central Africa, possibly due to a preference for endemic tree species such as okoumé.

6. *Product mix:* Logs dominate the mix of African forest product exports to China (85% by volume in 2006) and play an even greater role in this mix than in China's overall forest product imports from all countries (36% by volume in 2006). Even in African countries that have the capacity to produce value-added timber products (as evidenced by processed wood exports to Europe), Chinese markets are not buying them. Pulp and paper are the second largest category of wood products exported to China, virtually all coming from South Africa and Swaziland.

8. *Imports of processed wood products from China to Africa:* Many have speculated that China's manufacturing industry will be able to send cheap manufactured wood products back to supplier countries, effectively displacing any emerging African manufacturing capabilities. Comparison of the import/export balance of the China-Africa trade, however, shows that China is a net importer of forest products when it comes to Africa; for every 100 m³ imported, 68 m³ is exported. While Chinese exports of manufactured wood products to Africa have been increasing dramatically, it is starting from a very small base. However, with the exception of South Africa, none of the top ten exporting countries are significant importers of manufactured forest products from China. The greatest volume of these imports (45%) goes to North African countries such as Egypt (top African importer of plywood and fiberboard); Nigeria, Egypt and South Africa (paper); and South Africa (furniture).

Chinese demand for wood has given a boost to African exporters of logs, but has not promoted the development of Africa's domestic processing and manufacturing capacity in the forest sector. Indeed, China's preference for logs (currently 91% of African export volume to China) has produced similar concerns in nations such as Russia, who recently imposed a steeply rising level of taxes on log exports. In many African countries with poor records of forest governance, the increasing exports of wood products to the rest of the world, often through China, are increasing the stress on already weak systems of forest governance and law enforcement, and have been shown in other reports to be heavily correlated with increases in unsustainable or illegal harvesting, biodiversity loss, and the abuse of forest communities' rights.

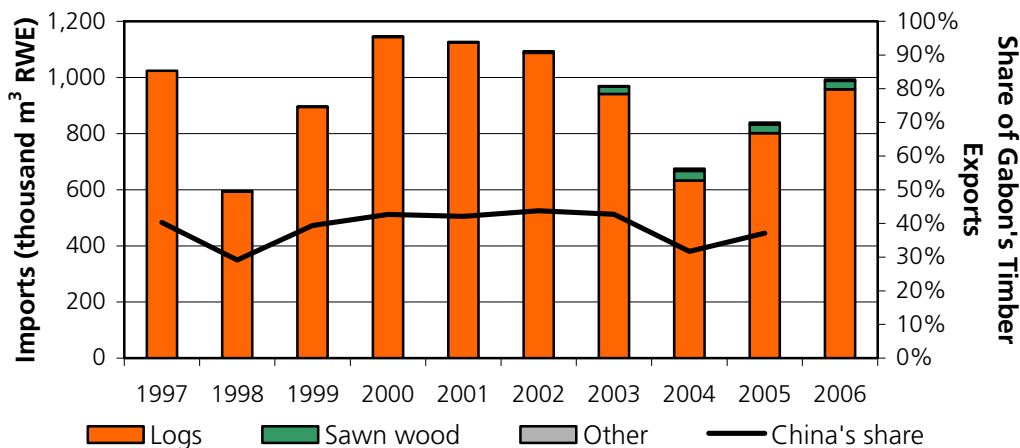
While China's overall forest product imports from Africa have not grown substantially over the period studied, they have become increasingly important within particular countries, such as the Republic of the Congo, Equatorial Guinea, and Mozambique. In order to ensure that these growing exports provide economic and livelihood benefits to local stakeholders, particularly forest-dependent communities, such growth will need to operate through sustainable forestry mechanisms. We hope that this report helps government, industry and civil society better understand the important position that China holds in the middle of the global wood commodity chain. China and also the ultimate users of many of China's exports that contain African wood, such as European and North American consumers, should use their market leverage to boost international demand for wood products that support sustainable forestry operations that provide satisfactory livelihood opportunities.

ANNEX 1: COUNTRY PROFILES

GABON

Gabon has consistently been a leading African supplier of logs and sawn wood to China. However, the volumes of timber exports to China have been relatively variable. After an initial increase in 1996, exports have ranged from 0.6 million m³ to almost 1.2 million m³ (Fig. A1). By 1996, China had become as important a market for Gabon's forest products as Europe. Gabon accounted for an average of 29% of Africa's timber exports to the world and 40% of its log exports in 2006. While logs dominated this trade, some sawn wood and veneers were being produced in-country and exported to European markets (Fig. A2). The great increase in exports to China in 1996 coincides with a change in structure of the logging industry starting in the mid-1990s. At this time, logging by Malaysian and more recently Chinese logging contractors began, and implies that these Asian enterprises account for most of the logs China imports from Gabon. The Rimbunan Hijau group, as concessionaire and logging subcontractor, appears to account for much if not most of those exports to China.

Figure A1: China's Imports of Gabon's Timber Products & Market Share¹²

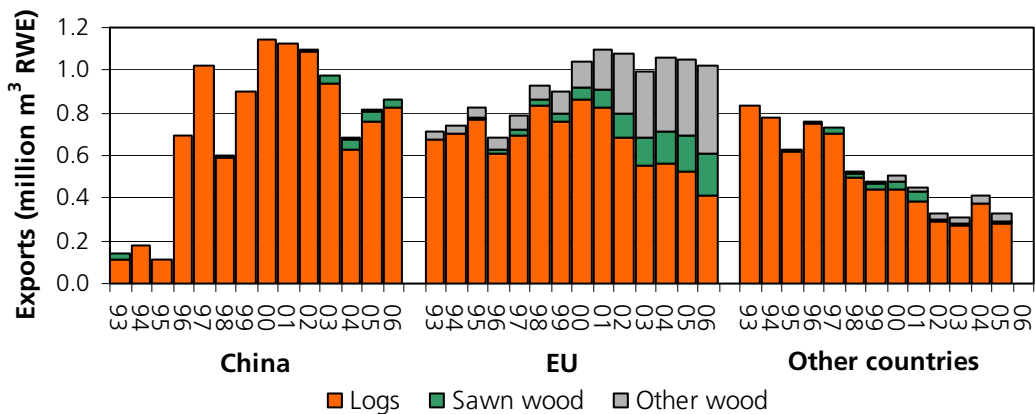


Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by Forest Trends.

Between 1996 and 2006, China imported between 32–46% of all of Gabon's timber product exports. This figure rose to 61% when only tropical logs are considered (2005). As in Equatorial Guinea and the Republic of the Congo, the Chinese marketplace has focused particularly on Gabon's large (but now diminishing) stocks of okoumé (*Aucoumea klaineana*). Okoumé is used particularly in the manufacture of plywood. In 2005, Gabon accounted for roughly 50% of China's official okoumé log imports (although at least some additional okoumé might have been declared as miscellaneous logs.)

¹² In this annex, graphs showing China's timber imports (e.g. Fig. A1, A3, A5, etc.) employ Chinese Customs data for volume amounts (bars, left axis), which includes plantation-grown timber products. The trend lines showing China's percent market share of Africa timber exports (lines, right axis) use World Trade Atlas data and excludes plantation timber—other than teak. Market share data for 2006 is not yet available.

Figure A2: Gabon's Timber Exports by Destination & Type¹³



Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

The trend in China's imports from Gabon is clearly distinguishable from comparable European imports. China's imports of Gabonese timber products have been dominated by logs. Indeed, China did not import any processed wood from Gabon from 1994–2002, although by 2006 sawn wood made up 5% of timber imports. During the same period, processed exports to Europe (mostly sawn wood, veneer and plywood) have increased robustly from 2001–2006, and now account for about three-fifths of timber products sent to Europe, mainly to France and Italy.

This shift after 2000–2001 in European imports may reflect compliance with Gabon's forestry code, which until recently required that logs should not account for more than 30% of the country's timber exports. Gabonese forestry authorities are now establishing a new log export quota system. Similar to a Cameroonian policy, this regulation stipulates that only those producers with operational processing facilities are allowed to export a specified percentage of the concessionaire's exports. Instituted in January 2007, exact quotas are still being assessed, but the stated goal is to gradually reduce log's share of total timber exports to 25% by 2012 (ITTO 2007a). However, it is not yet clear to what extent negotiations have completed and quotas have been implemented; as of September 2007, producers were still negotiating with forestry officials (ITTO 2007b).

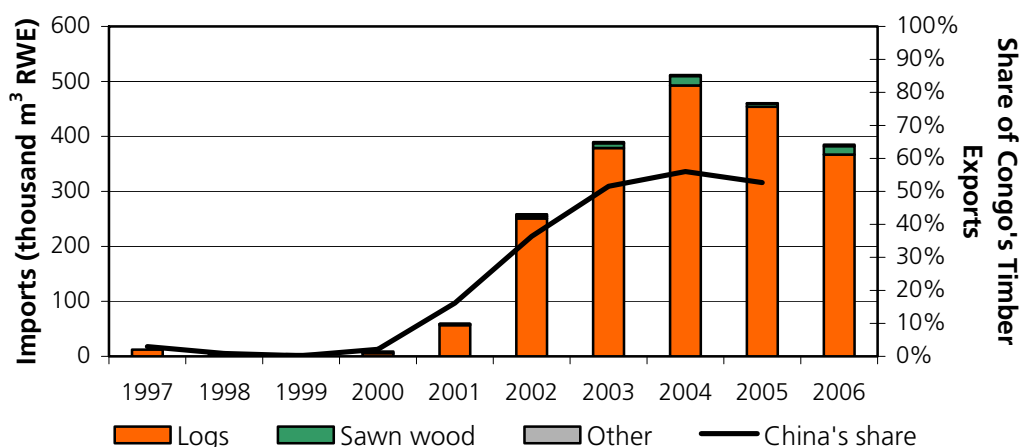
REPUBLIC OF THE CONGO

The Republic of the Congo's exports to China have increased dramatically over the past five years, rising from 0.01 million m³ to a peak of around 0.5 million m³ between 2000 and 2004 before dropping down to 0.4 million m³ in 2006 (Fig. A3). Negligible during prior years, the share of Congolese timber bound for China increased from 2.0% in 2000 to 36% in just four years (2000–2004). This rise is almost entirely attributable to one enterprise, Taman Industries, an affiliate of the Rimbunan Hijau group, and has caused the Republic of the Congo's output to double. More than 95% of China's imports from the Republic of the Congo are logs (compared to 70% for European imports). Aside from Europe and China, the Republic of the Congo also exports logs to Japan, and in recent years, logs and sawn wood to the United States. Like

¹³ Charts of timber exports by destination market in Annex 1 (e.g. Fig. A2, A4, A6, etc.) employ datasets which exclude plantation-grown timber or products made from this wood, such as wood chips and pulp logs, unless where specifically mentioned. Data concerning exports to the Rest of the World for 2006 are not yet available for these graphs.

Cameroon and Gabon, the Republic of the Congo is planning to revise log export limits and implement a quota system (ITTO 2007a), which may have an affect on the proportion of logs exported to China.

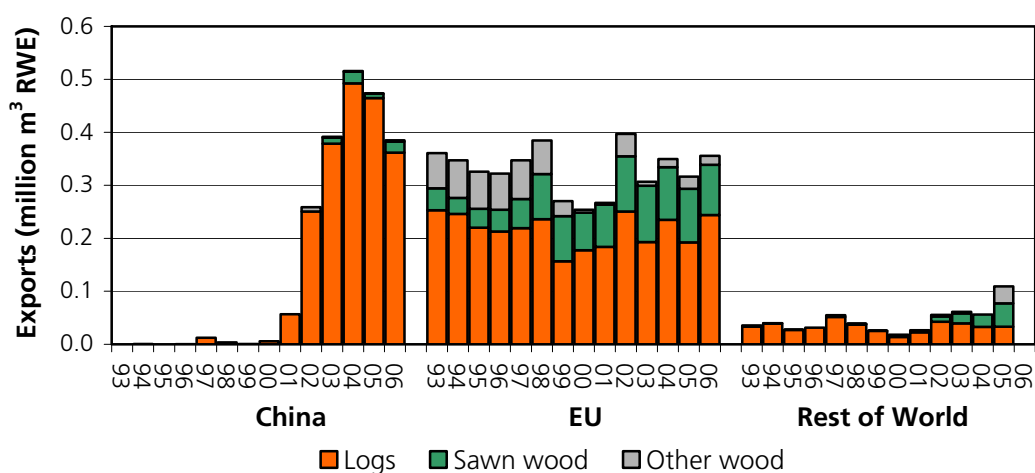
Figure A3: China's Imports of the Rep. of the Congo's Timber Products & Market Share



Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by Forest Trends.

Along with Equatorial Guinea and Mozambique, the Republic of the Congo is one of the few countries in Africa whose timber exports to China now surpass those to the EU (Fig. A4). The nation's timber exports to China have exceeded those to Europe since 2003 and now account for roughly half of the nation's non-plantation timber exports. In 2005, China accounted for about 90% of the okoumé exported from the Republic of the Congo.

Figure A4: The Rep. of the Congo's Timber Exports by Destination & Type



Source: China Customs Statistical Yearbook, World Trade Atlas and data, compiled by James Hewitt.

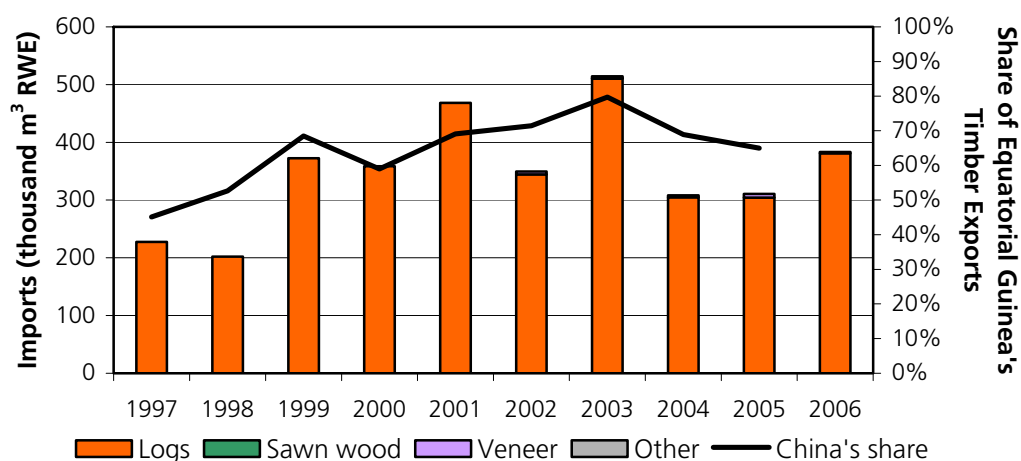
Most logging concessions in the Republic of the Congo are located in the north of the country. Civil war in the late 1990s led to the withdrawal of most European logging enterprises from the southern forests, which had been heavily exploited during the last century. Today, the southern region has become the center of logging activity by Chinese and Malaysian companies, starting around 2000 with exports becoming significant

from 2001 onwards (Karsenty 2007: 15). Though forests in this area has been previously harvested, the south has access to ocean ports and still have certain regions rich in okoumé, a species highly sought after in China. The majority of current concessionaires in the northern region are European-owned, where concessionaires have had to transport their timber exports through Cameroon rather than via the main port Pointe Noire.

EQUATORIAL GUINEA

Since 1998, Equatorial Guinea has exported the majority of its timber to China, almost exclusively as logs (Fig. A5). The volume of this trade has fluctuated, but remained strong over the period studied, up from zero in 1994 to between 200,000 to 500,000 m³ per year since 1997. China has accounted for between 60–80% of Equatorial Guinea’s forest product exports since 1999. In contrast, the volume exported each year to the European Union remained more or less constant at about 100,000 m³ (Fig. A6). This tends to imply that the enterprises which supplied the EU prior to the surge in China’s imports continued to do so, and that the exports to China are supplied by at least one new enterprise. While logs comprise the vast majority of timber exports—averaging 89% from 1993–2006—the remainder constitutes mainly veneer exports to Europe.

Figure A5: China’s Imports of Equatorial Guinea’s Timber Products & Market Share

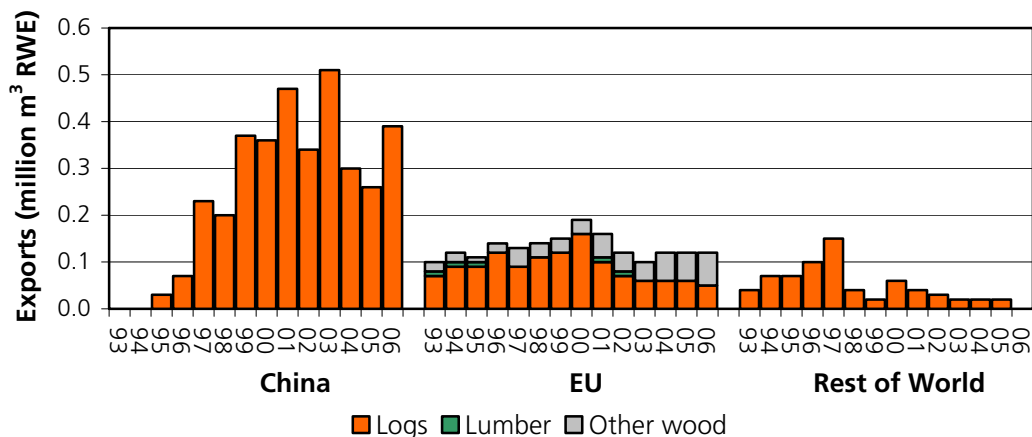


Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by Forest Trends.

With this tremendous increase in exports, almost all of the country’s commercially productive forests are now under concessions. Shimmer International, a subsidiary of Malaysian logging conglomerate Rimbunan Hijau, now executes most logging in the country both as a concessionaire and as a logging contractor to others (Karsenty 2007: 17). Shimmer’s operations in Equatorial Guinea began during the mid-1990s and account for almost all China’s log imports from that country. Okoumé accounts for the great majority of those imports.

Given that the annual allowable cut for all species has been 450,000 m³ since the mid-1990s and earlier, it seems reasonable to conclude that the country’s forest are being rapidly depleted of their most sought-after species—okoumé. As the volume of exported logs per hectare of concessions operated by Shimmer is roughly five times greater than that of most other concessions, China’s imports are likely contributing to the rapid exhaustion of Equatorial Guinea’s forests.

Figure A6: Equatorial Guinea's Timber Exports by Destination & Type



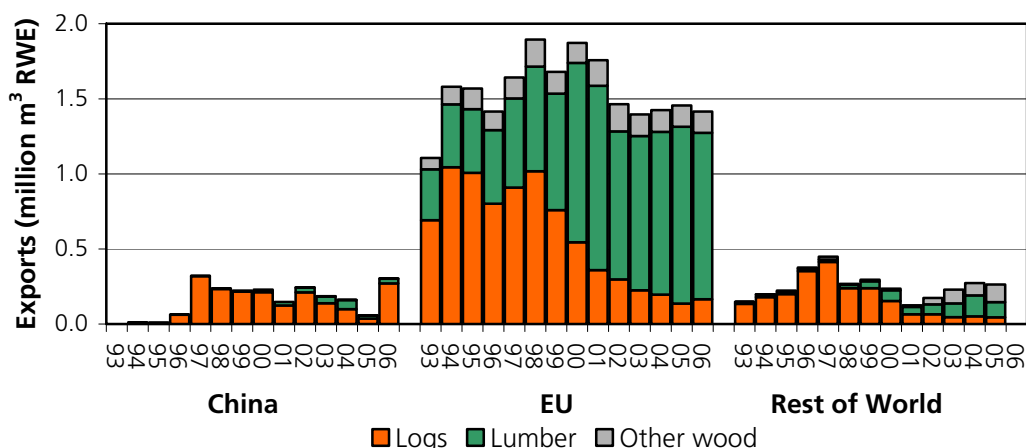
Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

CAMEROON¹⁴

Cameroon's exports to China constitute only a small portion of its total timber exports. Logs are not the dominant export of the country, and the species mix is also different from that of Gabon, the Republic of the Congo, and Equatorial Guinea. Rimbunan Hijau has withdrawn from Cameroon's forests and the leading logging contractor is now Vicwood, a Chinese company also active in the Central African Republic and the Republic of the Congo. From 1993–1999, an average of 65% of Cameroon's exports were logs (Fig. A7). In 2000, however, European markets began importing more sawn wood instead of logs. Logs composed just 25% of Cameroon's timber exports from 2000–2006. This is partly the result of a log export ban imposed in 1999 for many species. However, the government exempted two of the main commercial species from the ban: ayous (*Triplochiton scleroxylon*) and azobé (*Lophira alata*) (Cerutti and Tacconi 2006: 6). Instead, export quotas are allocated separately for these species (Karsenty 2007: 13). China's imports also reflect this trend although much less dramatically: from 1993–1999, virtually all of Cameroon's exports were logs, but by 2005 sawn wood made up 73% of the product mix in terms of roundwood equivalent volume (Fig. A8).

¹⁴ It is likely that the data used in this report overestimates Cameroonian exports somewhat, and correspondingly underestimate those of Central African Republic and the Republic of the Congo. Some of the latter's exports leave Africa via Cameroon, and, at ports of import, some of these are declared as Cameroonian timber. Differences between import and export declarations for these three countries might reflect inconsistency rather than an illegality.

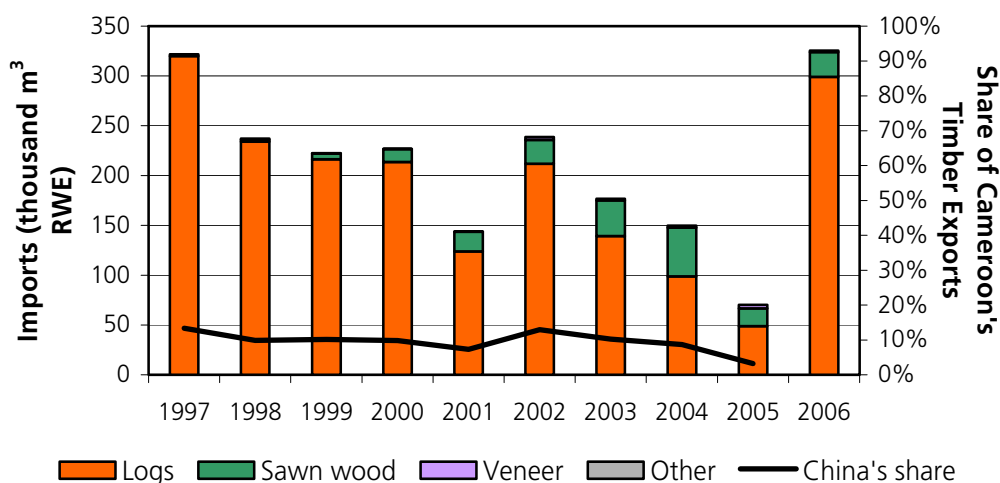
Figure A7: Cameroon's Timber Exports by Destination & Type



Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

Cameroon's log exports to China fell considerably during the period studied, as did its log exports to the world overall. Having fallen to 15% of their 1997 level, China's imports of logs from Cameroon rose to record levels during 2006. Such volatility seems to characterize much of the trade flows between China and Africa. Despite the 2006 surge, China's purchasing activity in Cameroon cannot compare to that of the EU. Italy is a particularly significant importer among the Europeans, and Italian companies account for much of Cameroon's processed timber outputs from mills and concessions.

Figure A8: China's Imports of Cameroon's Timber by Volume & Type



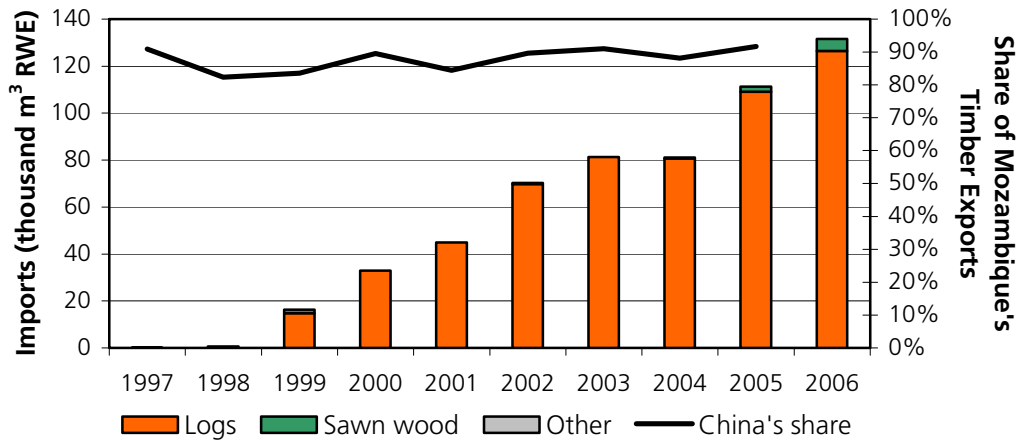
Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by Forest Trends.

MOZAMBIQUE

Mozambique's timber exports, roughly 0.12 million m³ RWE in 2006, account for only about 2% of Africa's total timber exports (Fig. A9). Virtually all of these exports, however, go to China—placing Mozambique

among the leading suppliers of African wood to China. Since 1997, China and Hong Kong¹⁵ combined have received an average of 88% of Mozambique's annual timber exports. Still a relatively low-volume log exporter, Mozambique's log exports to China have grown continuously over the period studied. Aside from one anomalous year of paper exports in 1998, logs dominate the China export mix, with minimal sawn wood exports to China paling by comparison.

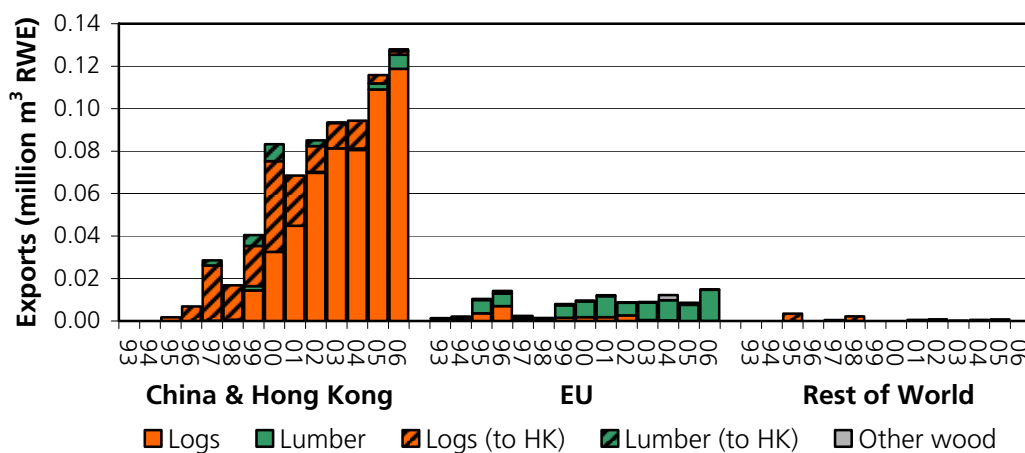
Figure A9: China's Imports of Mozambique's Timber by Volume & Type



Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by Forest Trends.

While Mozambique's exports to China and Hong Kong rose strongly since the mid-1990s, those to the EU (mostly destined for Italy) have remained consistently less than 0.02 million m³ RWE (Fig. A10). As with China, Hong Kong too is solely interested in logs: since the two countries began importing timber from Mozambique in 1996, an average of 96% of their imports has been logs.

Figure A10: Mozambique's Timber Exports by Destination & Type



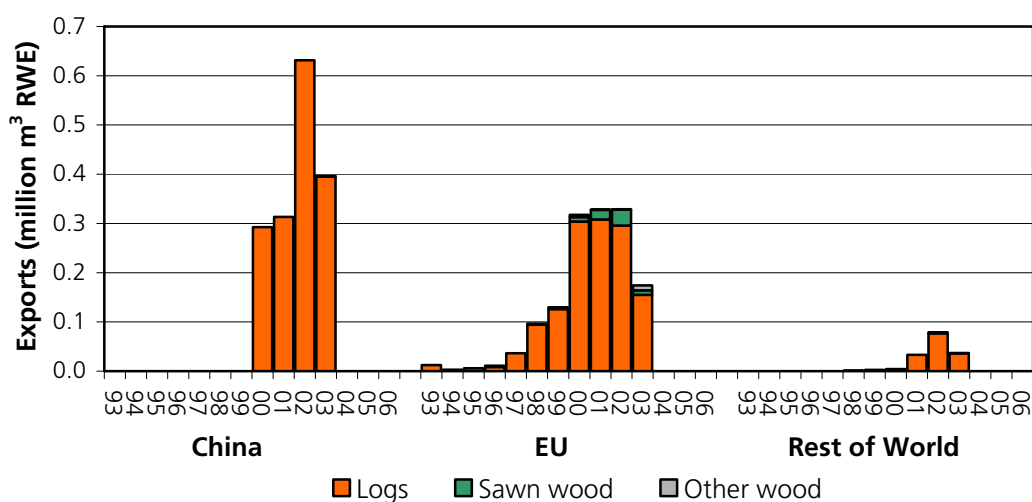
Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

¹⁵ Normally insignificant compared to China and the EU, Hong Kong was a major importer of Mozambican wood until 2005, importing more than China from 1996–2000. Much of this might have been re-exported to mainland China.

LIBERIA

From 2000–2003, Liberian timber exports to China rose faster than any other African nation, rising from 0 to 0.6 million m³ RWE in just three years (Fig. A11). Its exports briefly made the country the sixth greatest exporter of logs to China worldwide. By 2002, one million m³ was exported, almost 60% to China and 28% to the European Union (mainly to France), though the exact amount is unknown due to poor reporting.

Figure A11: Liberia’s Timber Exports by Destination & Type



Source: *China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.*

All exports stopped abruptly in the end of 2003 when the UN Security Council placed sanctions barring the international trade of timber from Liberia because the revenue from logging was financing the purchase of weapons used in a brutal civil war and therefore fueling regional conflict. The period of rapidly expanding exports coincided with this brutal civil conflict. As the Liberian economy foundered, the exploitation of diamonds and timber had created a revenue stream that funded the war. Liberian President Charles Taylor allocated forest concessions to allies in exchange for weapons, while these factions used the profits from exports of this “conflict timber” to purchase arms. The Indonesian Oriental Trading Company (OTC) was the major, perhaps only, supplier of Liberian logs to China. The OTC Director of Operations in Liberia, Guus Kouwenhoven, aided Taylor with the acquisition of arms in exchange for control over forests. Kouwenhoven was convicted in June 2006 at The Hague and sentenced to eight years imprisonment (Forest Trends, 2006).

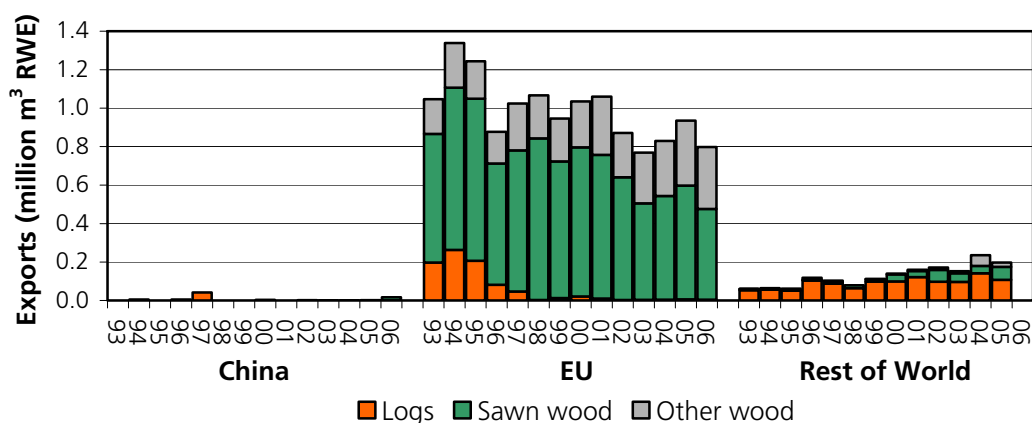
Unable to operate in the midst of the growing war and fearing looting of their equipment, the logging companies fled Liberia in 2003 and the U.N sanctions prevented their return once the war ended. The sanctions were lifted in June 2006 after the Government of Liberia instituted a series of regulatory reforms. Early in 2008, industrial logging will restart in Liberia, hopefully in compliance with the new Forestry Law that adopts new international standards of logging to increase accountability and transparency in the sector, including requirements for chain of custody timber tracking, and forest management plans. Through this effort, Liberia hopes to restore the reputation of a sector damaged by two decades of corruption and violence, and ensure that the sector can play a positive role in the redevelopment of a country that has suffered too long at war.

CÔTE D'IVOIRE

Until the 1990s, Côte d'Ivoire was one of Africa's leading exporters of timber. Unsustainable harvesting from commercial timber exploitation and land conversion for agriculture seriously degraded their forests, leading many logging companies to leave and pursue ventures in Cameroon and the Congo Basin.

Today, log exports (other than from plantations) are prohibited. Consequently most of Côte d'Ivoire's exports are sawn wood and veneer, and virtually nothing is exported to China (Fig. A12). Exports to the EU appear to have been falling slightly over the past decade, though it exhibits much year-to-year fluctuation generally in the range of 0.8–1.1 m³ RWE. Within the EU, Italy and Spain are the major destinations. In the late 1990s, Côte d'Ivoire instated a ban on non-teak log exports, the effects of which are clearly visible for the EU. Almost all of the nation's teak is destined for India, accounting for the steady flow of log exports to the rest of the world.

Figure A12: Côte d'Ivoire's Timber Exports by Destination & Type

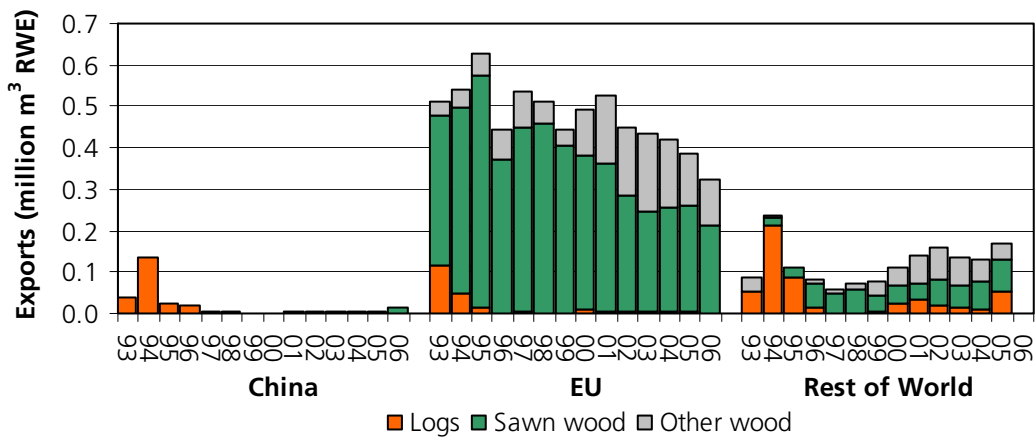


Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

GHANA

Ghana ranks high among African countries in timber export volumes, though its log export ban makes the country unappealing to Chinese markets. Due to this ban, virtually all of Ghana's exports are sawn wood or other processed wood products. China did however import large quantities of logs in 1994, while the ban was temporarily lifted (Fig. A13). The lifting of the ban led to a serious collapse of forest management, and resulted in the law being reinstated. China's interest in Ghana again waned and instead, the EU and increasingly the U.S. are the main markets for their timber. Total exports from Ghana have decreased steadily since 2001, sliding from 0.67 m³ RWE to 0.56 m³ RWE in 2005. The U.S. accounts for much of its other exports.

Figure A13: Ghana's Timber Exports by Destination & Type

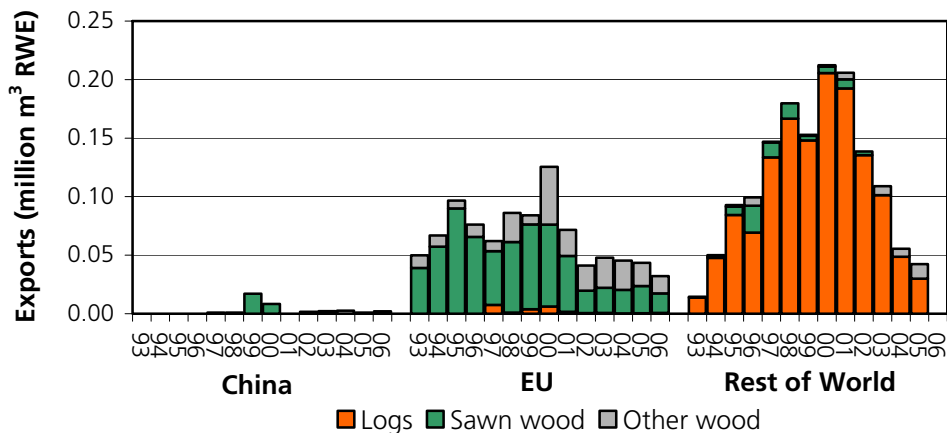


Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

NIGERIA

Nigeria exports small volumes averaging 0.1 million m³ RWE of natural forest products, but virtually none are exported to China (Figure A14). This trade is valued at approximately US\$50 million, a fifth of which is logs. Despite a log export ban, India imports most of Nigeria's logs, while nearly all sawn wood heads to Italy. Export volumes peaked at just over 0.2 million m³ RWE in 2000–2001, but this amount has since fallen to below 1994-levels of 0.05 million m³ RWE. Over the years Nigeria has become a net importer of timber, contributing only 1.2% of Africa's tropical timber exports in 2005.

Figure A14: Nigeria's Timber Exports by Destination & Type

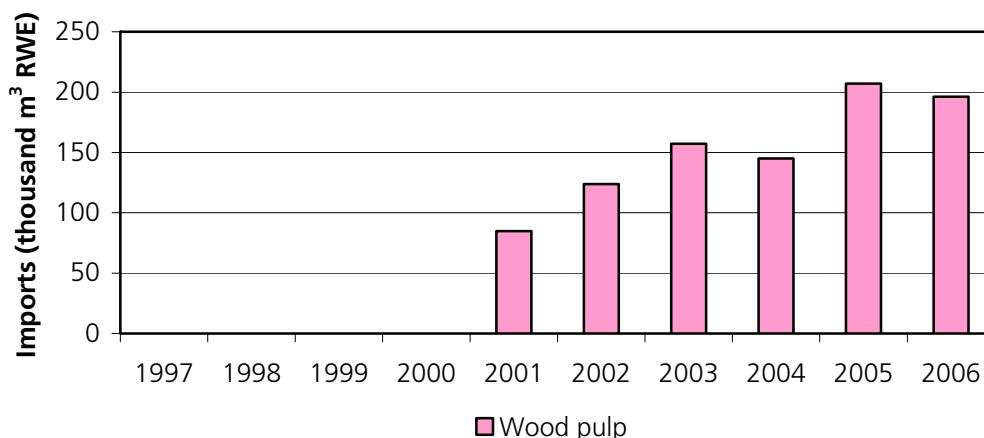


Source: China Customs Statistical Yearbook, Eurostat, World Trade Atlas, and other data, compiled by James Hewitt.

CHINA'S PULP & PAPER IMPORTS FROM SOUTH AFRICA & SWAZILAND

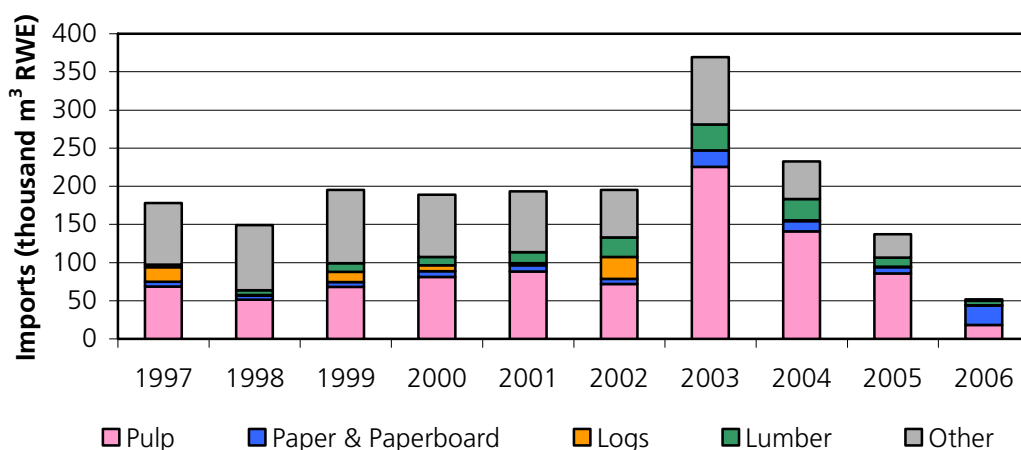
In 1997, China's imports of paper and pulp from Africa amounted to 79,000 and 68,000 m³ RWE respectively. Swaziland and South Africa supplied virtually all the pulp, with the latter supplying all paper as well (Fig. A15, Fig. A16). South Africa was also Africa's sole exporter of pulp to China until 2001, when it was displaced by Swaziland. Swaziland currently produces the vast majority (91%) of Africa's pulp exports to China. By 2006, however, China's imports of paper from South Africa had shrunk by 68% to 25,000 m³, while its imports of pulp from Africa had more than tripled to 214,000 m³. South Africa exports over 90% of the continent's plantation-grown products.

Figure A15: China's Forest Product Imports from Swaziland by Volume & Type



Source: China Customs Statistical Yearbook.

Figure A16: China's Forest Product Imports from South Africa by Volume & Type



Source: China Customs Statistical Yearbook.

ANNEX 2: PAST PUBLICATIONS OF THE PROGRAM “CHINA & FOREST TRADE IN THE ASIA-PACIFIC REGION”

All papers are available at www.forest-trends.org/programs/pacific_rim.htm

OVERVIEW REPORTS

1. *China and the Global Market for Forest Products: Transforming Trade to Benefit Forest and Livelihoods*
A. White, X. Sun, K. Canby, J. Xu, C. Barr, E. Katsigris, G. Bull, C. Cossalter and S. Nilsson. 2006.
2. *Meeting China’s Demand for Forest Products: An Overview of Import Trends, Ports of Entry, and Supplying Countries, with Emphasis on the Asia-Pacific Region*
X. Sun, E. Katsigris, and A. White, 2004.
3. *China’s Forest Product Exports: An Overview of Trends by Segment and Destinations*
X. Sun, N. Cheng, and K. Canby, 2005.
4. *The China Forest Products Trade: Impacts and Implications for Asia-Pacific Supplying Countries*
E. Katsigris, G. Bull, A. White, C. Barr, K. Barney, Y. Bun, F. Kahrl, T. King, A. Lankin, A. Lebedev, P. Shearman, A. Sheingauz, Y. Su, and H. Weyerhaeuser, 2004.
5. *A Brief Overview of China’s Timber Market*
X. Sun, L. Wang, and Z. Gu, 2005.

CHINA MARKET AND LIVELIHOOD STUDIES

6. *China’s Forest Product Import Trends 1997–2002: Analysis of Customs Data with Emphasis on Asia-Pacific Supplying Countries*
X. Sun, N. Cheng, A. White, R.A. West, and E. Katsigris
7. *Chinese Collective Forests: Contributions and Constraints*
R. A. West and G. Miao, 2005.
8. *China’s Pulp and Paper Sector: Supply-Demand Trends and Medium Term Projections*
D. He and C. Barr, 2004.
9. *An Assessment of China’s Forest Resources*
G. Q. Bull and S. Nilsson, 2004.

10. *China's Development of a Plantation-Based Wood Pulp Industry: Government Policies, Financial Policies, Financial Incentives, and Investment Trends*
C. Barr and C. Cossalter, 2004.

11. *China's Forest Sector Markets: Policy Issues and Recommendations*
S. Nilsson, G. Bull, A. White, and J. Xu, 2004.

12. *Understanding the Chinese Forest Market and Its Global Implications*
J. Xu and A. White, 2004.

13. *China's Sloping Land Conversation Program Four Years on: Current Situation, Pending Issues*
Z. Xu, M. T. Bennett, R. Tao and J. Xu, 2004.

REGIONAL TRADE AND LIVELIHOOD STUDIES

14. *Logging, Legality and Livelihoods in Papua New Guinea: Synthesis of Official Assessments of Large-Scale Logging Industry*
Forest Trends, 2006.

15. *Navigating the Border: An Analysis of the China-Myanmar Timber Trade*
F. Kahrl, H. Weyerhaeuser, and S. Yufang, 2005.

16. *An Overview of the Market Chain of China's Timber Product Imports from Myanmar*
F. Kahrl, H. Weyerhaeuser, and S. Yufang, 2005.

17. *Overview of the Forest Sector in the Russian Far East: Production, Industry, Problem of Illegal Logging*
A. S. Sheingauz, 2004.

18. *China's Impact on Papua New Guinea's Forestry Industry*
P. Shearman, Y. Bun, and T. King, 2004.

19. *Forest Product Exports from the Russian Far East and Eastern Siberia to China: Status and Trends*
A. Lankin, 2005.

20. *Siberian and RFE Timber Market for China: Criminal and Official Technologies, Players and Trends*
A. Lebedev, 2005.

21. *China Softwood Log Commodity Chain and Livelihood Analysis: From the Russian Far East to China*
A. S. Sheingauz, A. V. Lebedev, and N. Y. Antonova, 2005.

22. *At the Supply Edge: Thailand's Forest Policies, Plantation Sector and Commodity Export Links with China*
K. Barney, 2005.

23. *Customs, Concessionaries and Conflicts: Tracking Cambodia's Forest Commodity Chains and Export Links with China*
K. Barney, 2005.
24. *Central Plans and Global Exports: Tracking Vietnam's Forest Commodity Chains and Export Links with China*
K. Barney, 2005.
25. *Strengthening Forest Management in Indonesia Through Land Tenure Reforms: Issues and Framework for Action*
A. Contreras-Hermosilla and C. Fay, 2005.
26. *Russia-China Forest Product Trade: An Overview of Import Trends, Ports of Entry and Supplying Countries*
X. Sun, N. Cheng, A. White, R.A. West, and E. Katsigris, 2005.
27. *Logging in the Wild East China and the Forest Crisis in the Russian Far East*
C. Pye-Smith, 2006.
28. *Russian Logs in China: The Softwood Commodity Chain & Economic Development in China*
W. Song, B. Cheng, S. Zheng and X. Meng, 2006.
29. *Environmental Aspects of China's Papermaking Fiber Supply*
B. Stafford, 2007.
30. *Forest Products Trade Between Russia & China: Potential Production, Processing, Consumption and Trade Scenarios*
S. Northway and G. Bull, 2007.

CHINA-EAST ASIA INFORMATION BULLETIN SERIES

Issue 1: *China and the Global Market for Forest Products*

A. White, X. Sun, K. Canby, J. Xu, C. Barr, E. Katsigris, G. Bull, C. Cossalter and S. Nilsson. 2006.

Issue 2: *Illegal Logging Briefing Paper*

Chinese translation of Chatham House briefing paper by D. Brack. 2006.

Issue 3: *Linking Timber Trade and Forest Practice*

Forest Trends. 2006.

Issue 5: *Helping Liberia Escape Conflict Timber*

Kerstin Canby. 2006.

Issues 6: *The EU Forest Law Enforcement, Governance and Trade Action Plan.*

Summary and Chinese translation of several briefing sheets on the EU FLEGT Action Plan by X. Sun. 2006.

Issue 7: *Environmental Aspects of China's Wastepaper Imports*

B. Stafford. 2007.

Issue 8: *Role Models in China's Forest Products Industry: Companies Developing Chain-of-Custody Systems to Protect against Illegal or Unsustainable Wood Sourcing*

M. Brady & Kerstin Canby. 2007.

Issue 9: *Why China Prefers Logs: Explaining the Prevalence of Unprocessed Wood in China's Timber Imports*

R. Kozak & Kerstin Canby. 2007.

SOURCES

- Asia Pulse. Feb 24, 2006. "China Encourages Development of Timber Substitutions."
<<http://www.forests.org/articles/reader.asp?linkid=53054>> Accessed on Oct 16, 2007.
- Cerutti and Tacconi. 2006. *Forests, Illegality, and Livelihoods in Cameroon*. Bogor, Indonesia: Center for International Forestry Research.
- Forest Trends. 2006a. *Helping Liberia Escape Conflict Timber: The Role of the International Community—China & Europe*. China East Asia Information Bulletin, issue 5. Washington, D.C.: Forest Trends.
- Forest Trends. 2006b. *China and the Global Market for Forest Products: Transforming Trade to Benefit Forests and Livelihoods*. Washington, D.C.: Forest Trends.
- Forest Trends. 2007a. *Environmental Aspects of China's Papermaking Supply*. Washington D.C.: Forest Trends.
- Forest Trends. 2007b. *Why China Prefers Logs: Explaining the Prevalence of Unprocessed Wood in China's Timber Imports*. China East Asia Information Bulletin, issue 9. Washington, D.C.: Forest Trends.
- General Office of the State Council of China (China State Council). 2005. Notice of the General Office of the State Council on transferring "Opinions on Speeding up the Conservation and Substitution" of the National Development and Reform Commission et al. Guobanfa no. 58, Nov. 29, 2005.
- International Tropical Timber Organization (ITTO). 2007a. *New log quota system enters into force in Gabon Tropical Timber Market Report, January 1st-15th 2007*. Yokohama: ITTO. Available online at <http://www.itto.or.jp/live/Live_Server/3096/mis20070101.pdf> Accessed on Jan 10, 2007.
- International Tropical Timber Organization (ITTO). 2007b. *New log quota system enters into force in Gabon Tropical Timber Market Report, October 1st-15th 2007*. Yokohama: ITTO. <http://www.itto.or.jp/live/Live_Server/3621/mis20071001.pdf> Accessed on Oct. 2, 2007.
- Karsenty, Alain. 2007. *Overview of Industrial Forest Concessions and Concession-based Industry in Central and West Africa and Considerations of Alternatives.*, Montpellier: CIRAD.
- Roberts, Don, Herve Carreau and Johnathan Lethbridge. 2007. *Russia plans to dramatically increase its export tax on logs: A structural change in global wood markets*. Toronto: CIBC World Markets.
- White, L. 1998. *Aucoumea klaineana*. In: 2007 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Accessed on Oct. 15 2007.