

**“Illegal” Logging and Global Wood Markets:  
The Competitive Impacts on the U.S. Wood Products Industry**

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American Forest & Paper Association

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# **Illegal Logging and Global Wood Markets: The Competitive Impacts on the U.S. Wood Products Industry**

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*Seneca Creek Associates, LLC & Wood Resources International, LLC*

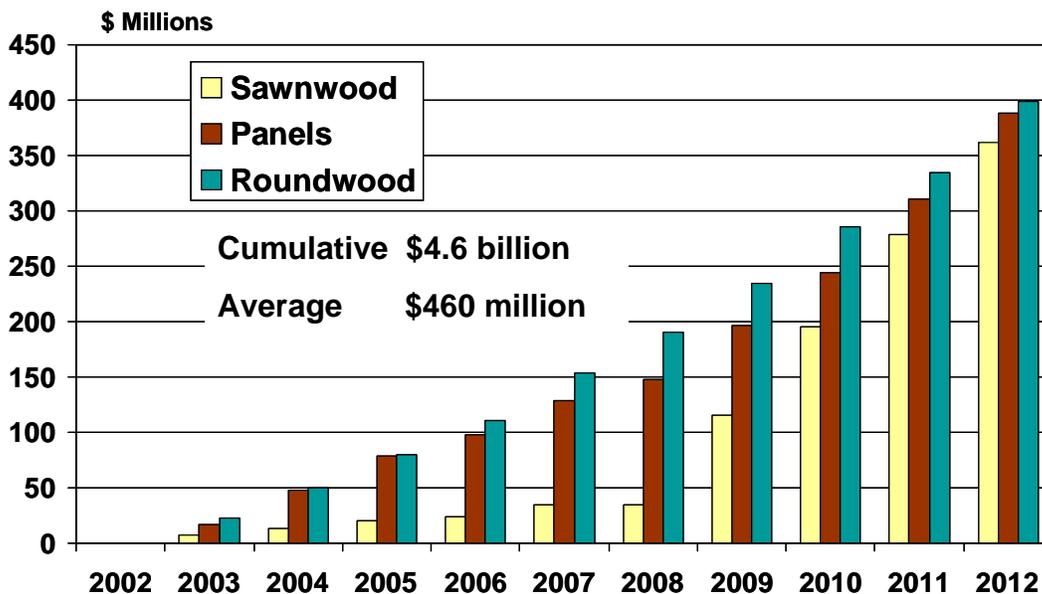
## **Executive Summary**

Illegal logging has been high on the agenda, if not directly at the center, of numerous international conferences on forests. This attention stems in large part from environmental concern over deforestation and poor forest management practices in many developing countries and countries with economies in transition. Illegal harvesting can have deleterious impacts on biodiversity and other globally important environmental services. Among the factors driving illegal logging are: unclear or poorly enforced forest tenure, weak political institutions, poverty, corruption, inadequate natural resources planning and monitoring, and lax enforcement of sovereign laws and regulations. The presence of illegally procured wood fiber also affects the competitiveness of American and other producers who operate legitimately within national and international environmental and trade rules. An AF&PA-sponsored study of the illegal logging issue provides new perspective on the estimates of illegal logging and its associated economic impacts. Among the new study's key findings:

- While there are many types of illegal forest activities, some appropriately rise to a level of international concern. They would include: harvesting without authority in designated national parks or forest reserves and harvesting without or in excess of concession permit limits; failing to report harvesting activity to avoid royalty payments or taxes; and, violating international trading agreements such as the Convention on International Trade of Endangered Species (CITES).
- A systematic analysis of wood fiber flows within and between selected producers and consumers suggests that illegal forest activity (of the type that rises to a level of international concern) represents between 5% and 10% of global industrial roundwood production.
- Most illegally produced timber is used domestically and does not enter international trade. Suspicious volume of roundwood that enters international trade represents on the order of just 1% of global production for both softwood and hardwood combined, but ranges from 12% to 17% of the volume of roundwood that enters international trade.
- The analysis concludes that between 2% and 4% of softwood lumber and plywood traded globally, and as much as 23% to 30% of hardwood lumber and plywood traded globally, could be of suspicious origin. In aggregate, on the order of 5% - 10% of the value of global wood products trade can be traced to suspiciously produced roundwood.

- An economic simulation using the Global Forest Products Model (GFPM) suggests that illegal material depresses world prices by 7% - 16% on average, and U.S. prices by 2% - 4%, depending on the product.
- In certain important markets, illegal material significantly affects the ability of U.S. producers to export. Absent illegal volume in the global market, U.S. exports of sawnwood and wood panels could increase by a cumulative total of more than \$2.8 billion through 2012, or an average of \$275 million annually. The average annual increase in the value of U.S. roundwood exports could also increase by an estimated \$186 million, bringing the projected total annual increase in value of wood product exports to just over \$460 million, in real dollar terms. This represents a measure of the opportunity costs for U.S. exporters because of illegal wood products in the global market. Eliminating suspicious roundwood in the global market would have an effect on domestic prices and on the pulp and paper sector which would be in addition to the impact on U.S. wood exports.
- The sometimes wide gap in cost between legitimate, legally procured timber and illegal timber provides an incentive for smuggling. To be effective, solutions to the illegal logging issue must reduce the spread between the costs of operating illegally and the costs of operating legitimately. Policy makers should consider that raising costs for legal trade could have a perverse and unintended impact.

*Increase in US Wood Product Exports due to Elimination of Illegal Logging*



## *Observations and Findings*

(1) The “illegal logging” issue is an outgrowth of long-standing concerns over global forest conservation. The issue itself is confused by, yet intricately related to, deforestation and poor forest practices. In many ways, “illegal logging” is the most recent moniker for addressing pervasive and worrisome environmental degradation in tropical and sensitive boreal forests.

(2) Illegal forest activities can be defined broadly to include violations of any number of international, national or local laws and regulations. However, some illegal activities appropriately rise to a level of international concern. They would include: harvesting without authority in designated national parks or forest reserves and harvesting without or in excess of concession permit limits. In addition, illegal activities that are sometimes related include failing to report harvesting activity to avoid royalty payments or taxes: and, violating international trading agreements such as the Convention on International Trade of Endangered Species (CITES).

(3) No matter how broad or narrow illegal forest activity might be interpreted, its extent is impossible to know with any degree of certainty. Reported estimates are generally supported only through anecdotal information and supposition. Quantifying illegal logging by type of activity is even less precise. For example, one might think that measuring “logging in protected areas” would be possible through satellite technology, and this may be feasible in relatively small areas, but the definition of what “protected” means also seems to vary from country to country.

(4) Our investigation and analysis suggests that many of the reported estimates are likely exaggerated, at least in some cases, but illegal activity of the type that rises to international significance is nevertheless pervasive in some countries.

(5) Illegal logging is primarily a symptom of unclear or poorly enforced forest tenure, weak political institutions, corruption, inadequate natural resources planning and monitoring, and lax enforcement of sovereign laws and regulations. The problem appears to be most acute in countries without private forest ownership or clearly controlled tenure. Ambiguous forest tenure is a major impediment to legality as there is less incentive to protect assets from theft and destruction.

(6) Smuggling, money laundering and other criminal activity in the forest sector have been alleged in some countries and, in some cases, prosecuted. Timber can be a high valued item that is relatively easy to merge into legitimate distribution. The sometimes wide gap in cost between legitimate, legally procured timber and illegal timber provides an incentive for smuggling.

(7) Based on our assessment of estimates and analysis of wood fiber flows, we believe illegal forest activity (of the type that rises to a level of international concern) represents between 5% and 10% of global industrial roundwood production – approximately 4% for softwood, but 15% for hardwood.

(8) Most illegally produced timber is used domestically and does not enter international trade. The suspicious volume of roundwood that enter international trade represents on the order of just 1% of global production for both softwood and hardwood. However, we calculate (estimate) that 12% of global softwood roundwood exports and as much as 17% of global hardwood roundwood exports are of suspicious origin. Less than 4% of global trade in softwood lumber and plywood originates with timber of suspicious origin, but as much as 23% of hardwood lumber exports, and 30% of hardwood plywood exports might be considered suspicious. This is largely attributable to the Indonesian situation where a high percentage of production, and hence export, is believed to be illegal.

(9) Cost comparison between illegal and legal material is complex. Companies dealing in “illegal” wood products are not just paying a lower price for logs which have not required the same investment to obtain as “legal” logs. Bribes and other costs of acquiring illegal logs add to their cost, as does the increased level of risk. On the other hand, tax avoidance, ignoring labor laws, etc. can reduce their costs. Even more complexity is added due to the very wide range in price of tropical hardwood logs. For example, if illegal mills focus on higher value logs, their average log cost might be higher than legal mills consuming lower value logs. It is reasonable to assume that most companies choose to violate logging regulations because they have a financial incentive to do so, but quantifying the price advantage involves as much art as science. Nevertheless, an economic analysis based on simulations from the Global Forest Products Model (GFPM) suggests that illegal material depresses world prices by 7% - 16% on average, and U.S. prices by 2% - 4%, depending on the product. In certain important markets, illegal material significantly affects the ability of U.S. producers to export.

(10) Absent illegal volume in the global market, U.S. exports of sawnwood and wood panels could increase by a cumulative total of more than \$2.8 billion through 2012, or an average of \$275 million annually. The average annual increase in the value of U.S. roundwood exports could also increase by an estimated \$186 million, bringing the projected total annual increase in value of wood product exports to just over \$460 million, in real dollar terms. This represents a measure of the opportunity costs for U.S. exporters because of illegal wood products in the global market.

(11) The actual impact of illegal material on U.S. exports could be higher because the GFPM doesn't distinguish between softwood and hardwood species when compensating for changes in supply. According to the simulation, eliminating suspiciously produced roundwood from the global market puts upward pressure on prices that increases the value of domestic U.S. wood products shipments by an estimated \$500 – \$700 million annually. Elimination of suspicious roundwood in the global market would also have an effect on the pulp and paper sector that would be in addition to the impacts on wood products markets.

(12) While trade data discrepancies offer a hint of problems that may exist with unreported trade, data discrepancies by themselves are not prima facie evidence that illegal trade has occurred.

(13) Some groups have advocated measures to restrict the international trade of wood and paper products from countries with timber of suspicious or unknown origin. Policy advocates differ on

whether an emphasis should be placed on capacity building efforts in countries of concern, or on influencing trade or consumption of suspicious products in the importing countries.

(14) The European Union is taking an approach that combines capacity building with voluntary measures to effect changes in European purchasing of imported timber and lumber products. The EC has enacted a plan to enter into bilateral agreements with non-EU countries to develop and implement an export licensing that would be enforceable on EU imports of timber and sawnwood (lumber).

(15) Neither Japan nor China has expressed any interest in similarly regulating imports from trading partners (nor has the United States or Canada).

(16) Because of the fungibility and fluidity of global trade and manufacturing, bilateral trade measures are not likely to be very effective in reducing unsustainable forest practices, or, for that matter, the extent of illicit harvesting. Operators engaged in illicit activities will likely find ways to circumvent any new bureaucratic systems and trade flows will adjust to the imposed constraints.

(17) To be effective, solutions to the illegal logging issue must reduce the spread between the costs of operating illegally and the costs of operating legitimately. The larger the spread between legal and illegal costs, the greater the returns from illegal activity. Policy makers should consider that raising costs for legal trade could have a perverse and unintended impact.

(18) Apart from general trading rules through the World Trade Organization (WTO), the Convention on Trade in Endangered Species (CITES) is the only international legal instrument with enforceable provisions to restrict trade in specific species. A few commercially important timber species are listed under CITES. CITES data should correspond with official trade data, but frequently doesn't. Collection and analysis of trade data on listed species subject to CITES permits is not well-coordinated or supported. Ways to improve CITES information and data coordination should be explored.

(19) There has been a proliferation of organizations and meetings addressing illegal logging; significant staff and financial resources have been expended on this issue. Governments need to prioritize and reach a consensus on the appropriate forums in which these issues should be discussed and addressed.

(20) In general, forest resource information and monitoring systems are inadequate in most of the countries where illegal activity is believed to be a problem. Governments should support improved information management systems through the ITTO, FAO or other extant international institutions.

(21) Having taken great pains to review illegal logging estimates (i.e., the extent of the problem), the more important issue is not whether illegal activity occurs (it does), but how well can national institutions effect changes in their own management and enforcement cultures.

(22) Industry trade groups are increasingly adopting or strengthening codes of conduct that commit to purchasing legally procured and manufactured timber products. All of the major certification schemes include a standard to comply with all applicable legal and regulatory requirements.

(23) It is generally accepted that solving the problem of illegal logging will take more than just strengthened enforcement capacity and trade restrictions. This problem does not exist in a vacuum, but is inextricably tied to other economic, social and political problems. History shows that as economies grow, and as opportunities for education and healthcare improves, investments in natural resources and environment follow. However, to improve the effectiveness of programs aimed at reducing illegal logging in producing countries, donor countries should try to tie their efforts to broader programs aimed at improving economic opportunities for those living in the effected regions.

(24) Finally, does the problem of illegal logging justify all the attention it receives? We believe that the importance of this issue to AF&PA extends well beyond the economic value of the trade opportunities lost to U.S. wood exporters. To the extent that the general public associates logging, in any country, with “illegal activity,” there is a danger of a negative impact on the “wood is good” image. Further, since most members of AF&PA have been actively involved in efforts to improve forest management through the SFI program, efforts to combat illegal logging in other countries seems a natural extension. Finally, this issue is not going to fade away, as NGOs have successfully connected the problems associated with illegal logging with other social and economic issues in the target countries. AF&PA should continue to take an active role in developing ways to solve the problem, if for no other reason to strengthen export promotion efforts in a market increasingly influenced by NGOs and buyer groups.

## TABLE OF CONTENTS

	Page
<b>Introduction</b> .....	1
Background .....	1
Purpose .....	1
Scope and Methods .....	1
<b>Understanding the Issue of “Illegal Logging”</b> .....	4
Behind the Debate Over the Definition of Illegal Logging .....	5
Characteristics of Illegal Logging.....	6
Income, Corruption and Illegal Logging .....	7
<b>Global Production, Trade and Illegal Logging</b> .....	9
<b>Costs and Implications of Illegal Logging on Global Trade and U.S. Export Opportunities</b> .....	19
Value of Suspect Roundwood, Lumber and Plywood .....	19
Certification and Chain of Custody Cost Factors .....	21
Economic Implications for U.S. Exporters .....	23
Economic Considerations for Addressing Illegal Logging.....	24
<b>Initiatives/Policies Designed To Address Illegal Logging Concerns</b> .....	29
Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) .....	29
Forest Law Enforcement and Governance Ministerial (FLEG) .....	29
Forest Law Enforcement, Governance and Trade (FLEGT) EU Action Plan .....	30
President’s Initiative Against Illegal Logging (PIAIL) .....	31
Congo Basin Partnership.....	31
Government-to-Government Memoranda of Understanding/Joint Statements .....	31
Asia Forest Partnership .....	32
Government Procurement Policies .....	32
Codes of Conduct – Environment Procurement .....	32
Other Trade Association Activities.....	33
International Organizations.....	34
Other Referenced Monitoring and Control Programs.....	34
<b>COUNTRY/REGION PROFILES</b>	
<b>Brazil</b> .....	36
Overview/Observations.....	36
Forest Policy and Legal Framework in the Amazon .....	37
Resource Situation .....	39
Forest Ownership in the Amazon .....	42
Wood Production in the Amazon Region .....	44

	<b>Page</b>
Certified Forest Management in the Amazon .....	47
Wood Products Trade .....	48
Illegal Logging.....	53
The Cost of Illegal Logging.....	54
IBAMA and Increasing Forest Regulation .....	55
Deforestation and Illegal Logging .....	56
Illegal Logging and Brazil’s Wood Product Exports.....	58
Concluding Observations.....	59
Mahogany Trade [sidebar].....	61
<b>Indonesia</b> .....	<b>65</b>
Overview/Observations.....	65
Background/Introduction .....	65
Resource Situation .....	66
Plantations.....	67
Harvesting.....	68
Industrial Roundwood Consumption .....	69
Industry Sector .....	70
Manufacturing Costs.....	72
Roundwood Trade.....	73
Illegal logging .....	73
Certification .....	76
Implications for U.S. Exporters .....	77
<b>Malaysia</b> .....	<b>79</b>
Overview/Observations.....	79
Background/Introduction .....	79
Forest Policy and Legal Framework.....	80
Resource Situation .....	81
Illegal Logging in Malaysia.....	82
Roundwood Consumption and Trade .....	82
Lumber and Other Exported Wood Products.....	83
Wood Flow and “Suspicious” Product .....	84
Ramin Trade.....	85
Efforts to Address Illegal Logging Issue .....	86
<b>West/Central Africa</b> .....	<b>89</b>
Overview/Observations.....	89
Background/Introduction .....	89
Roundwood Trade.....	91
Sawnwood Exports .....	93
Other Products .....	94
Competition with U.S. Wood Product Exporters.....	94
Illegal Logging.....	95

	<b>Page</b>
<b>Russia</b> .....	99
Overview/Observations.....	99
Background/Forest Resource Situation.....	99
Forest Policy and Legal Framework.....	102
Illegal Logging in Russia.....	103
WWF Assessment of Illegal Logging in Russia.....	103
Examples of WWF Calculations on “Wood of Unknown Origin”.....	104
Other Estimates of Illegal Logging in Russia.....	107
Improvements in Primorsky Krai.....	107
Illegal Wood Exports .....	111
Exports to China .....	115
Will Russian Timber Production Increase? [sidebar] .....	119
Poaching in Primorsky [sidebar].....	121
 <b>China</b> .....	 125
Overview/Observations.....	125
Background/Introduction .....	125
Forest Policy and Legal Framework.....	126
Resource Situation .....	127
Illegal Logging in China.....	128
Roundwood Production and Trade .....	131
Lumber and Other Imported Wood Products.....	134
Wood Flow and “Suspicious” Product .....	136
Efforts to Address Illegal Logging Issue .....	139
Implications for U.S. Exporters .....	140
 <b>Japan</b> .....	 142
Overview/Observations.....	142
Background/Introduction .....	142
Forest Policy and Legal Framework.....	143
Roundwood Production and Trade .....	144
Wood Products Trade .....	145
Japanese Illegal Logging Initiatives.....	146
Implications for U.S. Exporters .....	146
 <b>European Union</b> .....	 148
Overview/Observations.....	148
Background/Introduction .....	148
Forest Policy and Legal Framework.....	149
Resource Situation .....	150
Illegal Logging in Europe .....	151
Roundwood Production and Trade .....	152
Lumber and Other Imported Wood Products.....	154
Implications for U.S. Exporters .....	155
Illegal Logging Initiatives in Europe .....	155

<b>Cited References</b> .....	<b>Page</b> 159
-------------------------------	--------------------

**List of Tables**

Table 1: Types of Alleged Illegal Activity in Profiled Countries/Regions .....	6
Table 2: Reported Estimates of Illegal Logging Activities and Estimates of Production and Trade Derived from Wood Flow Analysis.....	11
Table 3: Summary of Suspicious Wood Products Flow .....	14
Table 4: Estimates of Softwood Products from Suspicious Sources, 2002 .....	15
Table 5: Estimates of Hardwood Products from Suspicious Sources, 2002.....	16
Table 6: Estimates of Softwood Products from Suspicious Sources that Enters International Trade, 2002.....	17
Table 7: Estimates of Hardwood Products from Suspicious Sources That Enters International Trade, 2002 .....	18
Table 8: Value of Wood and Paper Products Imports, 2002 .....	20
Table 9: Approximation of the Value of Primary Wood Products Shipments, 2002 .....	20
Table 10: Estimated Value of Suspicious Wood Products .....	21
Table 11: Summary of Simulated Effects of Illegal Roundwood.....	24
Table 12: Chinese and Japanese Imports from U.S. and Russia, 2002.....	27
Table 13: Brazil: Area of Natural Forest, By Type .....	39
Table 14: Industrial Log Production in Brazil, 2002 .....	41
Table 15: Comparison Profile of States in the Amazon Legal, 2000 .....	43
Table 16: Profile of Land Ownership in the Amazon, 2000.....	44
Table 17: Wood Consumption by State, Amazon Legal, 1998 .....	46
Table 18: Types of Wood Processing Industries in the Amazon.....	47
Table 19: Size of Wood Processing Industries in the Amazon, 1998.....	47
Table 20: Value of Brazil's Exports of Hardwood Products, 2001 – 2003 .....	49
Table 21: Brazil Hardwood Sawnwood Exports, Value by Destination .....	49
Table 22: Brazil Hardwood Moulding & Flooring Exports, Value by Destination.....	50
Table 23: Brazil Hardwood Veneer Exports, Value by Destination.....	50
Table 24: Brazil Hardwood Plywood Exports, Value by Destination .....	51
Table 25: Value of Tropical Wood Exports by State, 2002.....	51
Table 26: Exports from the State of Pará.....	52
Table 27: Estimated Exports from the State of Pará.....	53
Table 28: Forest Cover in West/Central Africa .....	90
Table 29: Value of Wood Product Exports from West/Central Africa, 2002.....	94
Table 30: Comparison of Statistics on Timber Harvest in Russia.....	101
Table 31: Allocation of Industrial Roundwood in Primorsky Krai .....	105
Table 32: Allocation of Industrial Hardwood Roundwood in Primorsky Krai, 2003 .....	106
Table 33: Calculation of Oak Industrial roundwood Usage in Primorsky, 2003.....	106
Table 34: WWF Estimation of Percent of Timber “Of Unknown Origin” .....	107
Table 35: Derived Industrial Roundwood Supply in China, 2002.....	131
Table 36: China's Sawnwood Supply, 2002.....	134
Table 37: China's Softwood Log Imports 2002 .....	137
Table 38: China's Hardwood Log Imports 2002 .....	137

	<b>Page</b>
Table 39: China’s Softwood Lumber Imports 2002 .....	138
Table 40: China’s Hardwood Lumber Imports 2002 .....	138
Table 41: EU Forest Resources and Industrial Roundwood Production .....	151
Table 42: WWF Criteria to Assess Government Commitment to Action on Illegal Logging and Survey Results .....	158

## **List of Figures**

Figure 1: Correlation Between Per Capita Income and Perceived Corruption .....	8
Figure 2: Corruption and Illegal Forest Activity .....	8
Figure 3: Increase in U.S. Wood Product Exports Due to Elimination of Illegal Logging Corruption .....	25
Figure 4: Increase in U.S. Roundwood Exports Due to Elimination of Illegal Logging Corruption .....	25
Figure 5: Brazil’s Forest Products Exports, 1997 - 2003 .....	37
Figure 6: Natural Forest by State, 2002 .....	40
Figure 7: Brazil’s Forest Base, 2003 .....	41
Figure 8: U.S. Imports of Lumber, Moulding, Plywood and Veneer from Brazil .....	42
Figure 9: Hardwood Sawlog and Veneer Log Production in Brazil .....	45
Figure 10: Brazil Exports of Hardwood Sawnwood, 1990 - 2003 .....	46
Figure 11: FSC Certified Forests in the Amazon .....	48
Figure 12: Wood Exports from State of Para, 1998 - 2003 .....	52
Figure 13: Annual Deforestation in the Amazon Region .....	57
Figure 14: Indonesia Wood and Paper Exports .....	66
Figure 15: Indonesia Plywood Exports, 2002 .....	71
Figure 16: Indonesia Plywood Exports, 2002 .....	72
Figure 17: Malaysia’s Forest Products Exports, 1997 - 2003 .....	80
Figure 18: W/C Africa Industrial Roundwood Production, 2002 .....	91
Figure 19: Log Exports from W/C Africa, 2002 .....	92
Figure 20: Log Imports from W/C Africa, 2002 .....	92
Figure 21: Lumber Exports from W/C Africa .....	93
Figure 22: Lumber Imports from W/C Africa .....	94
Figure 23: Russia’s Exports of Wood and Paper Products, 1997 - 2003 .....	100
Figure 24: Russia and Other Former USSR: Timber Harvest 1981 – 2002 .....	101
Figure 25: Russia Softwood Log Exports .....	113
Figure 26: Russia Hardwood Log Exports .....	114
Figure 27: Russia Softwood Lumber Exports .....	114
Figure 28: Russia Hardwood Lumber Exports .....	115
Figure 29: Wood Products Exports to China, 2003 .....	116
Figure 30: China’s Softwood Log Imports .....	116
Figure 31: Russian Log Exports to China by Province .....	117
Figure 32: Russian Log Exports to China by Species .....	117
Figure 33: Russian Lumber Exports to China by Province .....	118
Figure 34: Russian Lumber Exports to China by Species .....	118
Figure 35: China’s Forest Products Imports, 1997 - 2003 .....	126
Figure 36: Commercial Forest Area in China, 2003 .....	128

	<b>Page</b>
Figure 37: Chinese Softwood Log Imports.....	132
Figure 38: Chinese Hardwood Log Imports .....	133
Figure 39: Chinese Softwood Lumber Imports .....	135
Figure 40: Chinese Hardwood Lumber Imports .....	136
Figure 41: Japan’s Forest Products Imports, 1997 - 2003 .....	143
Figure 42: Average Softwood Log per Unit Import Values, 2003 .....	144
Figure 43: EU-15 Forest Products Imports, 1997 - 2003.....	149
Figure 44: EU Softwood Log Imports .....	153
Figure 45: EU Hardwood Log Imports.....	153
Figure 46: Hardwood Log Imports From West/Central Africa .....	154

### **Appendix -- Wood Fiber Flow Diagrams**

Brazil Softwood Fiber Wood Flow .....	A-1
Brazil Hardwood Fiber Wood Flow .....	A-2
Indonesia Hardwood Fiber Wood Flow .....	A-3
Malaysia Hardwood Fiber Wood Flow .....	A-4
W/C Africa Hardwood Fiber Wood Flow .....	A-5
Russia Softwood Fiber Wood Flow .....	A-6
Russia Hardwood Fiber Wood Flow .....	A-7
China Softwood Fiber Wood Flow .....	A-8
China Hardwood Fiber Wood Flow .....	A-9
Japan Softwood Fiber Wood Flow .....	A-10
Japan Hardwood Fiber Wood Flow .....	A-11
EU-15 Softwood Fiber Wood Flow .....	A-12
EU-15 Hardwood Fiber Wood Flow .....	A-13

# Introduction

## *Background*

“Illegal logging” is an issue of international importance in the forestry and forest products sector. Discussions about illegal forest activities, in one form or another, have been high on the agenda, if not directly at the center, of numerous international conferences on forests. This attention stems in large part from environmental concern over deforestation and poor forest management practices in developing countries and countries with economies in transition.

The term “illegal logging” has been used to draw attention to a host of governance and environmental issues ranging from habitat destruction to inadequate law enforcement to political corruption. More recently, the issue has been raised in international discussions involving wood products trade. In 1998 and again in 2000, the topic was an agenda item of the meetings of the G-8 leaders. Subsequently, the United States and several European governments, as well as the EU Commission have taken steps to address illegal logging and/or related wood products entering international trade. The 2002 World Summit on Sustainable Development in Johannesburg urged governments to “take immediate action on domestic forest law enforcement and illegal international trade in forest products...”

## *Purpose*

The current study was commissioned by the American Forest & Paper Association, the national trade association representing U.S. companies engaged in wood and paper manufacturing and trade. Seneca Creek Associates LLC and Wood Resources International LLC collaborated on the project. The three major objectives of the project can be summarized as follows:

- (1) provide a perspective and context on the issue of illegal logging from the standpoint of global production and trading patterns;
- (2) analyze the impacts of illegally produced and traded wood products on the ability of U.S. producers to export into key overseas markets; and
- (3) review the various institutional and government initiatives that have been proffered to address illegal logging, paying particular attention to potential implications for U.S. wood products trade.

This project was limited to examining the effects of alleged illegal forest activity on U.S. exporters in non-USA markets only.

## *Scope and Methods*

Illegal logging or illegal forest activity is alleged and occurs in many different ways in many parts of the world, but particular attention has been focused on a number of tropical countries and countries with economies in transition. For the purposes of this study, we elected

to profile a few key countries/regions of the world, fairly representative of how the issue affects both producing as well as consuming nations. The countries/regions chosen were:

**Supplier  
Countries/Regions**

- Brazil
- Indonesia
- Malaysia
- West/Central Africa
- Russia

**Consuming  
Countries/Regions**

- China
- Japan
- Europe (EU-15)

For each of these countries/regions, a detailed analysis was made of wood fiber flows and the various estimates of illegal forest activity. Seneca Creek Associates and Wood Resources International conducted hundreds of interviews, examined the literature and available data, consulted with stakeholders in key countries and conducted an economic analysis to measure competitiveness impacts related to legally suspicious material in the global wood market.

We also reviewed the literature on illegal logging, including reported estimates of the volumes and values of harvested timber alleged to be from illegal sources and traded internationally. While hard data on trade of forest products from illegal operations is virtually impossible to consistently gather, environmental NGOs and some government institutions have issued reports that offer estimates of the extent of illicit activity in one or more countries. Supporting evidence and methods for making these estimates were reviewed.

A separate wood fiber flow model -- that is, the allocation of roundwood to the major primary products -- was developed for each of the profiled countries/regions and for the other world regions. Analytical assumptions about illegal logging activity used in the analysis were formulated from a review of the literature, adjusted by the wood fiber flow model and field research.

Upon settling on reasonable analytical assumptions about illegal logging, we ran an economic simulation using the *Global Forest Products Model* (GFPM) at the University of Wisconsin to determine the changes in wood production, consumption and trade flows that might result from constraining “illegal” volume. The results from the GFPM analysis were combined with an examination of wood fiber flows to determine the probable economic impacts on U.S. exports.

Data used for this project were from several sources. The Global Trade Information Services database (GTIS) was the main source of comparative trade data. GTIS trade data are compiled from the official government (customs) reports of 58 partner countries. GTIS is only as accurate as the official statistics for any given partner country and trade data discrepancies between countries are not uncommon. However, as a searchable database covering the vast majority of world trade, GTIS provides the easiest and most accurate access to timely official

government trade data.<sup>1</sup> In addition, official government reports, FAO (FAOSTAT) and Wood Resources International's extensive international databases were also used for production and other relevant data. Information about programs and initiatives proffered to address illegal logging was compiled mainly from interviews with officials and organizations in the profiled countries/regions, supplemented by published and web-based reports.

WRI/SCA subcontracted with local experts in the profiled countries/regions to assist with information collection and field research. Contributing to this project were: Anatoly Kotlobay, a Russian expert on illegal logging, ChinaWood International (China), Rupert Oliver (U.K. and Europe), and David Brown (Indonesia). Other local consultants were used in Brazil and Malaysia. Joseph Buongiorno, an economist at the University of Wisconsin, programmed the economic simulations. Lydia Quinn of Ashland, Virginia provided research assistance.

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<sup>1</sup> The United Nations also maintains an accessible database on world trade – COMTRADE. Although purporting to cover 75 countries, our experience with the database suggests that there are critical gaps and revision issues. Noticeably absent from Chapter 44 coverage in COMTRADE are Indonesia and several important African producers including the Congo, Ivory Coast and Gabon.

## Understanding the Issue of “Illegal Logging”

Illegal logging and illegal trade in forest products is actually a complex set of interrelated legal, political, social and economic issues. The term “illegal logging” clearly signifies legal abuses, but there is considerable debate about what might be considered illegal. As a generalized definition, “illegal logging” is most often referred to in the literature as when timber is harvested, transported, bought or sold in violation of national laws. However, the types of activities considered to be “illegal” that are described in various published and web-posted reports are wide-ranging. It is important to note that there is no international definition of illegal logging; for example, logging without a government-approved management plan may be perfectly legal in the U.S. South, but would be illegal in the Brazilian Amazon.

“Illegal logging” can be interpreted broadly or narrowly. Harvesting in national parks or reserves would be an obvious example of illegal logging, but often poor forest practices (whether in violation of a specific set of rules or not) are also claimed to be (and often are) associated with illegal activities. A broad interpretation might refer to “illegal forest activities” and would include any violations related to forest activity, wood products transport, processing and trade. Activities inconsistent with “sub-national” or local ordinances might also be included. Failure to adhere to any number of laws or rules related to harvesting practices, permissible volumes, proper documentation, transport, trade and any number of other requirements would be illegal. Indeed, an extremely detailed legal audit would likely find the presence of illegal activity of one kind or another in every country – some prosecuted and some unreported. Even in North America and Europe, there are reported (prosecuted) and unreported (intentional and unintentional) incidences involving breaches of government contracts, timber theft, trade misclassifications, or regulatory violations. Some nations with poor forest practices may in fact have a low level of “illegal logging” simply because their standards are so lax. And in some developing countries, subsistence agriculture or firewood cutting in protected areas might also be considered illegal and possibly prosecutable. But not all of these kinds of violations of national or local laws warrant international attention.

In its policy statement on the subject, AF&PA provides a somewhat narrower definition of illegal logging as “theft of timber or logs, cutting in parks, reserves or similar areas, and cutting where government approvals are obtained by corrupt practices.” Indeed, this more narrow interpretation for policy and trade discussions might include only the most pervasive and onerous illegal activities that, from most stakeholder perspectives, rise to a level of international significance.

**For purposes of this analysis, four examples of major abuses that rise to a level of international significance are:**

***Directly related to illegal logging:***

- (1) harvesting without authority in designated national parks or forest reserves;**
- (2) harvesting without authorization or in excess of concession permit limits;**
- (3) failing to report harvesting activity to avoid royalty payments or taxes; and**
- (4) violating international trading rules or agreements, such as export bans or CITES.**

Collectively, these represent environmental abuses that have international implications. At a minimum, they signify fundamental institutional and political weaknesses in the ability of governments to sustainably manage forest resources. And, from a business perspective, if illegal volume is significant, it can distort the economics and efficiencies of legitimate forest products producers and traders.

### ***Behind the Debate Over the Definition of Illegal Logging***

As noted, we have opted for a narrow definition of illegal logging for analytical purposes, placing the issue in the context of onerous violations that have international environmental and/or trade significance. However, the definition of “illegal” activity in the forestry sector has other implications that are important to note. Programs and initiatives designed to ensure “legality” of product sourcing use different criteria for determining what is legal and what is not. Some have argued that there is a difference between “legal origin” and “legal compliance.” The former refers to the ability to track legal ownership; the latter is specific to compliance with legal and regulatory requirements through processing.<sup>2</sup> Even a legality standard for timber products from Indonesia, recently drafted by a stakeholder group working under the auspices of the Indonesia Ministry of Forestry pursuant to a 2002 Memorandum of Understanding between the U.K. and Indonesia, is being debated. The draft legality standard states: “timber is legal when the validity of its origin, logging permit, logging system and procedures, administration and transport documentation, processing, and trade or transfer are verified as meeting all applicable legal requirements.”<sup>3</sup> However, the standard includes seven principles, each with detailed criteria and indicators that must be monitored and assessed before the legality standard can be met. The validity of certification or verification processes in ensuring legality is also debated. That there may be various levels of acceptable “legality” is behind a number of “stepwise” approaches to procurement and purchasing policies.

Finally, governments ultimately have sovereignty over the disposition of government lands and the promulgation and enforcement of rules and regulations. That they might (and often do) choose to permit problematic forest practices is of environmental concern, but not necessarily illegal in the context of the accepted legal frameworks in their country. Absent an international agreement that specifically details criteria for determining what constitutes illegal forest activity, interpretations will continue to differ. What is most important for the purposes of this study is that there are clearly situations where allegations of legal abuses (even if sometimes exaggerated) are persuasive and significant, and have an impact on world trading patterns.

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<sup>2</sup> SGS. “Excluding Illegal Timber: Border Controls and Procurement – Making the System Work.” Presented at Workshop on Ways Forward. October 2003.

<sup>3</sup> “A Legality Standard for Timber Products from Indonesia.” Draft Number 1.0: 26. May 2004. <http://www.illegal-logging.info/papers/Z%20Introduction%20and%20Principles.htm>.

**Table 1:** Types of Alleged Illegal Activity in Profiled Countries/Regions

Type of Illegal Activity Alleged	Russia	Indonesia	Brazil	Malaysia	Japan	China	EU-15	West/ Ctrl Africa
Harvesting in Parks or Reserves		X	X	X				X
Harvesting Outside or in Excess of Concession Limits	X	X		X		X		X
Failure to Pay Royalties or Taxes	X	X		X				X
Intentional Misclassification or Undervaluation of traded products	X	X	X		X	X	X	X
Violation of Export Bans or CITES Requirements		X	X	X		X	X	X
Harvesting Protected Species	X	X	X					X
Corruption/Bribery	X	X	X	X		X		X
Imports From Illegal Sources				X	X	X	X	

### ***Characteristics of Illegal Logging***

At its root, illegal logging and/or illegal forest activity are a symptom of corruption, graft, lax enforcement, and poor social conditions. According to WWF International, many of the countries supplying wood and wood products to Europe, China and the U.S. have “high levels of foreign debt, poor governance, high levels of poverty, unsustainable forest management, and the loss of High Conservation Value forests. These factors, among others, contribute to illegal and unsustainable trade.”<sup>4</sup> Based on the amount of coverage in the literature and the thrust of environmental campaigns, the problems associated with illegal activities are most acute in developing countries and in parts of Russia and eastern Europe. These are areas of the world where weak political institutions and lax regulatory enforcement in forested regions prevail, and areas where graft and corruption are known to be common. In most of these areas, there are few opportunities to earn sufficient income while black markets, whether in forest products or other valued commodities, are relatively easy to enter. Reports and allegations of illegal forest activity or wood trade in the industrialized countries have surfaced from time to time, but are generally not of a nature or degree that rises to a level of international significance as described earlier. Nevertheless, industrialized countries are engaged in wood products trade with countries where the issue is significant and relevant.

In parts of Africa and Southeast Asia, timber revenue has been used to finance war or political gain. So called “conflict timber” has been identified as a major source of financing for conflicts in Liberia, Democratic Republic of the Congo (DRC), Sierra Leone, Cambodia, and Myanmar, among others. Conflict timber is almost always linked to corrupt systems of

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<sup>4</sup> Toyne, Paul, O’Brien, Cliona, and Nelson Rod. “The Timber Footprint of the G8 and China: Making the Case for Green Procurement by Government.” WWF International, 2002.

governance with corrupt, complicit officials. These countries also tend to have impoverished people, ambiguous forest tenure and financial systems that easily allow money to be hidden or allocated surreptitiously.<sup>5</sup>

International organizations, trade associations, environmental groups and national governments have devoted substantial resources and staffs to identifying and addressing allegations of illegal harvesting around the globe. And while the literature on the subject is extensive, reliable data (not surprisingly) are difficult to compile. Reports on the nature and extent of illegal logging activities are usually based on anecdotal information. Unfortunately, the issue is often confused by and intricately wrapped up in sustainable forest management and certification campaigns. Moreover, some reports blame illegal logging on avaricious corporations and traders, even though in most of the literature, corruption, graft, lax enforcement, and poor social conditions are identified as the principal drivers of illegal logging. According to WWF Latvia, the most important of all factors contributing to illegal logging and trade “is the offer of illegal cash in the “gray” and “black” economy. If the illegal cash would not exist, the motivation for illegal logging would disappear.”<sup>6</sup>

Once harvested without authorization, illegally produced logs are either processed domestically or traded internationally. The logs themselves might be sold or traded illegally, or they might enter into the normal, legitimate processing and distribution system. By extension, these processed products from wood fiber harvested illegally might also be considered problematic, whether consumed domestically or if they enter international trade. In either case, there is a high probability that products produced with illegal raw material are produced at a lower overall cost than if it originated from legal, sanctioned sources. For the wood-using industry, illegal material creates unfair competition for operators and producers who adhere to the law and international trading rules.

### ***Income, Corruption and Illegal Logging***

Published measures of political and judicial corruption reveal a close correlation between low per capita income and high levels of corruption and/or lack of democratic or economic freedom.<sup>7</sup> For example, Transparency International’s Corruption Perception Index (TI’s CPI) tends to be lower (higher corruption) in countries with lower per capita incomes.<sup>8</sup> **Figure 1** shows the correlation between TI’s CPI and per capita Gross Domestic Income (GDI).

Perhaps not surprisingly, illegal forest activity is also more pronounced where corruption is high,. **Figure 2** displays the relationship between corruption and illegal logging using our independently derived estimates of suspicious log supply in elected countries. With almost 60%

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<sup>5</sup> ARD, Inc. “Conflict Timber: Dimensions of the Problem in Asia and Africa.” Report submitted to the Agency for International Development, in three volumes. 2003.

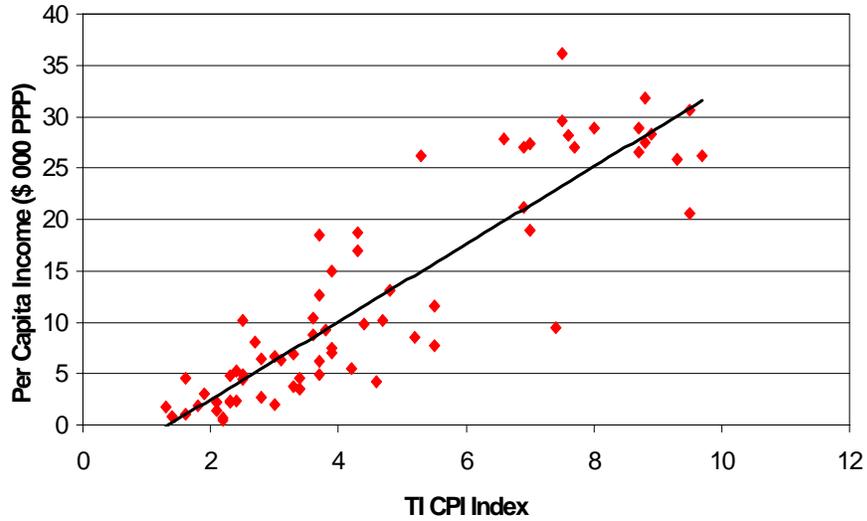
<sup>6</sup> “Logging and Trade of Acquired Timber.” WWF Latvia, 2003.

<sup>7</sup> Various indices are available. Country risk, political and economic freedom indices are available from Euromoney magazine, the Heritage Foundation, and others.

<sup>8</sup> Transparency International (TI) is a German-based NGO that compiles surveys to measure levels of corruption. Corruption indices are calculated based on public surveys conducted or referenced in 133 countries. TI defines corruption as “the abuse of public office for private gain.” TI’s Corruption Perceptions Index measures relative levels of corruption between countries.

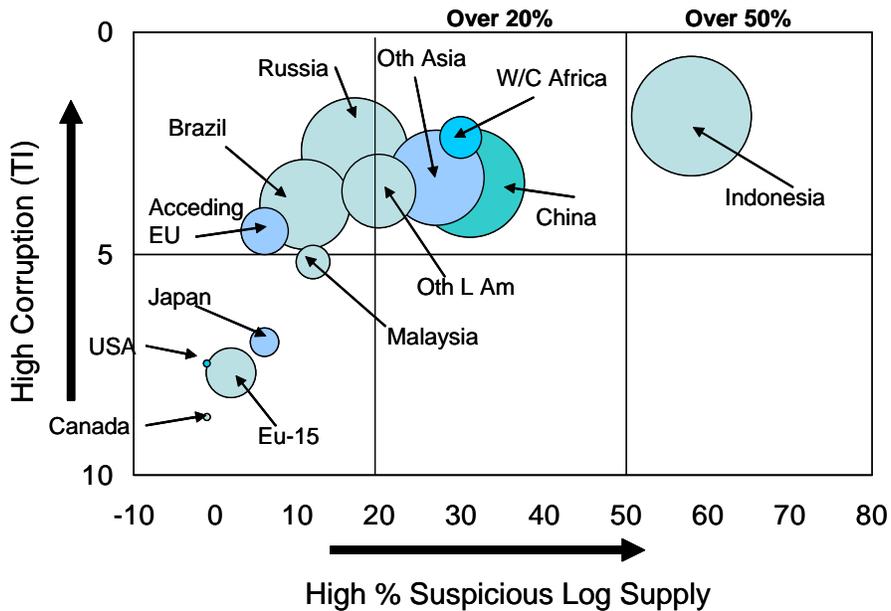
of its production suspect, Indonesia stands out as the country with both the highest rate of illegal activity and the most suspicious volume.

**Figure 1:** Correlation Between Per Capita Income and Perceived Corruption



Sources: Transparency International; World Bank (GDI indicators)

**Figure 2:** Corruption and Illegal Forest Activity



Note: Size of bubbles represents volume of suspect roundwood, including imports. Sources: Transparency International; WRI/SCA estimates of illegal logging

## Global Production, Trade and Illegal Logging

By definition, tracking and measuring illegal logging and/or illegal trade in forest products is more art than science. Estimates are largely based on speculation and anecdotal information. The vast majority of estimates of illegal logging activity and associated trade have been reported by environmental NGOs in support of their own campaigns to affect action on the issue. A few estimates have been attributed to government officials in countries of concern, and a few to international institutions such as the World Bank. A comprehensive summary of reported estimates of illegal logging is provided by Guertin.<sup>9</sup> Many of the reported estimates are circular referenced; that is, many of the estimates are repeated without being linked to an original source. And the estimates vary widely by country. Nevertheless, many of the allegations of illegal activity in a number of countries of concern are credible and supported by witness testimony and analysis of forest sector or trade statistics. *Table 2* displays reported estimates of illegal forest activity and the analytical assumptions used for this project.

For this project, estimates on the volume of suspiciously produced roundwood were derived from a combination of sources and methods, including a wood flow analysis and observations made from extensive interviews. For timber that was determined to have a high probability of having been sourced illegally, we settled on a mid-point of a range for each species group, hardwood and softwood. In turn, the roundwood was tracked through the primary production sectors so that the portion of primary products – lumber and plywood – that could be deemed as manufactured from suspect wood fiber could be allocated. The flow of those products into international trade was also estimated. In some cases, the flow of suspicious product into trade was greater or less than its share of production, depending on the characteristics of the product flows in the profiled country. For example, Russian exports of softwood roundwood are believed to include a somewhat higher share of illegal material than is consumed domestically. Similarly, for reasons having to do with the structure of the exporting industry, the suspicious share of hardwood lumber produced in Brazil and exported is likely less than that consumed domestically.

The total global harvest of industrial roundwood in 2002 was approximately 1.7 billion m<sup>3</sup>.<sup>10</sup> The countries/regions profiled specifically for this analysis represent collectively nearly 40% of global industrial softwood roundwood production, and nearly 50% of global industrial hardwood roundwood production. We believe that these countries/regions represent over three-quarters of illegal logging activity of the type that rises to a level of international significance described at the beginning of the report. When the United States, Canada and the recently acceded EU countries are considered in the mix with the profiled areas, nearly 90% of world softwood production and 80% of world hardwood production are represented.

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<sup>9</sup> Carl-Éric Guertin. “Illegal Logging and Illegal Activities in the Forestry Sector: Overview and Possible Issues for the UNECE Timber Committee and FAO European Forestry Commission.” Quebec Wood Export Bureau. September, 2003.

<sup>10</sup> Our estimate of global industrial roundwood production is slightly higher than FAO because it is derived for some countries using separate data sources and product conversion factors. It also includes unreported production.

**Table 3** provides a summary of our independent estimates of suspicious log and wood products production globally. **Tables 4** through **7** detail specific estimates for each of the profiled countries/regions. In aggregate, about 8% of the world's roundwood is suspicious (likely illegal), somewhat less for lumber (6%), somewhat higher for plywood (17%). Most illegal material – as most wood fiber, generally – is used domestically. About 14% of the world's roundwood exports are suspect, but this represents only about 1% of the world's roundwood production. Again, these figures are lower for lumber and higher for plywood. As much as 23% of global plywood exports are suspicious. Obviously, Indonesia weighs heavily in these figures since it is a major producer and exporter of plywood.

**Table 2:** Reported Estimates of Illegal Logging Activities and Estimates of Production and Trade Derived from Wood Flow Analysis (and field research)

	<b>Reported Estimates - % Illegal Forest Production and/or Imports</b>	<b>Selected Results Suspicious Material Wood Fiber Flow Analysis</b>	<b>Comments on Strength of Evidence and Analytical Assumptions</b>
<b>Profiled Countries/Regions</b>			
Russia	20% - 50%	<u>Softwood</u> 15 – 20% of production 25% of log exports (40% to China) 15% of lumber exports 15% of plywood exports  <u>Hardwood</u> 15 – 20% of production 25% of log exports (40% to China) 30% of lumber exports 20% of plywood exports	<p>The World Wild Fund for Nature (also known as WWF and World Wildlife Fund) has done extensive in-country analysis of Russia's legal framework and harvesting/production data. Its estimates are supported by our field research. Estimates by Greenpeace and others are less rigorous. FERN says at least 50% of the logging activities are illegal in parts of Russia.</p> <p>Several government estimates place illegal logging at 1% - 2% of harvest, but that's based on volume of seized timber only. Regional officials acknowledge serious problem.</p>
Indonesia	70% - 80%	<u>Hardwood</u> 60% of production 100% of log exports 65% of lumber exports 55% of plywood exports	<p>Very little supporting data for NGO estimates, but our field research suggests Indonesia to be one of the most problematic countries. Government officials agree. Reports of log export ban violations are persuasive. Our analytical assumption is based on wood fiber flow analysis and allowable cut estimates.</p>
Brazil	20% - 90% (generally the higher estimates refer to illegal logging in Amazonia)	<u>Hardwood</u> 15% of production 15% of lumber exports 15% of plywood exports	<p>Estimates vary widely and depend in part on what is included as "illegal." Since the mid 1990s, Brazil has strengthened enforcement. The major problem seems to be confined to the Amazon hardwood region where most reasonable estimates are between 20% and 47%. Brazil is a major producer of plantation-grown pine and eucalyptus, not at issue with respect to illegalities. We use 15% of total hardwood log supply.</p>
Malaysia	As high as 35% for illegal logging and 35% for illegal exports.	<u>Hardwood</u> 5% of production 10% of log exports  70% of log imports	<p>Higher estimates date to early 1990s and are repeated. More recently, journalistic reports about ramin trade are persuasive, but ramin accounts for small portion of total Malaysian production. Malaysian authorities strongly refute allegations of illegal activity and we found the forest concession system to be tightly controlled. However, most log imports are of suspicious origin.</p>

	<b>Reported Estimates - % Illegal Forest Production and/or Imports</b>	<b>Selected Results Suspicious Material Wood Fiber Flow Analysis</b>	<b>Comments on Strength of Evidence and Analytical Assumptions</b>
<b>Profiled Countries/Regions (con't)</b>			
W/C Africa	34% to 70%  Gabon – 50%-70% Cameroon – 50% Ghana – 34%-60% Liberia – 80%	<u>Hardwood</u> 30% of production 30% of logs 30% of lumber	Relied on the literature and published reports, most of which have environmental campaign biases. For analytical purposes, we elected to use a conservative assumption.
Japan	20% - 80% of imports	<u>Softwood Imports</u> 15% softwood logs 5% softwood lumber 10% softwood plywood  <u>Hardwood Imports</u> 20% hardwood logs 30% hardwood lumber 40% hardwood plywood	Analytical result based on analysis of source of imports for each major product group. Japanese imports are not suspect in any technical, legal sense. They are sourced from countries where, in some cases, significant illegal activities are suspected.
China	WWF 2002 estimate was 32% of imports of timber, pulp, and paper in 2000 were illegal	<u>Softwood</u> 30% of production 35% of log imports 17% of lumber imports 55% of plywood imports 32% of lumber exports 32% of plywood exports  <u>Hardwood</u> 30% of production 32% of log imports 32% of lumber imports 56% of plywood imports 30% of log exports 31% lumber exports 31% plywood exports	Analytical result based on field research and analysis of source of imports for each major product group. Suspect imports from the originating countries are the largest component.  No official government estimates were found. A government report related to domestic harvesting refers to “cutting outside of plan,” and other reports discuss harvesting violations.
EU-15	Up to 80% of tropical wood imports	<u>Softwood Imports</u> 15% of logs 7% of lumber 9% of plywood  <u>Hardwood Imports</u> 25% of logs 6% of lumber 25% of plywood	Analytical result based on analysis of source of imports for each major product group. Percent reflects share of total EU-15 imports. Suspicious imports sourced primarily from Russia and now-acceded EU countries. Suspicious domestic production is assumed to be de minimis.

	<b>Reported Estimates - % Illegal Forest Production and/or Imports</b>	<b>Selected Assumptions Wood Fiber Flow Analysis <sup>II</sup></b>	<b>Comments on Strength of Evidence and Analytical Assumptions</b>
<b>Rest of World <sup>I</sup></b>			
Other Latin America	Bolivia – 80% Ecuador – 70% Peru – 80% - 90% Colombia – 42%	<u>Softwood</u> 2% of production  <u>Hardwood</u> 17% of production	Most of the estimates for illegal logging in Latin America fail to provide persuasive evidence or supporting information. Our analytical assumptions are weighted regional averages, based on assumptions ranging from zero (softwood) to 20% (hardwood).
Other Asia	Papua New Guinea – 70% Myanmar – 50% Cambodia – 90% Laos – 45% Thailand – 40% Vietnam – 20% - 40%	<u>Softwood</u> 6% of production  <u>Hardwood</u> 20% of production	Similarly, estimates for illegal logging in Asia generally fail to provide persuasive evidence or supporting information. Our analytical assumptions are weighted regional averages, based on assumptions ranging from 2% (softwood) to 40% (hardwood).
Acceding EU	Latvia – 20% Estonia – 50%	<u>Softwood</u> 10% of production  <u>Hardwood</u> 10% of production	These economies in transition have been taking steps to clarify land tenure and strengthen forest management agencies. Governments believe most reported estimates are too high.
USA	0% - 10%	<u>Softwood Imports</u> Plywood <1%  <u>Hardwood Imports</u> 1% of logs 10% of lumber 25% of plywood	Some news accounts with anecdotal information, but generally little reporting of illegal harvesting in the U.S. Suspicious domestic production is assumed to be de minimis. Suspicious imports based on countries of origin.
Canada	0% - 10%	<u>Softwood Imports</u> de minimis  <u>Hardwood Imports</u> de minimis	As with the U.S., some news accounts with anecdotal information. Canadian government does not believe it to be a serious domestic issue. Suspicious domestic production is assumed to be de minimis.

<sup>I</sup>Note: These countries/regions were not specifically profiled but assumptions were used for purposes of the global economic modeling.

<sup>II</sup> expressed as mid-point of assumed range.

*Sources for Reported Estimates:* Global Witness, Greenpeace, WWF International, Friends of the Earth, EIA/Telepak, FERN, RIIA and Others.

**Table 3: Summary of Suspicious Wood Products Flow**  
(000 m<sup>3</sup>)

	<b>Profiled Countries/Regions</b>	<b>Rest of World</b>	<b>World Total</b>
<b>Production &amp; Imports</b>			
<i><b>Roundwood</b></i>			
Production	726,836	936,138	1,662,973
Suspicious Volume	97,546	33,448	130,994
% Suspicious	13%	4%	8%
<i><b>Lumber</b></i>			
Production	168,366	234,058	402,428
Suspicious Volume	19,731	6,133	25,864
% Suspicious	12%	3%	6%
<i><b>Plywood</b></i>			
Production	35,816	23,263	59,079
Suspicious Volume	9,423	534	9,957
% Suspicious	26%	2%	17%
<b>Entering International Trade</b>			
<i><b>Roundwood</b></i>			
Exports	64,600	63,536	128,136
Suspicious Volume	16,542	1,427	17,969
as % of Exports	26%	2%	14%
as % of Production	2%	0%	1%
<i><b>Lumber</b></i>			
Exports	31,866	88,037	119,903
Suspicious Volume	5,425	1,502	6,928
as % of Exports	17%	2%	6%
as % of Production	3%	1%	2%
<i><b>Plywood</b></i>			
Exports	17,279	5,364	22,644
Suspicious Volume	5,093	144	5,237
as % of Exports	29%	3%	23%
as % of Production	14%	1%	9%

**Table 4: Estimates of Softwood Products From Suspicious Sources, 2002**  
(000 m<sup>3</sup>)

	Profiled Countries/Regions								Other Countries/Regions				
	Russia	Indonesia	Brazil	Malaysia	Japan	China	EU 15	Cent & W. Africa	United States	Canada	Acceding EU-10	Rest of World	Global Summary
Softwood Roundwood													
Production	105,100	206	41,200	90	13,310	37,900	201,040	n.m.	275,791	162,505	54,835	110,774	1,002,750
Imports	200	24	144	12	10,270	16,800	17,868	n.m.	5,365	4,913	2,413	20,362	78,371
Total Log Supply	105,300	230	41,344	102	23,580	54,700	218,908	n.m.	281,156	167,418	57,247	131,136	1,081,121
% Suspicious	17.0%	0.0%	0.0%	0.0%	6.5%	31.5%	1.2%	n.m.	n.m.	n.m.	4.8%	2.5%	3.8%
Net Trade	(37,550)	23	119	(72)	10,268	16,796	15,804	n.m.	(2,540)	371	(5,524)	(562)	-2,867
Dom. Consumption	67,550	228	41,319	18	23,578	54,696	216,844	n.m.	273,251	162,876	49,311	110,212	999,883
% Suspicious	12.5%	0.0%	0.0%	0.0%	6.5%	31.5%	1.3%	n.m.	n.m.	n.m.	4.8%	2.9%	3.2%
Softwood Lumber													
Production	16,900	0	10,500	0	13,970	5,182	72,746	n.m.	61,914	56,599	13,134	41,121	292,067
% Suspicious	15.0%	0.0%	0.0%	0.0%	6.5%	31.5%	0.0%	n.m.	n.m.	n.m.	4.8%	0.6%	2.0%
Imports	11	107	29	12	7,722	1,189	22,652	n.m.	35,674	387	3,338	20,558	91,678
% Suspicious	10.0%	5.0%	0.0%	5.0%	4.0%	17.0%	7.1%	n.m.	n.m.	n.m.	n.m.	0.3%	2.4%
Softwood Plywood													
Production	300	n.m.	2,150	0	1,368	3,648	2,027	n.m.	14,874	2,450	593	1,395	28,804
% Suspicious	15.0%	n.m.	0.0%	0.0%	6.5%	31.5%	0.0%	n.m.	n.m.	n.m.	4.8%	0.7%	4.6%
Imports	5	n.m.	5	0	308	155	0	n.m.	1,047	297	347	1,904	5,876
% Suspicious	0.0%	n.m.	0.0%	0.0%	10.0%	55.0%	8.5%	n.m.	n.m.	n.m.	n.m.	0.4%	4.7%

n.m. = not meaningful or de minimis

**Table 5: Estimates of Hardwood Products From Suspicious Sources, 2002**  
(000 m<sup>3</sup>)

	Profiled Countries/Regions							Other Countries/Regions					
	Russia	Indonesia	Brazil	Malaysia	Japan	China	EU 15	Cent & W. Africa	United States	Canada	Acceding EU-10	Rest of World	Global Summary
<b>Hardwood Roundwood</b>													
Production	41,000	53,100	122,600	21,500	6,400	20,200	50,010	13,180	128,944	34,868	26,460	141,961	660,223
Imports	20	2,000	14	2,530	2,400	8,550	1,730	10	1,253	2,545	1,449	25,160	47,662
Total Log Supply	41,020	55,100	122,614	24,030	8,800	28,750	51,740	13,190	130,197	37,413	27,909	167,122	707,885
% Suspicious	17.0%	58.0%	15.0%	11.8%	5.5%	30.6%	6.6%	30.0%	0.0%	0.0%	9.5%	16.4%	14.9%
Net Trade	(8,926)	(900)	(391)	(3,080)	2,398	7,859	515	(4,890)	(1,843)	2,182	(5,575)	13,415	764
Dom. Consumption	32,074	52,200	122,209	18,420	8,798	28,059	50,525	8,290	127,101	37,050	20,885	155,376	660,987
% Suspicious	14.8%	55.7%	15.0%	12.4%	5.5%	30.6%	6.8%	33.3%	0.0%	0.0%	11.7%	17.2%	14.8%
<b>Hardwood Lumber</b>													
Production	2,300	8,000	20,850	4,450	432	4,249	6,916	1,871	27,237	1,042	3,963	29,048	110,357
% Suspicious	20.0%	65.0%	30.0%	11.8%	5.5%	30.6%	4.7%	30.0%	0.0%	0.0%	9.4%	14.6%	17.5%
Imports	5	9,701	810	926	862	4,210	11,580	0	1,743	1,101	1,449	1,625	33,375
% Suspicious	10.0%	10.0%	0.0%	5.0%	32.0%	32.0%	6.0%	n.m.	5.0%	n.m.	n.m.	10.3%	10.8%
<b>Hardwood Plywood</b>													
Production	1,500	7,500	1,250	4,700	1,368	8,513	1,219	274	620	124	204	3,004	30,275
% Suspicious	15.0%	55.0%	30.0%	11.8%	5.5%	30.6%	7.8%	30.0%	0.0%	n.m.	9.6%	15.8%	28.5%
Imports	26	3	129	5	4,803	480	2,413	0	2,779	297	1,449	4,128	15,442
% Suspicious	2.0%	n.m.	n.m.	5.0%	38.0%	56.0%	24.9%	n.m.	25.0%	15.0%	20.0%	32.4%	31.4%

n.m. = not meaningful or de minimis

**Table 6:** Estimates of Softwood Products From Suspicious Sources That Enters International Trade, 2002  
(000 m<sup>3</sup>)

	Profiled Countries/Regions							Cent & W. Africa	Other Countries/Regions				Global Summary
	Russia	Indonesia	Brazil	Malaysia	Japan	China	EU 15		United States	Canada	Acceding EU-10	Rest of World	
<b>Softwood Roundwood</b>													
Production	105,100	206	41,200	90	13,310	37,900	201,040	n.m.	275,791	162,505	54,835	110,774	1,002,750
Exports	37,750	2	25	84	2	4	2,064	n.m.	7,905	4,542	7,937	20,924	81,238
Suspicious Volume	9,438	0	0	0	0	1	0	n.m.	0	0	397	139	9,974
as % of Exports	25.0%	n.m.	n.m.	n.m.	n.m.	30.0%	n.m.	n.m.	n.m.	n.m.	5.0%	0.7%	12.3%
as % of Production	9.0%	n.m.	n.m.	n.m.	n.m.	0.0%	n.m.	n.m.	n.m.	n.m.	0.7%	0.1%	1.0%
<b>Softwood Lumber</b>													
Production	16,900	n.m.	10,500	n.m.	13,970	5,182	72,746	n.m.	61,914	56,599	13,134	41,121	292,067
Exports	8,580	n.m.	1,600	n.m.	3	250	9,953	n.m.	1,643	35,965	7,197	32,839	98,067
Suspicious Volume	1,287	n.m.	0	n.m.	0	79	0	n.m.	0	0	344	181	1,892
as % of Exports	15.0%	n.m.	n.m.	n.m.	7.0%	31.5%	n.m.	n.m.	n.m.	n.m.	4.8%	0.6%	1.9%
as % of Production	7.6%	n.m.	n.m.	n.m.	0.0%	1.5%	n.m.	n.m.	n.m.	n.m.	2.6%	0.4%	0.6%
<b>Softwood Plywood</b>													
Production	300	n.m.	2,150	n.m.	1,368	3,648	2,027	n.m.	14,874	2,450	593	1,395	28,804
Exports	194	n.m.	1,900	n.m.	3	515	582	n.m.	359	684	527	998	5,862
Suspicious Volume	29	n.m.	0	n.m.	0	162	0	n.m.	0	0	26	8	226
as % of Exports	15.0%	n.m.	n.m.	n.m.	7.0%	31.5%	n.m.	n.m.	n.m.	n.m.	4.9%	0.8%	3.9%
as % of Production	9.7%	n.m.	n.m.	n.m.	0.0%	4.5%	n.m.	n.m.	n.m.	n.m.	4.3%	0.6%	0.8%

n.m. = not meaningful or de minimis

**Table 7:** Estimates of Hardwood Products From Suspicious Sources That Enters International Trade, 2002  
(000 m<sup>3</sup>)

	Profiled Countries/Regions								Other Countries/Regions				
	Russia	Indonesia	Brazil	Malaysia	Japan	China	EU 15	Cent & W. Africa	United States	Canada	Acceding EU-10	Rest of World	Global Summary
Hardwood Roundwood													
Production	41,000	53,100	122,600	21,500	6,400	20,200	50,010	13,180	128,944	34,868	26,460	141,961	660,223
Exports	8,946	2,900	405	5,610	2	691	1,215	4,900	3,097	363	7,024	11,746	46,898
Suspicious Volume	2,237	2,900	4	561	0	207	0	1,194	0	0	211	680	7,995
as % of Exports	25.0%	100.0%	1.0%	10.0%	n.m.	30.0%	n.m.	24.4%	n.m.	n.m.	3.0%	5.8%	17.0%
as % of Production	5.5%	5.5%	n.m.	2.6%	n.m.	1.0%	n.m.	9.1%	n.m.	n.m.	0.8%	0.5%	1.2%
Hardwood Lumber													
Production	2,300	8,000	20,850	4,450	432	4,249	6,916	1,871	27,237	1,042	3,963	29,048	110,357
Exports	440	4,500	1,150	2,700	19	535	957	1,142	2,878	1,392	2,465	3,659	21,836
Suspicious Volume	132	2,925	173	320	4	164	0	342	0	0	51	926	5,037
as % of Exports	30.0%	65.0%	15.0%	11.8%	20.0%	30.6%	n.m.	30.0%	n.m.	n.m.	2.1%	25.3%	23.1%
as % of Production	5.7%	36.6%	0.8%	7.2%	0.9%	3.9%	n.m.	18.3%	n.m.	n.m.	1.3%	3.2%	4.6%
Hardwood Plywood													
Production	1,500	7,500	1,250	4,700	1,368	8,513	1,219	274	620	124	204	3,004	30,275
Exports	963	6,752	800	3,870	10	1,273	232	85	164	372	265	1,995	16,781
Suspicious Volume	193	3,714	120	458	2	389	0	25	0	0	5	105	5,011
as % of Exports	20.0%	55.0%	15.0%	11.8%	20.0%	30.6%	n.m.	30.0%	n.m.	n.m.	1.8%	5.2%	29.9%
as % of Production	12.8%	49.5%	9.6%	9.8%	0.1%	4.6%	n.m.	9.3%	n.m.	n.m.	2.3%	3.5%	16.6%

n.m. = not meaningful or de minimis

## Costs and Implications of Illegal Logging on Global Trade and U.S. Export Opportunities

### *Value of Suspect Roundwood, Lumber and Plywood*

An oft-quoted estimate by the World Bank places the revenue lost by governments because of illegal logging at between \$10 and \$15 billion. This estimate was published in the Bank's 2002 Forestry Strategy Paper without reference to a supporting methodology. Another oft-quoted estimate is a \$150 billion world trade value for wood products, thus leading to a conclusion that 10% of world wood trade is related to illegal activity.<sup>11</sup> We can compare these estimates against our independent approximations calculated for this study. Based on our analysis, we believe that there is credible evidence to suggest that illegal logging of the kind that warrants international concern does, in fact, represent on the order of 8%-10% of global wood products production and, similarly, of the value of global wood products trade. This includes only the impact on production and trade of logs, lumber, and wood panels, and does not include the impact on secondary wood products, furniture, or pulp and paper production and trade.

Approximations of the value of forest products production and trade can be derived from a combination of FAO, ITTO and GTIS production estimates and trade statistics. FAO and ITTO data are not perfect, but they are a product of a concerted cooperative international effort to maintain a consistent historical record of forest sector production and trade. As noted earlier, GTIS trade data are compiled from the official government (customs) reports of 58 partner countries. The GTIS query utility allows for relatively easy compilation of global and country trade data.

GTIS, FAO and ITTO data for the value of trade for wood, pulp and paper products -- HTS Chapter 44 (Wood and Articles of Wood), HTS Chapter 47 (Wood Pulp and Recovered Paper), and HTS Chapter 48 (Paper and Paperboard) -- are presented in **Table 8**. The global value of 2002 total wood products trade (HTS Chapter 44) can be estimated at approximately \$69 billion, based on GTIS Partners' Chapter 44 reported imports. Pulp, Paper and Paperboard trade would add another \$117 billion, bringing the total value of forest products trade to \$186 billion. Note that the GTIS figure for Chapter 44 is greater than the FAO estimate for wood products imports because GTIS includes all sections of Chapter 44, whereas FAO includes only primary products (logs, lumber, woodchips and wood panels).

A further calculation using FAO data produces an approximation of the total value of primary wood products shipments. FAO data show the total value of primary wood product imports at \$50.6 billion.<sup>12</sup> Applying FAO average import values to FAO production numbers, global production of primary wood products (industrial roundwood, sawntimber and

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<sup>11</sup>The \$150 billion for global wood trade is inaccurate. The ensuing discussion puts global wood products trade at about \$69 billion. Trade in all forest products, including pulp and paper, is on the order of \$186 billion. While our analysis is for wood products only, a much smaller percent of pulp and paper production and trade would be traceable to suspicious timber.

<sup>12</sup> A similar calculation could be made using export values. Import value is CIF, which tends to be slightly higher than FOB values reported for export.

**Table 8:** Value of Wood and Paper Products Imports, 2002

	Value of Global Imports (\$ Million)
FAO Wood Products	\$50,651
FAO Pulp, Paper & Paperboard	\$85,357
<b>Total FAO</b>	<b>\$136,009</b>
<b>ITTO (Tropical Timber Only)</b>	<b>\$9,442</b>
GTIS HTS Chapter 44 (Wood and Articles of Wood)	\$68,619
GTIS HTS Chapter 47 (Wood Pulp and Recovered Paper)	\$20,696
GTIS HTS Chapter 48 (Paper and Paperboard)	\$96,507
<b>Total GTIS</b>	<b>\$185,822</b>

Sources: GTIS, FAO, ITTO

wood-based panels) in 2002 is estimated at approximately \$256 billion (**Table 9**). This is likely somewhat overstated since, in general, the value of products that enter world trade tends to be higher than those consumed domestically. So these figures should probably be viewed as upper-bound estimates.

**Table 9:** Approximation of the Value of Primary Wood Products Shipments, 2002

FAO Data	Production (Mil. m <sup>3</sup> )	Imports Qty (Mil. m <sup>3</sup> )	Imports Value (\$ Billion)	Per Unit \$/m <sup>3</sup>	Est. Value of Shipments (\$ Billion)
Softwood Industrial Rdwood.	1,003	78	\$ 4.7	60.85	\$ 61.0
Hardwood Industrial Rdwood.	585	45	\$ 4.7	103.42	\$ 60.5
Softwood Sawnwood	288	92	\$16.1	174.32	\$ 50.2
Hardwood Sawnwood	103	24	\$ 7.2	304.98	\$ 31.4
Plywood	59	20	\$7.3	355.00	\$ 20.8
Other Wood-Based Panels	137	45	\$10.6	235.00	\$ 32.4
<b>Total FAO Wood Products</b>			<b>\$50.6</b>		<b>\$256.3</b>

Source: FAO. Note that our wood flow estimates for production vary somewhat from these data because they reflect our investigations in the profiled countries, whereas the figures above are directly from FAO.

Based on these calculations, the value of world trade in wood products accounts for approximately 20% of total shipments (domestic and export). This covers primary wood products, but doesn't include all of the wood products as classified in Chapter 44 of the Harmonized Trade System. Chapter 44 includes an extensive array of processed wood products and articles of wood. The FAO data suggest that primary wood products account for about three-quarters of all global trade in wood products as classified in HTS Chapter 44.

Since illegal logging is a major issue involving tropical timber products, figures for ITTO countries are also worth reviewing. ITTO reports that trade in tropical timber products (imports) was valued at \$9.4 billion in 2002, or nearly 19% of the FAO global total. GTIS data show HTS Chapter 44 imports from ITTO producing countries totaled \$18.1 billion. This suggests that for ITTO countries, primary wood products account for a lower share of total HTS Chapter 44 trade than for the world as a whole. Indeed, a substantial volume and value of tropical timber trade is in further processed products such as picture frames, wood components, etc.

From these data, and our independent estimates of suspicious volume, we can also derive an approximation of the value of illegal or suspicious roundwood and wood products. **Table 10** summarizes the calculations and shows an estimated value associated with production of suspicious roundwood, lumber and plywood products of \$23 billion. Of this amount, about \$5 billion enters world trade, representing about 7% (perhaps as much as 10%) of the value of world trade of primary wood products. These estimates should be qualified. They are based on values of traded products which tend to be higher than the value of products consumed domestically. Nonetheless, they represent an upper-bound estimate useful for comparative purposes. Note that the value of illegal imports is split relatively evenly between roundwood, sawnwood, and wood panels, with the total value of trade of illegal products ranging from US\$1.5-2.0 billion for each category.

**Table 10:** Estimated Value of Suspicious Wood Products

	Suspicious Volume (000 m <sup>3</sup> )			Est. Value of Suspicious Volume (\$ Million)		
	Profiled Countries/Regions	Rest of World	World Total	Profiled Countries/Regions	Rest of World	World Total
<b>Production</b>						
Roundwood	97,546	33,448	130,994	8,844	3,210	12,053
Lumber	19,731	5,505	25,236	5,354	1,563	6,917
Plywood	9,423	534	9,957	3,345	189	3,535
Sub-Total				17,542	4,963	<b>22,505</b>
<b>Imports</b>						
Roundwood	19,580	393	19,973	1,594	30	1,624
Lumber	5,460	321	5,780	1,388	89	1,477
Plywood	2,965	2,160	5,125	1,053	767	1,820
Sub-Total				4,035	886	<b>4,921</b>
<b>Exports</b>						
Roundwood	16,542	1,427	17,969	1,124	107	1,231
Lumber	5,426	1,502	6,928	1,462	385	1,846
Plywood	5,093	144	5,237	1,671	47	1,718
Sub-Total				4,256	538	<b>4,795</b>

### *Certification and Chain of Custody Cost Factors*

Forest certification and/or chain-of-custody tracking are often proposed as mechanisms for ensuring legality. Virtually all recognized certification schemes have requirements related to compliance with applicable laws and regulations. Chain-of-custody tracking independent of forest certification is behind the EU export licensing proposal that would require partner countries (that have entered into voluntary agreements) to issue export licenses for shipments of logs and lumber to Europe. These licenses would demonstrate that the shipment originated from legally harvested sources. A verification system to audit the licensing program would be part of the system. Certified products would presumably also qualify for an export permit, provided they carry an approved label.

Tracking timber from the forest through to finished products presents logistical challenges in many cases. Where wood is procured from many different sources or landowners, log tracking is difficult to implement. In most countries, the structure of the forest products industry is such that thousands of mills operate using wood obtained from constantly changing sources. This makes log tracking difficult, although not impossible. Percentage-based approaches can make procurement to chain-of-custody standards somewhat less onerous, but still puts many operators at a cost or operational disadvantage. Although not widely used in developing countries, bar-coding and other inventory/tracking technologies have made it easier to accomplish tracking, particularly for high value material. New RFID technology promises yet another improvement for those operators willing to make the investment.

No matter how logs are tracked, the efficacy of certification for purposes of ensuring legality and the reliability of chain-of-custody tracking in “high risk” countries are hotly debated issues. Both certification and chain-of-custody tracking adds cost to producers and buyers, and the costs can vary widely. The costs of certification depend on a number of factors including scale, location, certification scheme and management modifications necessary to achieve compliance. Simula et al recently reviewed studies on the costs and benefits of certification programs for the ITTO.<sup>13</sup> They found a broad range of estimates in the literature ranging from \$0.02/ha for large ownerships up to \$29.50/ha for forest management units of less than 400 hectares. Comparative analyses are difficult, but as part of that review, case studies conducted in Brazil, Indonesia and Malaysia showed costs ranging from \$2.00 to \$10.00 per hectare, and from \$0.20/m<sup>3</sup> (Brazil) to \$77.43/ m<sup>3</sup> (Indonesia) over a five-year period. The case study for Brazil estimated the per unit certification costs for a plantation-based paper company under the Brazilian CERFLOR scheme as almost insignificant, while those for a tropical plywood producer using an FSC program were in the neighborhood of \$13.00/ m<sup>3</sup> over a five year period.<sup>14</sup> Initial costs are typically higher than on-going compliance costs, but in most cases involving tropical timber for solid wood products, certification costs are significant.

The use of certification and/or chain-of-custody tracking as a solution to illegal logging is by no means a forgone conclusion. If the added costs are significant, they could exacerbate the

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<sup>13</sup> Simula, Markku et al. “Preliminary Report on Financial Cost-benefit Analysis of Forest Certification and Implementation of Phased Approaches.” ITTO. July, 2004.

<sup>14</sup> Santana, Eliezer and Schmid, Marcelo.” Brazil Case Study. ITTO project on “Preliminary Report on Financial Cost-benefit Analysis of Forest Certification and Implementation of Phased Approaches.” July, 2004.

difference between legal and illegal wood products, increasing profitability for illegal operators, and/or diverting illegal wood to unencumbered markets.

### ***Economic Implications for U.S. Exporters***

The U.S. is a major producer and exporter of wood products. To the extent that illegally produced timber and, by extension, manufactured products produced from illegal timber, are available at lower cost than legally produced timber and products, U.S. exporters are likely to be disadvantaged. The following analysis measures the possible economic implications that the presence of illegally produced timber in overseas markets has for U.S. wood products exporters. The key questions are: (1) to what extent do illegal wood products displace U.S. exports, and (2) are the impacts greater or lesser for certain products or in certain important markets?

Using the Global Forest Products Model (GFPM) to simulate the global forest products sector, we can infer the economic impacts on U.S. export opportunities associated with illegal logging. The economic simulation considers a baseline and alternate scenario. The GFPM baseline simulation uses historical data and makes projections of consumption, production, imports, exports and prices based on the status quo, i.e. a continuation of existing supply sources. The alternative scenario constrains, over a five-year period, the portion of fiber supply that is illegally produced in various countries. The assumptions about illegally produced timber are taken from our earlier described assessment of illegal forest activity and our wood flow analysis for the profiled countries.

The baseline projection shows global industrial roundwood consumption increasing over the next decade at an average annual rate of 1.8%, with sawnwood demand rising 1.2% annually and wood-based panel demand increasing 2.5% annually.<sup>15</sup> As compared with some other analyses, these projections are on the high side, but could vary depending on the set of assumptions used.<sup>16</sup> For this analysis, the baseline projection itself is less relevant than the difference between the baseline and the alternate scenario that constrains illegal logging material. The baseline projection suggests that, over the next decade, U.S. exports of industrial roundwood increase, but sawnwood and wood-based panel exports change relatively little. In the baseline scenario, global prices (in real terms) for roundwood are projected to increase 13% between 2002 and 2012, while prices for sawnwood increase 5% and wood panel prices increase 7%.

The alternative scenario phases out illegal timber supply over a five period (2002 – 2007). The analysis indicates that the effect of eliminating illegal logging would have a small impact on production globally, but a predicted change in world wood prices significantly alters trading patterns. Under this simulation, global production of roundwood declines 2.5% by 2012, compared with the base case, while production of sawnwood falls 1.3% and production of wood panels declines 2.7%. However, the simulation results in average world prices for roundwood, lumber and panels that are higher than the baseline projection by 19%, 7%, and 16%, respectively for 2012 (**Table 11**).

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<sup>15</sup> The GFPM doesn't distinguish between softwood and hardwood products. For this analysis, all wood-based panels were grouped together.

<sup>16</sup> For example, the baseline projection indicates that roundwood production in Indonesia will increase by more than 16 million m<sup>3</sup> during 2002-2012, a situation that we believe is unlikely to occur due to past over-cutting.

The largest decline in exports of industrial roundwood occurs in Russia and West/Central Africa, and to a lesser extent in the other profiled producer countries. The simulation shows Malaysian roundwood production and exports increasing, although Malaysian production of sawnwood declines. Not surprisingly, Indonesian plywood exports drop dramatically, putting upward pressure on world panel prices. The end-result indicates relatively little change in exports of U.S. industrial roundwood, but a significant increase in sawnwood and wood-based panel exports. Under the simulation, EU roundwood production and exports increase while total imports decline. The total volume of EU imports of sawnwood and panels would be essentially unchanged under this alternative scenario, although the sources may change. Chinese imports of all three products increase in this model, because of the assumption that domestic harvest declines when all unauthorized logging is eliminated in that country. In contrast, imports in Japan are forecast to decrease. The simulation shows increased Japanese production, but that result is entirely due to higher prices from producing countries where illegal logging is a problem. Although the model predicts that Japan would produce more and import less, given other constraints on the Japanese resource, it is more likely that production would increase only modestly and Japan would shift its imports to other sources.

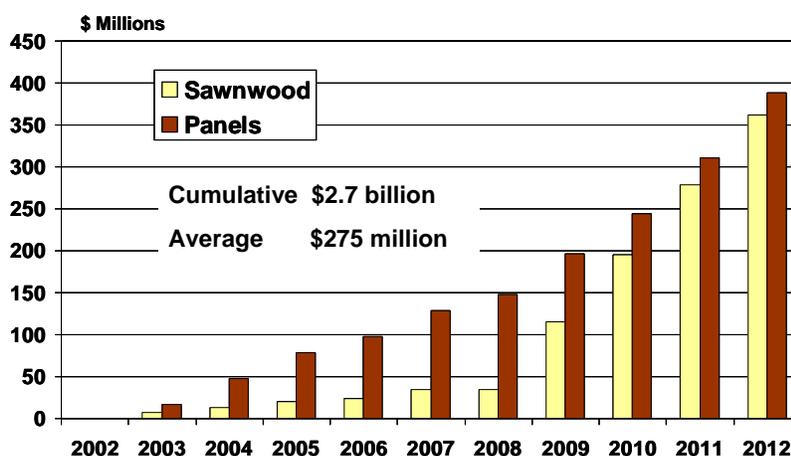
**Table 11:** Summary of Simulated Effects of Eliminating Suspicious Roundwood Production

Change in:	% Change			Volume Change (000 m <sup>3</sup> )		
	Roundwood	Sawnwood	Panels	Roundwood	Sawnwood	Panels
Average World Prices	19%	7%	16%			
Production:						
EU-15	5%	5%	0%	16,673	4,679	162
Japan	13%	7%	2%	4,042	988	103
U.S.	1%	1%	2%	5,386	911	874
Malaysia	8%	-2%	1%	2,060	-110	48
Brazil	-2%	-2%	-2%	-2,069	-482	-143
China	-23%	-10%	-9%	-18,455	-818	-3185
W/C Africa	-23%	-28%	2%	-6,362	-1,353	23
Indonesia	-33%	-31%	-32%	-24,356	-2,490	-5,162
Russia	-16%	-32%	5%	-25,102	-7,685	294
Exports:						
U.S.	0%	49%	35%	0	1,332	777
EU-15	4%	12%	5%	919	5,164	1,456
Brazil	0%	-1%	4%	0	-27	98
Malaysia	48%	-1%	5%	1,809	-27	390
W/C Africa	-39%	-51%	10%	-2,492	-1,063	64
Indonesia	-44%	-55%	-51%	-318	-1,451	-4,199
Russia	-19%	-57%	30%	-11,867	-7,097	488
Imports:						
EU-15	-9%	0%	0%	-5,704	30	-61

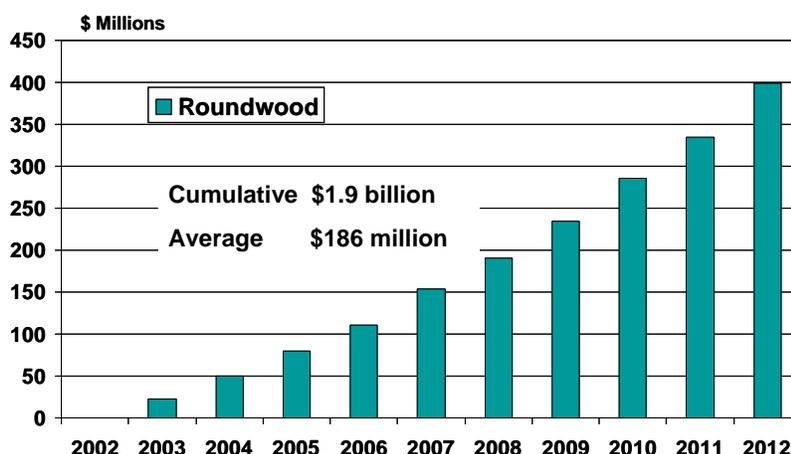
China	3%	3%	4%	2,268	471	650
Japan	-6%	-15%	-5%	-2,128	-1,338	275

Based on the simulations of the GFPM, we can roughly estimate the impact of illegal logging on U.S. wood products exporters. The simulation shows that the positive impact in terms of U.S. exports increases over time. Under the alternative scenario, total exports of sawnwood from the U.S. are projected to increase by an additional 665,000 m<sup>3</sup> in 2010 and by 1.3 million m<sup>3</sup> in 2012 (or almost 50%) over the base case scenario. Likewise, exports of wood panels are projected to increase by 554,000 m<sup>3</sup> in 2010 and by 777,000 m<sup>3</sup> in 2012 (up 35%) over the baseline scenario.

**Figure 3:** Increase in US Wood Product Exports due to Elimination of Illegal Logging



**Figure 4:** Increase in U.S. Roundwood Exports due to Elimination of Illegal Logging



Using the average world prices forecast in the alternative scenario, we can calculate that the value of U.S. exports will increase over the values projected in the baseline scenario. By 2012, the value of additional U.S. sawnwood exports increases by \$362 million and wood panel exports by an additional \$388 million (**Figure 3**). In addition, while the model projects no increase in volume of U.S. industrial roundwood exports, reduced supply from illegal logging increases prices to the extent that the value of U.S. industrial roundwood exports is projected to

increase by \$399 million by 2012, over the base-case scenario (**Figure 4**). Over the 10-year period, 2003-2012, the GFPM projects an average annual increase in value of U.S. sawnwood exports of \$109 million and an increase in the value of U.S. exports of wood panels of \$166 million, due to elimination of illegal logging. Thus, increased export opportunities for U.S. producers of sawnwood and panels amount to an estimated \$275 million per year. In addition, the average annual increase in value of industrial roundwood exports is estimated at \$186 million, bringing the projected total increase in value of wood product exports to just over \$460 million. This represents the opportunity costs for U.S. exporters because of illegal wood products in the global market.

Note that the values calculated and shown in the above charts are based on the assumption in the model that the effect of stopping illegal logging leads to a reduction in supply by 2012 that is less than the reduction in illegal logging. This happens because legal logging responds to the positive price changes, and thus compensates in part for the elimination of illegal logging. Although the analysis was primarily intended to measure effects on world trade, the model also shows that U.S. prices would rise 2 – 4% as a consequence of removing the suspicious volume of global roundwood production, thus increasing the value of domestic U.S. wood products shipments by perhaps as much as \$500 – \$700 million annually.<sup>17</sup> Elimination of suspicious roundwood in the global market would also have an effect on the pulp and paper sector that would be in addition to the impacts on wood products markets.

Because the GFPM is structured as an aggregate simulation, the analysis needs to be understood in the context of information collected for the profiled countries/regions and from the product flow analysis. For example, in the case of China, the major U.S. wood exports are hardwood products. U.S. species compete directly with temperate hardwoods from Russia, but only partially with tropical timber in some segments of the Chinese market. About 30% of hardwood lumber produced and imported into China is manufactured from suspicious timber, according to our wood flow analysis. This would represent the upper bound of additional opportunities in the Chinese market from a reduction in supply or increase in cost of imported Russian and tropical hardwood timber, only some of which would be captured by the U.S. According to some sources, Chinese wood users would absorb significant cost increases before substituting for alternate sources.

Similarly, in the case of Russia, changes in the forest licensing system and improved enforcement would not likely curtail Russian supply significantly, but it would raise the cost. Economic accessibility and shipping distances are bigger factors than is scarcity in Russia. To the extent that costs rise, other sources of softwood timber and lumber could become more competitive in the Chinese and Japanese markets. As is the case now, the United States would compete with Canada, New Zealand, South America and Europe. Due to the very low costs of Russian wood products, compared with U.S. exports, the impact of eliminating illegal logging in Russia on the volume of U.S. softwood exports to China and Japan may not be significant, but the value of those exports should increase.

**Table 12** illustrates the difficulty for U.S. exporters in trying to substitute for illegal Russian logs and wood products in the Asian markets. This table displays the volume, value, and average value of softwood and hardwood sawnwood imports in China and Japan from both

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<sup>17</sup> Domestic shipments of lumber and panel products total between \$15 and \$20 billion.

the U.S. and Russia. For example, in China the average value of softwood sawnwood imports from the U.S. is more than double (+155%) the value of sawnwood imports from Russia. This indicates that even if illegal logging in Russia was eliminated, and higher cost legal logs utilized to produce sawnwood, it might remain difficult for U.S. exporters to compete in this market, unless lower grades of U.S. softwood lumber could be shipped to China profitably. In Japan, the difference in value between U.S. and Russian lumber imports is not as great (+75%), but still significant. Of course, much of this difference is due to differences in lumber grade, but even without illegal logging, Japanese buyers would likely find adequate Russian supply and could also look to New Zealand and South America.

For hardwood lumber, the difference is not nearly as great between the two supplying countries. In particular, in China there is only a 22% difference in average value of imports from the two sources. This indicates that hardwood exporters are more likely to gain market share if illegal logging in Russia is reduced, and log costs consequently increase.

In the earlier chart, based on the GFPM simulation, the value of increased U.S. exports cumulatively total more than \$2 billion through 2012, and average \$200 million annually. This represents the opportunity costs for U.S. exporters because of illegal wood products in the global market.

**Table 12:** Chinese and Japanese Imports from U.S. and Russia, 2002

China Imports	Softwood Sawnwood			Hardwood Sawnwood		
	Volume (000 m <sup>3</sup> )	Value (\$ Mil.)	Avg. Value \$/m <sup>3</sup>	Volume (000 m <sup>3</sup> )	Value (\$ Mil.)	Avg. Value \$/m <sup>3</sup>
USA	33.6	9.4	279.76	593.2	165.9	279.72
Russia	456.9	50.2	109.87	94.8	21.8	229.96
Japan Imports						
USA	274.2	89.7	327.13	74.9	55.4	739.65
Russia	685.7	129.0	188.13	8.1	4.0	493.83

Source: GTIS

The actual ability of U.S. wood producers to capture additional global market share in the absence of suspiciously produced material will be a function of many factors including the substitutability of U.S. species in particular markets or for particular end uses. The GFPM is an aggregate simulation and, like many econometric models, is predicated on a number of assumptions. One of its limitations is that it doesn't distinguish between softwood and hardwood products, which could be important and relevant in some markets such as China. However, the model's results are indicative of the overall *magnitude* of the impact of illegal logging on U.S. exporters. By 2012, the value of increased exports projected by the GFPM (if illegal logging is eliminated) represents an increase in sawnwood export value of 60% and an increase in wood panel export value of 56% over the base-case projection. Clearly, the impact on U.S. exporters would appear to warrant efforts to address the problem of illegal logging.

### *Economic Considerations for Addressing Illegal Logging*

Resource flows can be very complex and made even more so in the context of trade among nations. The global timber economy is an extraordinarily dynamic interchange of many different species of timber, from highly variable forests and production systems, a huge assortment of product types and highly diverse end-markets. Forest products in one form or another are used daily by every global citizen and the making of these products contributes to local and national economies. That forests also provide ecological benefits both enriches and confuses how they are valued. In many respects, illegal logging or illegal forest activity must be viewed within this greater context, but framing a simple view of the economic behavior behind illegal activity could be helpful in assessing potential solutions.

Operators that flout the law are a relatively small segment of the total forest products business, but those that choose to engage in illegal forest activity do so largely because of the higher profit potential and/or shortages of legal material. Typically, higher returns are possible because illegal timber is presumably obtained at lower cost than otherwise would be the case if legal. The lower cost also includes a premium associated with the risk of penalties for being caught. Reducing the spread between the cost of illegal material plus the cost of risk and the cost for legal material lowers the return to the illegal operator. Thus, to lessen the spread, either the cost of illegal material needs to rise, or the cost of legal material needs to fall. The former can be accomplished by beefing up enforcement. That makes the risk higher and makes it more difficult (more costly) to operate illegal timber. Lowering the cost of legitimate product is more challenging since the cost of legal material is a function of more inputs. Increasing the legally available raw material would be one way of reducing costs. Lowering operating costs through lower royalties or taxes is another possibility.

Admittedly, this is a simplistic way of looking at the relationship between illegal and legal material as many other perception-related factors enter into environmental markets.<sup>18</sup> Nevertheless, the basic principle is useful in understanding the efficacies of potential programs intended to curtail illegal logging. As an example, the EU Action Plan would create an export licensing system for imports from partner countries. If the requirements and implementation result in raising costs for European imports, without a compensatory increase in costs for illegal activity, the result could be the opposite of what was intended. If the difference in cost between illegal material and legally obtained material widens, the incentive for illegal activity actually increases. European imports of illegal material might decline, but a greater quantity of illegal material would shift to other markets.

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<sup>18</sup> Fischer, Carolyn. "The Complex Interactions of Markets for Endangered Species Products." *J. of Env. Economics and Management*. In press. Using ivory trade as a case study, Fischer points out that trade bans could have four often over-looked effects: legal consumers might operate in a marketplace separate from illegal producers; legal trade might reduce stigma associated with the commodity thus increasing demand by legal consumers; laundering may bring illegal goods to legal markets; and, legal sales could affect illegal supply costs

## Initiatives/Policies Designed to Address Illegal Logging Concerns

Over the past few years, and especially during recent months, a number of initiatives have been proffered to address illegal logging concerns. They take many forms and tend to be specific to countries or regions. This section provides a short review of the major (and most consequential) programs and is not intended to be an exhaustive list.

### *Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)*

The Convention on the International Trade in Endangered Species (CITES) regulates international trade in threatened and endangered animal and plant species. Other than World Trade Organization (WTO) rules governing trade, CITES is the only multi-lateral convention with enforcement provisions for limiting trade in certain plant and animal products. Its 160 signatories (parties) agree to adhere to the convention's prohibitions and constraints on the trade of listed species. Each country has a designated CITES management authority with the responsibility of issuing CITES permits and regulating CITES trade.

Species are listed in CITES in one of three appendices. Species listed in Appendix I are deemed to be facing extinction and trade in them for commercial purposes is essentially banned. Six timber species are listed on Appendix I, including Brazilian Rosewood (*Dalbergia nigra*) and Chilean larch (*Fitzroya cupressoides*). Appendix II species include species that could face extinction if trade in them were not controlled. They require an export permit that contains a scientific non-detriment finding and proof of legality. African teak (*Pericopsis elate*) and big-leaf mahogany (*Swietenia macrophylla*) are among about twenty timber species listed on Appendix II. Appendix III species are subject to monitoring and controls at the unilateral request of a CITES party. Spanish cedar (*Cedrela odorata*) is an example. Appendix III species require either an export permit if originating in the country where it is listed, or a certificate of origin if from another country. Indonesian ramin is listed on Appendix III.

**Status:** CITES is the only international mechanism that regulates trade in timber products. Issuance of fake permits has been alleged as has trade in CITES-listed species classified as something else. Statistics related to trade in CITES species are not very reliable. CITES parties meet every two years. NGOs have sought to list more timber species. In October, 2004, ramin was added to Appendix II.

**Implications for the U.S:** Most of the implications are import-related. When Big-leaf mahogany was moved from Appendix III to Appendix II, trade declined significantly, but allegations about misclassification of mahogany persist. NGOs have claimed that furniture made with ramin is being traded without CITES permits or certificates of origin.

### *Forest Law Enforcement and Governance Ministerial (FLEG)*

In September 2001 the Forest Law Enforcement and Governance (FLEG) initiative in East Asia was launched at a meeting in Bali. Ten Pacific Rim nations plus the United States and Great Britain adopted a Declaration on Forest Law Enforcement and Governance in which timber producing and consuming countries agreed to intensify national efforts, strengthen

bilateral, regional, and multilateral collaboration to address violations of forest law and forest crime and in particular illegal logging and associated trade. Singapore and Malaysia did not participate in the initiative. The World Bank helped underwrite the FLEG meeting in Asia and has also supported FLEG processes in Africa, Europe and a proposed FLEG for Northern Europe/Asia. The European process added a trade element to become FLEGT (see next section).

**Status:** There have been a number of follow-up meetings, government to government commitments to cooperate, a greater focus on illegal logging by international institutions, and a number of regional initiatives to share information and expertise.

**Implications for the U.S.:** The U.S. has participated in most of the FLEG meetings and processes. Discussions have included forest and “legality” certification programs. WTO trading rules might enter into play. U.S. export opportunities could be impacted by any new requirements and/or if a particular type(s) of certification are made mandatory.

### ***Forest Law Enforcement, Governance and Trade (FLEGT) EU Action Plan***

The European approach to address illegal logging has specifically included actions to reduce trade in illegal wood products. In July, 2004, the European Commission officially released an Action Plan with measures to both increase support for governance and enforcement in wood-producing countries, and mechanisms for voluntary actions to control trade in illegal wood products. The Action Plan authorizes bilateral agreements with supplier countries that would create an export licensing system where partner countries issue a permit attesting to the legality of roundwood and lumber exported to the EU (the product list could be expanded). Agreements would be voluntary, but once signed, would be enforced through European Customs. The EU Action Plan also encourages the development of public procurement policies, measures to prevent investment in activities that encourage illegal logging, encouragement for private sector initiatives to source only legal timber, and commitments to address conflict timber problems.

**Status:** The European Commission is in the process of finalizing regulations to implement the Action Plan and is exploring entering into partnership agreements with a number of countries.

**Implications for the U.S.:** There are several possible implications for the U.S. Initially, there could be more opportunities for U.S. exports in Europe if imports from tropical countries decline as a consequence of the licensing requirement or the “stigma” associated with those imports. On the other hand, unlicensed product might be diverted to Asian markets where the U.S. would face greater competition. As a practical matter, it might be difficult to license only product destined for the Europe from partner countries and European firms may seek to have all timber licensed from the exporting country in order to spread the costs. That would be a benefit for U.S. exporters, but harm U.S. importers. European customers might also ask for the same kinds of licenses from U.S. producers. In addition, there could be WTO issues raised by one or more supplier countries.

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### ***President's Initiative Against Illegal Logging (PIAIL)***

Launched in July, 2003 The President's Initiative Against Illegal Logging (PIAIL) commits the U.S. to assisting developing countries in their efforts to combat illegal logging, including the sale and export of illegally harvested timber, and in fighting corruption in the forest sector. The initiative focuses on the Congo Basin, the Amazon Basin and Central America and South and Southeast Asia. The outlined strategies include: building country capacity to establish and strengthen legal regimes and enforcement of laws affecting forest management, especially those aimed at illegal logging; enhancing community involvement in forest governance and related wildlife issues; developing integrated monitoring systems and building in-country capacity to monitor forest activity and compliance with laws, including using remote-sensing and ground-based technologies to monitor changes in forest conditions; and promoting good business practices, transparent markets and legal trade, including country capacity to implement obligations under the Convention on International Trade in Endangered Species. The PIAIL identified \$15 million of funding for U.S. government actions to address illegal logging.

***Status:*** The U.S. State Department uses the PIAIL to support involvement in international fora and to coordinate interagency efforts on illegal logging activities.

***Implications for the U.S.:*** The PIAIL is the official government articulation of interest in the issue and emphasizes capacity building as the preferred focus of U.S. involvement. U.S. industry has supported the government's PIAIL efforts.

### ***Congo Basin Partnership***

The Congo Basin Forest Partnership (CBFP) was launched in September 2002 at the World Summit on Sustainable Development in Johannesburg, South Africa as a consortium of 29 governmental and nongovernmental organizations. Its purpose is to improve coordination of projects, programs, and policies that promote sustainable management in the Congo Basin region. One of its goals is to combat illegal logging.

***Status:*** Serves as a clearinghouse for information related to programs and activities in the central African region.

***Implications for the U.S.:*** The U.S. Government has said that it will invest up to \$53 million in the Congo Basin Forest Partnership through 2005. U.S. industry (through AF&PA) is a member of the consortium.

### ***Government-to-Government Memoranda of Understanding/Joint Statements***

As an expression of its acknowledgement of illegal logging problems, Indonesia has signed joint statements or memoranda of understanding with the U.K, Japan, Republic of Korea, and China. These are similar in scope and generally commit the two countries to cooperate with technical assistance and on improving enforcement. The U.K has also signed a Joint Statement on Environment with China that includes references to forest law enforcement and illegal logging. The Japan/Indonesia Joint Announcement outlined an action plan to cooperate on a number of specific initiatives, including:

- developing a mechanism to verify and track legally harvested timber;
- developing a process for monitoring and implementing the verification system;

- exchanging information on timber trade and institutional and legal systems;
- sponsoring studies on measures to thwart distribution and export of illegally harvested timber; and,
- building capacity to improve sustainable forest management.

**Status:** Under a U.K – Indonesia Memorandum, a stakeholder group has developed a “legality standard” to promote trade in legal wood products from Indonesia. The standard has seven broad principles, each with criteria and indicators, and presumably will be used (if finalized) to implement U.K. procurement requirements for Indonesian wood products.

**Implications for the U.S:** None at this time.

### ***Asia Forest Partnership***

Japan was instrumental in creating the Asia Forest Partnership (AFP) following the 2001 Asian FLEG meeting and the 2002 Johannesburg Summit. The AFP is intended to serve as a way to exchange information and improve the efficiency of programs addressing three main issue areas: illegal logging, control of forest fires, and rehabilitation and reforestation of degraded lands. The fourth meeting of the AFP was held in August/September 2004 with participation by 16 countries.

**Status:** The AFP is still in its formative stages. Indonesia participated for the first time this year. Several NGOs have also attended AFP meetings.

**Implications for the U.S:** None at this time. Neither U.S. nor Japanese industry have participated in the AFP meetings

### ***Government Procurement Policies***

Again, most of the activity on government procurement policies is concentrated in Europe. The U.K. has been the most proactive, but other governments are following suit. Most of the new policies are requiring agencies to ensure that products are legally sourced either through certification with chain-of-custody labeling or some other means.

**Status:** Several European governments are in the process of revising procurement policies to discourage tropical timber products and/or ensure legal sourcing.

**Implications for the U.S:** In some countries, 20% - 40% of wood consumption is related to government procurement. U.S. products are generally viewed in Europe as sustainably produced and without any suspicion of illegality. Nevertheless, European procurement policies are being written to favor one or more certification schemes and SFI is not always included. Most family and individual forest owners in the U.S. (58% of the forest land base) do not use any certification programs.

### ***Codes of Conduct – Environment Procurement***

Most of the major trade associations in Europe and North America have developed codes of conduct that include provisions for procurement of legally sourced timber. As one example,

the Timber Trade Federation in the U.K. (TTF) recently revised its Environmental Timber Purchasing Policy to conform to government procurement policy. The TTF policy outlines a grading system based on a risk assessment for every shipment. If risk of illegality is high, the importer is to obtain assurances that the product is legal. Suppliers must also show that sourcing is sustainable, i.e. of known origin or certified, and if not they must demonstrate that sourcing is “progressing to sustainable.” Ultimately all TTF members are committed to certification.

The Confederation of European Paper Industries (CEPI) is also developing a framework for a new code of conduct for use by its members. CEPI is also developing, in conjunction with the European woodworking industry (CEI Bois), industry accounting rules for chain of custody tracking. The purpose is to have a system that can be accepted by any of the certification schemes. All of the certification schemes include standards or guidelines requiring legal sourcing and compliance.

Most of the major trade associations have issued policies on illegal logging. AF&PA formally issued a policy on illegal logging in 2002, as did CEPI and The International Council of Forest Products Associations (ICFPA).

**Status:** By the end of 2004, new codes of conduct will likely be endorsed by in Europe.

**Implications for the U.S:** Increasingly, codes of conduct are endorsing procurement of certified product -- with chain-of-custody documentation -- as a means to ensure legality. Even though U.S. products entering Europe are not viewed as problematic, most are not currently labeled and without mutual recognition of certification schemes, U.S. exporters could be at a disadvantage.

### ***Other Trade Association Activities***

Four European timber trade associations have put together a project proposal for EU funding jointly with the Tropical Forest Trust, an NGO with expertise in timber supply chain management. The four timber trade associations are VVNH in the Netherlands, the UK Timber Trade Federation, the Belgian Timber Trade Federation, and the Malaysian Timber Council. The objective of the project, referred to as the “Timber Trade Action Plan for Good Governance in Tropical Forestry” is “to eradicate illegal tropical timber from the supply chains of these four timber trade federations (TTFs), representing over 40% of EU imports by country.” The geographical focus of the project will be Cameroon, Gabon, Indonesia, and Malaysia. The project will focus on practical methods for timber tracking and establishing and monitoring chain of custody (CoC) and timber certification schemes.

**Status:** A proposal for funding has been submitted to the European Commission (EC). The project is expected to cost €7 million, half of which is being sought from the EC.

**Implications for the U.S:** If the European trade sets up a system or process for CoC of wood products from tropical countries, U.S. industry (particularly importers) will likely feel both market and political pressure to do the same. Ultimately, European consumers could come to expect that all timber and wood products have some kind of certification. U.S. exporters could then also be subjected to CoC certifications.

## ***International Organizations***

Virtually all international institutions that are involved in natural resources, environment and/or global forestry issues have on-going programs related to illegal logging. The *World Bank* has provided funding for the FLEG and FLEGT processes as part of its Program on Forests (PROFOR) and forest strategy.<sup>19</sup> It has also used its lending programs to influence how concessions are managed. The *International Tropical Timber Organization (ITTO)* has several projects related to illegal logging, including studies of trade data discrepancies and programs to improve information systems, forest monitoring and forest law enforcement. Illegal logging and trade of illegal timber products was on the agenda of the *World Summit on Sustainable Development* in Johannesburg and the *U.N. Forum on Forests* has called for action to address domestic forest law enforcement and international trade in forest products.

***Status:*** The *Forests Dialogue (TFD)*, convened by the World Business Council for Sustainable Development, the World Bank, and the World Resources Institute, is planning a meeting in Hong Kong next year to discuss illegal logging. Several other meetings have been held or are being planned by the *FAO*, *ECE Timber Committee*, NGOs and others. Numerous other initiatives are in process by the *African Timber Organization*, *Transparency International* and others.

***Implications for the U.S:*** With so many disparate programs and meetings, there is a risk that U.S. interests and concerns are not always represented.

## ***Other Referenced Monitoring and Control Programs***

In international discussions about possible ways to reduce or eliminate illegal logging, programs to control illegal fishing and diamond production are sometimes referenced as possible models. In the case of diamonds, the Kimberly Process is a joint government, international diamond industry and NGO initiative to stem the flow of conflict diamonds - rough diamonds that are used to finance wars in central African countries primarily. The program consists of a certification system whereby the 43 participating countries (including the EU) accept only diamonds certified as originating in another participating country.

The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) has established catch limits and other rules governing the fishing of Patagonian Toothfish, also known as Chilean sea bass. The rules require all vessels licensed to fish for Patagonian Toothfish in the CCAMLR area to carry a satellite-linked monitoring system. The system enables automated filing through a Catch Documentation Scheme (CDS). Landings and trade flows of toothfish caught in the CCAMLR Area (principally in the Southern Hemisphere) are to be recorded and accompanied by a valid CCAMLR Catch Document.

***Status:*** These processes have been cited as potential models for similar tracking or certification schemes in the timber and wood products sector.

***Implications for the U.S:*** The U.S. participates in both the Kimberly Process and the CCAMLR. However, the effectiveness of the programs is debated. Applying similar schemes to wood products trade would likely be more difficult and costly given the volume and diversity of products and species. Any program would

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<sup>19</sup> World Bank Group. A Revised Forest Strategy for the World Bank Group. October 21, 2002.

likely be have to be confined to specific species and/or products from specific origins and could contravene WTO rules.

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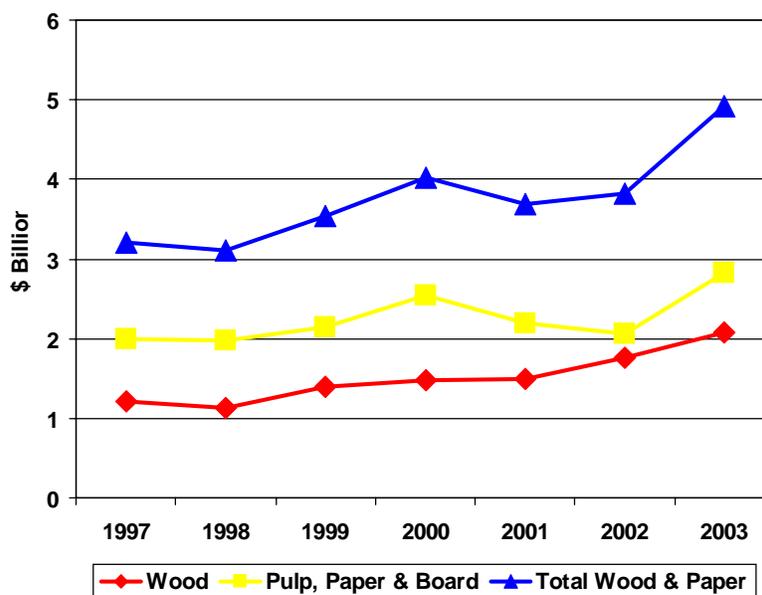
## BRAZIL

### *Overview/Observations*

- Brazil's total harvest of industrial roundwood in 2002 was around 164 million cubic meters, according to industry sources. Despite the fact that there has been an on-going problem with illegal logging in the Amazon region, the volume of illegal wood going into export markets is relatively small for several reasons:
  - Two-thirds of the total timber harvest in Brazil comes from plantation forests, where illegal logging is not considered to be a problem. The problem of illegal logging is only an issue with tropical timber production, which occurs primarily in the Amazon region.
  - The majority (estimated at 85-86%) of wood harvested in the Amazon is consumed within Brazil, and only 15-16% is exported and then mostly in the form of lumber and plywood.
  - Mahogany, which has been associated by many with illegal logging in Brazil and elsewhere, has almost disappeared from Brazilian exports as no new permits for harvesting or transport of mahogany have been issued for several years. Except in cases of intentional misclassification, the Appendix II CITES listing of big-leaf mahogany should assure the legality of the very small volume still traded.
  - Some of the larger exporting companies have achieved FSC certification on their forest and/or chain of custody for the products exported. For the most part, the relatively small volume of certified product is exported (and all, presumably, is legal), and even without certification the larger exporters are more sensitive to the illegal logging issue and are less likely to purchase logs from questionable sources than the medium and smaller mills. It is also perhaps easier for the regulatory agencies to monitor the activities of the larger companies. Thus, we believe that the wood exported from Brazil has a much higher percentage of legal wood, and hence a much lower level of illegal wood, than the wood consumed domestically.
  - Finally, the Government of Brazil has taken a much tougher stance against illegal logging over the past several years, and has greatly increased the number of arrests, the volume of logs confiscated, and the level of fines imposed. Thus, the costs of illegal activity have been greatly increased, and have reduced the attractiveness of this practice, at least for the more responsible companies.
- Of the total harvest of tropical wood in Brazil, various NGO estimates place the volume of illegal wood at between 20% and 47%. Because of the reasons cited above, it does not seem possible that the level of illegal wood in Brazil's exports of tropical hardwood products exceeds 10-20%, and it could possibly be as low as 5-7%. In terms of Brazil's total forest products exports, because exports of pulp (from plantations) and pine lumber and plywood (also from plantations) have expanded so quickly, we believe that the percentage of illegal wood is likely less than 5% of the country's total exports.
- While the impact of illegal logging in Brazil may be relatively minor in the international markets, illegal forest activity remains a serious problem and is closely associated with the problem of deforestation in the Amazon. If programs are to be aimed at reducing

illegal logging, we believe they should be focused more on strengthening regulatory institutions and improving forest management in Brazil, rather than on some type of restriction imposed in the importing countries. Training, including training of IBAMA staff, loggers, and landowners, would improve the regulation of logging and management of the forest resource.

**Figure 5: Brazil's Forest Products Exports, 1997 - 2003**



Source: GTIS

### ***Forest Policy and Legal Framework in the Amazon***

There is no shortage of laws and regulations governing logging in the Amazon region of Brazil. Currently almost all of the legal log production in the Amazon is from privately owned lands. The Government of Brazil has been discussing the possibility of licensing timber concessions on public forest lands, but such a program is not yet in place.

The Forest Code was established in Brazil in 1965 (Law 4771). Article 15 of this code specified that forests in the Amazon could only be managed according to approved forest management plans. However, it was not until 1989 that IBAMA defined for the first time what a forest management included (Order of Service 002/89). Technical input for the requirements for sustainable forestry were incorporated in 1994 (Decree 1282), and finally in 1995 IBAMA specified what the 1965 Code meant by “management.”<sup>20</sup> Article 16 specified a minimum of 20% of the forest property must be maintained in native forest, where forest management is permitted by clear-cutting is not. In the Amazon region, this “legal reserve” had been 50%, but was increased to 80% in 1996.<sup>21</sup>

<sup>20</sup> Taken from (MacQueen 2003).

<sup>21</sup> This change has created confusion for some owners. If an owner had legally cleared 20-50% of their forest property, a practice the government had encouraged, did these new requirements now mean that the owner needed to plant some of this cleared area so that 80% was in native vegetation? In interviews conducted for this study, some landowners complained that they were unable to get legal forest management plans approved on their property where they had cleared more than 20% of the total area prior to 1996.

A 2000 study by the World Bank, quoted in the 2002 ITTO study, concluded that “the regulations governing the forest sector, while well intentioned, have been problematic and largely ineffective”. This includes conflicting policies between agencies charged with development and those with environmental protection. Another complaint by forest companies are changing regulations, which make planning and also enforcement difficult.

IBAMA, the Brazilian environmental agency, is responsible for approving forest management plans as well as legal deforestation plans. When a forest management plan is submitted for approval to IBAMA, the first step is to confirm the certification of ownership. This certification is issued either by INCRA or by a state land office such as INTERPA in Pará. Next, IBAMA analysts examine the satellite photos that must accompany the management plan to see if the area has been illegally logged before. Next, IBAMA reviews the forest engineering of the project. Each area must have a 100% forest inventory, which includes tagging and mapping (with GPS) all trees with diameter at breast height greater than 35cm. The plan includes the volume of all commercial trees, and whether the trees are proposed as Leave Trees, Trees to be Harvested, or Seed (“Mother”) Trees.

The IBAMA analyst then determines if all “Trees to be Harvested” will be permitted. For example, all trees with dbh of 35-45cm must be left, and there are varying minimum diameter limits for various species. In addition, the analyst may decide that too many trees in one area are being taken, or too many trees of one species, and he may modify the plan accordingly. A maximum of 35 m<sup>3</sup> per hectare may be removed, with a required 25-30 years before re-entry. We witnessed an IBAMA analyst reviewing a plan literally tree by tree, in the office. Given the limited budgets and staffing of IBAMA, it is no wonder that companies complain about the cost and extended periods of time needed to obtain approvals of forest management plans. And, this must be completed on a yearly basis.

Following audits of approved management plans, IBAMA in recent years has suspended a large portion of the plans. For example, ITTO (2002) reports that in 2001 IBAMA suspended 43% of management plans following audits. Not all of these suspensions would necessarily indicate illegal logging in the sense of logging outside the approved areas or logging on public lands or on other people’s property.<sup>22</sup>

IBAMA is supposed to check in the field after logging has begun, to be sure that the plan is being implemented properly. However the primary check on logging appears to be through transport permits, the ATPFs. These are issued by IBAMA in proportion to the volume authorized to be logged. The permits (printed on a special type of paper) have the name of the project, the owner, and the destination all printed on each permit, and there are also spaces available to list the species and volumes of logs or lumber/plywood on each truck. When the truck is loaded, one copy of the permit stays with the logger (and is to be sent to IBAMA) and one goes with the truck and is left at the destination. The truck copy is also forwarded to IBAMA, who supposedly cross-checks with the other copy.

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<sup>22</sup> Although we understand that some loggers take out harvesting permits in the name of the existing landowner without permission, so it seems at least some of these plans were cancelled because of perceived illegalities.

In addition to tracking log flows, IBAMA uses a similar permit method to track the flow of primary products. For example, a sawmill makes out an ATPF for each truck of lumber shipped. Again, one copy is to be sent directly to IBAMA, while the other copy goes with the truck to the destination, where it is then supposed to be forwarded to IBAMA. The regulating agency is also supposed to cross-check the output of lumber from the sawmill with the volume of log input.

In practice, the system does not always function perfectly. The following types of violations are some which are reported to occur:

1. The sawmill falsifies the ATPF;<sup>23</sup>
2. The same ATPF is used for various shipments;
3. The ATPF presented does not represent the species and volume in the shipment;
4. The information from the ATPF is different from the invoice;
5. The sawmill does not submit to IBAMA the ATPF which is compulsory.

### ***Resource Situation***

#### **Native Forest Resource Base**

Brazil has a huge area of natural forest, exceeding 550 million hectares, by most estimates, accounting for approximately 14% of the world's forest area, and 61% of South America's forest. Brazil has more forest than any other country except for Russia. The 260 million hectares of the Amazon forest represents 20% of all tropical forests on Earth. Brazil has more than three times the area of tropical forests as the next largest country, Congo.

There are basically six distinct natural ecosystems in the Brazilian natural forest, with the area broken down in the table below (**Table 13**). The Cerrados and Pantanal have savannah-like vegetation, while the Caatinga is a xeric ecosystem with only small trees and shrubs. Although ecologically important, the Atlantic Forest and native Araucaria forests in southern Brazil make up only a very small percentage of the total native forest in Brazil.

**Table 13:** Brazil: Area of Natural Forest, By Type

<b>Ecosystem</b>	<b>Area (Million Hectares)</b>
Amazonia	260
Cerrados	185
Pantanal	15
Caatinga	90
Araucaria forests	.05
Coastal vegetation and Atlantic Forest	4 (est)
<b>Total</b>	<b>554</b>

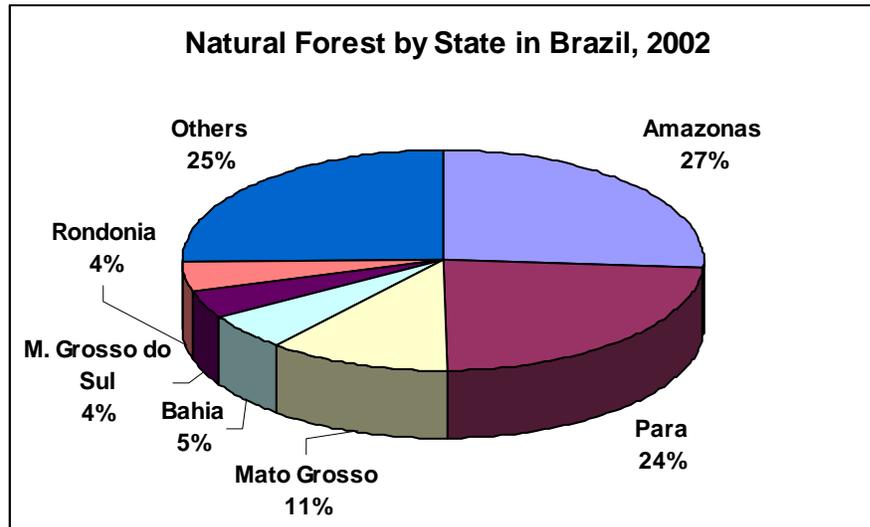
Source: E. Schaitza, EMBRAPA

Other estimates by ABIMCI<sup>24</sup> discuss only the "closed forest" type of natural forest ecosystem. According to the latest ABIMCI reports there are an estimated 412 million hectares

<sup>23</sup> One method to do this may be for a company to overstate the volume of timber that will actually be removed from a given logging site. That permit could then potentially be used to transport wood from another, unauthorized site.

of closed forests in Brazil. Of these, only 245 million are considered effectively available, as the remaining 167 million hectares are public or protected forests. More than 60% of the closed natural forest in Brazil is located in the three Amazon states of Amazonas, Para, and Mato Grosso.

*Figure 6: Natural Forest by State, 2002*

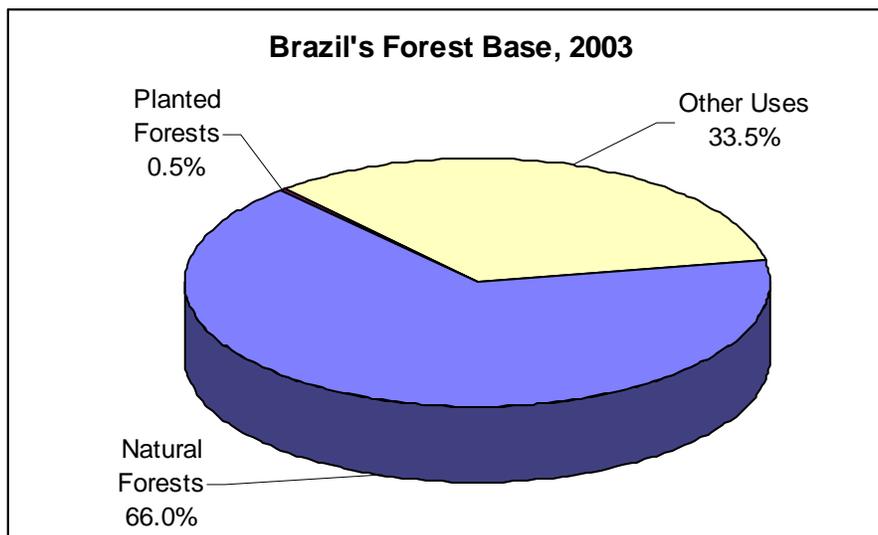


Source: ABIMCI (2003)

### Plantation vs. Natural Forests in Brazil

While the natural forest in Brazil provides a substantial share of logs used to produce sawnwood in the country, and a large share of the veneer and plywood, the industry has shifted largely to dependence on plantations of exotic species, primarily various Pine and Eucalyptus species. Despite the fact that planted forests cover only about 0.5% of the forest area in Brazil, they are the resource base for all of the pulp and paper industry and most of the expansion in recent years in the solid wood industry. In the chart showing Brazil's forest base (*Figure 7*) on the following page, note that "Other Uses" includes agriculture, cattle raising, etc.

<sup>24</sup> ABIMCI = Associação Brasileira da Indústria de Madeira Processada Mecanicamente, or the Brazilian Association for Mechanically Processed Timber, which is the primary industry association representing the solid wood industry in Brazil.

**Figure 7: Brazil's Forest Base, 2003**

Source: ABIMCI (2003)

While natural forests are by far the major forest type in Brazil, plantation forests have clearly formed the basis for most forest industry expansion in the country. The best estimates of industrial roundwood production in Brazil show that two-thirds now comes from plantations (**Table 14**).<sup>25</sup> Approximately 28% of Brazilian roundwood production is used to produce charcoal. More importantly, only in sawnwood production is the majority of raw material still sourced from native forests.

**Table 14: Industrial Log Production in Brazil, 2002 (million m<sup>3</sup>)**

INDUSTRY	LOG SOURCE		
	NATIVE	PLANTATION	TOTAL
SAWNWOOD	40.3	22.4	62.7
WOOD PANELS	2.4	10.7	13.1
PULP	--	40.3	40.3
STEEL (CHARCOAL)	12.6	34.0	46.6
OTHERS	--	4.5	4.5
<b>TOTAL</b>	<b>55.3</b>	<b>111.6</b>	<b>167.2</b>
<b>% OF TOTAL</b>	<b>33</b>	<b>67</b>	<b>100</b>

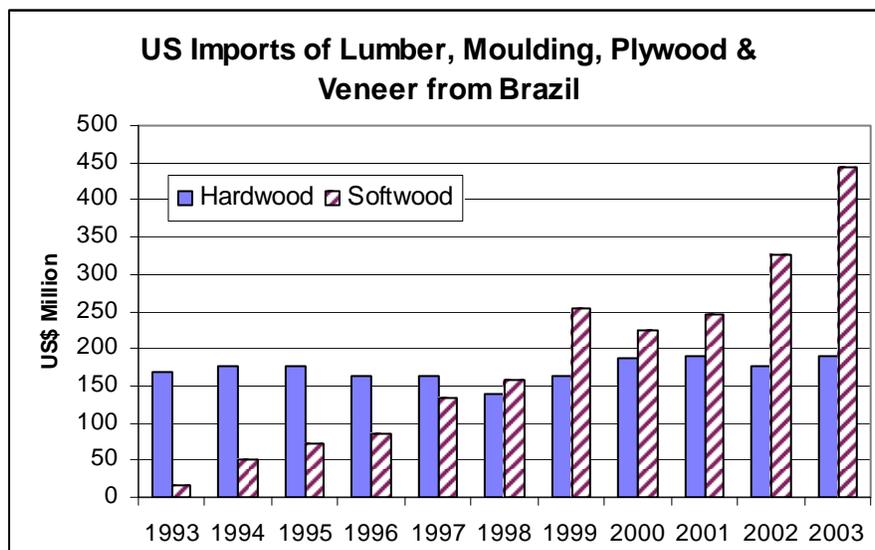
Sources: SBS, ABRACAVE, BRACELPA, STCP (taken from Zugman, 2004)

A good illustration of the importance of plantations in Brazil's wood products industry and international trade is shown in **Figure 8**. This shows U.S. imports of lumber, moulding, veneer, and plywood from Brazil by value, by year during 1993-2003. Imports of hardwood products (almost all tropical hardwood from natural forests) have essentially been stagnant during this time period. Virtually all of the growth in imports has been of softwood products, which means products made from plantation-grown pine. This is important because most illegal logging is associated only with tropical hardwoods. At any given level of illegal activity, the

<sup>25</sup> Note: For purposes of our wood flow analysis, we use a slightly lower estimate of total production than cited in this table (164 instead of 167 million m<sup>3</sup>). A large share, 47 million m<sup>3</sup> is used for charcoal production.

share of this illegal wood in Brazil's wood products exports has gone down simply by virtue of the fact that an increasing share of export products are based on plantation forests.

**Figure 8:** U.S. Imports of Lumber, Moulding, Plywood and Veneer from Brazil



Source: U.S. Dept of Commerce, WRI

The importance of the plantation forest resource base in Brazil cannot be overstated:

- All (100%) of the Brazilian pulp and paper industry is based solely on plantation-grown fiber (except of course for recycled paper).
- All (100%) of the composite wood-based panel industry (particleboard, MDF, hardboard, and OSB) are based solely on plantation-grown fiber.
- While 50-60% of lumber production in Brazil may still be based on native forest, the percentage of pine lumber has been growing rapidly, and as illustrated above most of the *growth* in exports has been based on plantation pine.
- The majority of plywood (60%) is now based on plantation pine, and again it has been this segment of the plywood industry that has been expanding in both domestic production and exports.

In terms of illegal logging, there have been few challenges to the legality of plantation forests in Brazil. There have been some objections to exotic plantation species on environmental grounds, and there may be disputes over land-ownership in some areas of plantations, but we are not aware of any challenges to plantation wood products as being illegal. Almost all of the timber harvesting in natural forests in Brazil takes place in the Amazon region, and it has been this region that has been the focus of most studies on illegal logging in Brazil. The remainder of this case study will focus only on the Amazon region.

### ***Forest Ownership in the Amazon***

The Amazon Region, known as *Amazônia Legal*, covers some 5 million square kilometers, or about 59% of the territory of Brazil. The population of this vast region was only

21 million in 2000, compared with the total country population which in 2004 exceeded 178 million. The largest states are Amazonas, Pará, and Mato Grosso.

**Table 15:** Profile of States in the Amazon Legal, 2000

State	Population (million)	Area (000 km <sup>2</sup> )
<b>Acre</b>	0.6	153
<b>Amapá</b>	0.5	143
<b>Amazonas</b>	2.8	1,571
<b>Maranhão</b>	5.7	264
<b>Mato Grosso</b>	2.5	903
<b>Pará</b>	6.2	1,248
<b>Rondônia</b>	1.4	238
<b>Roraima</b>	0.3	224
<b>Tocantins</b>	1.2	272
<b>Total</b>	<b>21.1</b>	<b>5,019</b>

Source: Lentini, et al 2003

Only 24% of the land in the Amazon is privately held and registered with INCRA<sup>26</sup>. Tocantins has the highest percentage of private land (61%), followed by Mato Grosso at 55%. Pará, the largest wood producing state, only has 18% of its land in private ownership. In total, 29% of the land in the Amazon is considered to be in some form of protected ownership. This includes:

- Indigenous Lands (equal to about 20% of the total Amazon area),
- Proteção Integral (National Parks, Biological reserves, etc.) -- 3.8% of the total
- “Sustainable Use” areas (similar to National Forests in the U.S.) -- 4.0% of the total, and
- Military Lands – 0.5% of the total area.

As shown in **Table 16**, 47% of the Amazon area, and more than 50% in some states, is either in “terras devolutas” (public lands without documentation) or in private lands but “in dispute.” This is a key difficulty in promoting certified forest management and legal logging, as in many areas the history of land ownership and registration is extremely confusing. Ownership of private lands is often in dispute, with various claims ranging back to colonial days. To complicate matters, in 1971 the Military government issued Decreto-Lei No. 1.164, which transferred back to Federal ownership all lands within 100 kilometers of existing and planned Federal roads and highways. According to Greenpeace (2003), under this decree two-thirds of the state of Pará reverted to Federal ownership. Some of these lands are still claimed by private individuals, and it will likely take many years in the Brazilian courts to sort out the ownership of much of this region.<sup>27</sup>

This very confusing land ownership situation has exacerbated the problem of illegal logging in the Amazon, as IBAMA will not grant a forest management permit to a company that cannot demonstrate clear ownership of a property. In addition, certification groups such as FSC

<sup>26</sup> INCRA = Instituto Nacional de Colonização e Reforma Agrária, Brasil

<sup>27</sup> A good description of the problems associated with uncertain land title, illegal land occupation, etc. in the Amazon can be found in the 2003 Greenpeace report, “Pará: Land in Conflict.”

will not award certification to companies without clear title. Until this issue is properly addressed, illegal logging will continue to be a reality in extensive areas in the Amazon.

**Table 16:** Profile of Land Ownership in the Amazon, 2000

State	Type Of Ownership			Type Of Land Use (1996)		
	Private	Protected	Other*	Pasture	Forest	Other
<b>Acre</b>	22%	36%	43%	19%	75%	6%
<b>Amapá</b>	5%	53%	42%	35%	59%	6%
<b>Amazonas</b>	2%	34%	64%	16%	72%	12%
<b>Maranhão</b>	38%	11%	51%	42%	39%	19%
<b>Mato Grosso</b>	55%	15%	30%	43%	46%	11%
<b>Pará</b>	18%	28%	54%	33%	58%	9%
<b>Rondônia</b>	38%	45%	17%	33%	60%	7%
<b>Roraima</b>	13%	51%	36%	52%	37%	11%
<b>Tocantins</b>	61%	12%	27%	66%	26%	8%
<b>TOTAL</b>	<b>24%</b>	<b>29%</b>	<b>47%</b>	<b>42%</b>	<b>48%</b>	<b>10%</b>

Source: Lentini, et al 2003

\*Defined as lands not registered in private ownership and not protected. This includes public lands not protected and also private lands where title is in dispute.

Some 42% of the Amazon region is considered “pasture”, and only 48% is classified as “forest”. Note that this table is not implying that 42% of the Amazon forest has been cleared and turned into pasture. By the most recent estimates, some 13% of the Amazon has been “deforested.”<sup>28</sup> Much of the pasture land has been established on non-forest lands or in cerrado areas. There are approximately 520,000 private landowners in the Amazon region, covering 100 million hectares. IMAZON believes that about 110,000 landowners account for 80% of the private land in this region.

### **Wood Production in the Amazon Region**

Timber has been extracted from the Amazon region since colonial days, but harvesting was typically very selective, taking only the highest value species from close to the main river areas. Even when foreign investment in the 1960s and 1970s increased harvest levels, the focus for export was primarily on a few key species such as mahogany (*Swietenia macrophylla*) and Cedar (*Cedrella odorata*) and later also virola (*Virola surinamensis*) and andiroba (*Carapa guianensis*). Access to the forest was only by the river systems, which limited both the types of species and areas which could be impacted.

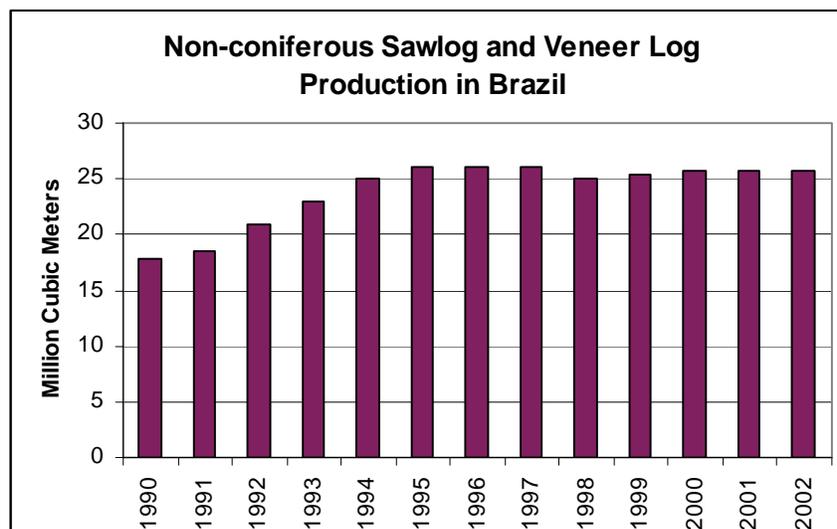
During the early 1980s the military government decided to develop the Amazon and integrate the region with the rest of Brazil. This took the form of an aggressive campaign of road building (thousands of kilometers of roads) as well as the first of several large resettlement programs. This government program of development had several long-term consequences for the wood industry in the Amazon. First, as Smeraldi (2003) points out in a recent summary of the period, the logging industry gained access to a large area of so-called “terra firma” forests which had been inaccessible in the past. This meant access to a greater volume of mahogany, and a number of other species (perhaps 10) which had not previously been exploited. In addition, the road system opened a much greater area to exploitation, and the resettlement

<sup>28</sup> Among other sources, see Lentini, et al (2003).

program meant that the industry also had a large resource of low-cost labor. Finally, of course, the settlers also had the incentive to clear lands for planting and grazing, which increased the volume of low cost wood available for the industry. The impact of government policies and the resettlement of people into the Amazon continue to have a profound impact on the problem of illegal logging and resource management in general. This will be discussed further later in this section.

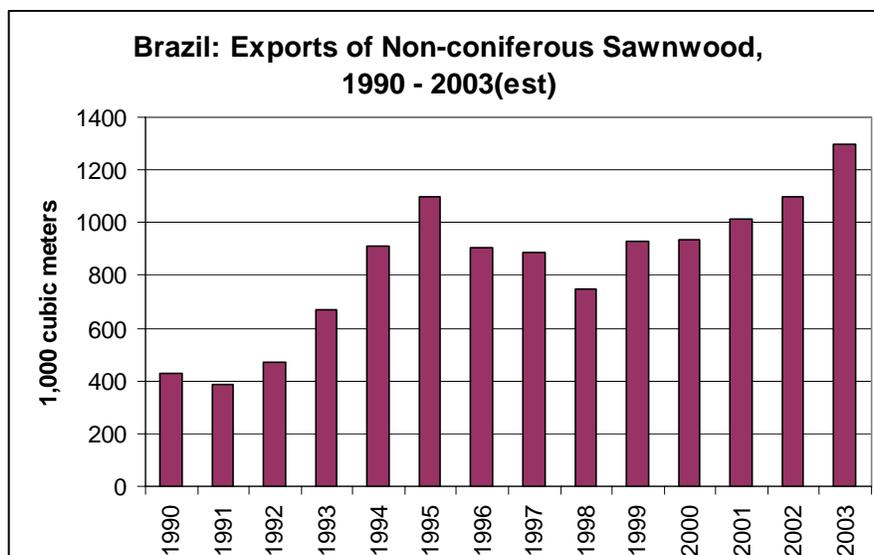
It is difficult to say with any authority what the actual harvest of timber is in the Amazon region. ITTO statistics seem to change radically from year to year. FAO data for non-coniferous sawlog and veneer log production is shown in the following chart. We take this as a rough indication of Amazon roundwood production, given that very little plantation wood is harvested in the region, and all of it is pulpwood, not sawlogs or veneer logs. The chart shows an almost flat production trend from 1994, which is extremely doubtful. It is understood that the “official” data on timber harvest are actually calculated from estimates of log volume needed to support the *estimated* sawnwood and veneer production. Calculations based on estimates and assumptions of product yield from logs are inherently suspect, and no one places too much faith on Brazilian timber harvest data. We note that ITTO estimates that 15 million m<sup>3</sup> of non-coniferous sawnwood was produced in Brazil in 2002 and 2003, with FAO estimates close to this level. Given the relatively low level of technology in many of the mills processing these logs, we believe that if 15 million m<sup>3</sup> of hardwood sawnwood are actually produced, the required log input would be much closer to the 40 million m<sup>3</sup> estimate from SBS, ABIMCI, and STCP cited earlier in this report. Most, but not all, of this volume would be from the Amazon region.

**Figure 9:** Hardwood Sawlog and Veneer Log Production in Brazil



Source: FAO

The trend in non-coniferous sawnwood exports from Brazil (almost all tropical hardwood from the Amazon) shows a similar trend in increasing volumes from 1990 through 1995, followed by a decline, and then increasing again. In 2003, the volume of hardwood lumber exports jumped 18% (based on weight measure), and we use the same percentage increase in the following chart. Assuming this is correct, an all-time record volume of tropical hardwood sawnwood was exported from Brazil in 2003.

**Figure 10:** Brazil Exports of Hardwood Sawnwood, 1990 - 2003

Source: FAO, WRI

The Brazilian non-governmental organization IMAZON (2003) completed a major survey of wood production in the Amazon in 1998, and most reports since that time have continued to use their estimate of total production --- around 28 million cubic meters. The group is in the process of updating their survey in 2004, but we repeat some of their conclusions in the following section, as the best available survey of the industry in that region. In a recent study by Smeraldi (2003), he estimates that total timber production in the region in 2003 increased to closer to 30 million m<sup>3</sup>. According to IMAZON, more than 75% of the timber harvest in the Amazon takes place in the two states of Pará and Mato Grosso. In the 1998 estimate Rondônia accounted for another 17%, with six other states making up the remaining 7-8%.

**Table 17:** Wood Consumption by State, Amazon Legal, 1998

State	Volume Of Logs (000 M <sup>3</sup> )	Percent Of Total
Acre	200	0.7%
Amapá	140	0.5%
Amazonas	710	2.5%
Maranhão	710	2.5%
Mato Grosso	10,070	35.6%
Pará	11,280	39.9%
Rondônia	4,790	16.9%
Roraima	240	0.8%
Tocantins	120	0.4%
<b>Total</b>	<b>28,260</b>	<b>100.0%</b>

Source: IMAZON (2003)

According to the 1998 IMAZON survey, there were nearly 2,300 sawmills in the Amazon, along with 175 veneer plants and nearly 100 plywood mills. As with the timber

harvest, the processing is heavily concentrated in Pará and Mato Grosso, with the largest number of sawmills and plywood plants being in Pará. Both Mato Grosso and Rondônia have more veneer mills than Pará, but no other state had any significant concentration of mills.

**Table 18:** Types of Wood Processing Industries in the Amazon (Number of Mills)

State	Sawmills		Veneer	Plywood	Total
	Circular	Band-Saw			
Acre		24		1	25
Amapá	58	8			66
Amazonas	10	16		6	32
Maranhão		54	7	6	67
Mato Grosso	188	458	68	26	740
Pará	534	602	43	31	1210
Rondônia	43	262	57	28	390
Roraima		23			23
Tocantins		16		1	17
<b>Total</b>	<b>833</b>	<b>1463</b>	<b>175</b>	<b>99</b>	<b>2570</b>

Source: Lentini, 2003

The circular sawmills are primarily very small or “micro” mills, particularly concentrated in the Estuário area of Pará, just upriver from Belem. Large mills, defined as those consuming more than 20,000 cubic meters of logs per year, make up only 15% of the wood processing plants in the Amazon.

**Table 19:** Size of Wood Processing Industries in the Amazon, 1998

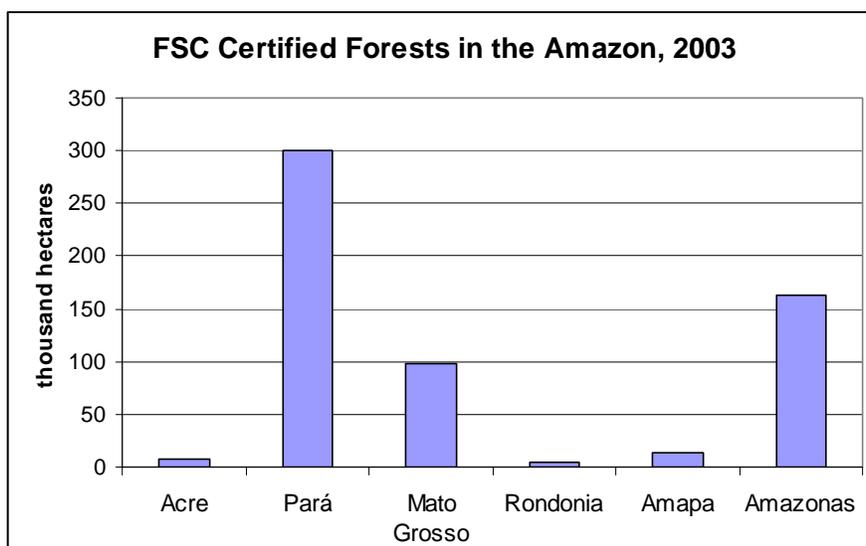
State	Micro	Small	Medium	Large	Total
Acre	1	7	16	1	25
Amapá	60	2	4	0	66
Amazonas	10	2	5	15	32
Maranhão	9	40	7	11	67
Mato Grosso	198	95	309	138	740
Pará	540	190	329	151	1210
Rondônia	53	131	138	68	390
Roraima	1	9	13	0	23
Tocantins	7	7	2	1	17
<b>Total</b>	<b>879</b>	<b>483</b>	<b>823</b>	<b>385</b>	<b>2570</b>

Note: Micro mills consume <4,000 m<sup>3</sup> of logs per year; Small = 4-10,000 m<sup>3</sup>/yr; Medium = 10-20,000 m<sup>3</sup>/yr; Large = >20,000 m<sup>3</sup>/yr.

Source: Lentini, et al 2003

## Certified Forest Management in the Amazon

One measure of the improving situation in Brazil is the increase in certified forests and in production of certified forest products. Brazil has its own certification system, Certflor, but this process has been slow getting started. On the other hand, the Forest Stewardship Council (FSC) has worked aggressively in signing up both forests and chain-of-custody certification in Brazil, with more than one million hectares under its standard. In the Amazon, as of early 2004 there were 16 forest properties certified by FSC in six states, with a total of 586,000 hectares. More than half of the FSC-certified forests in Amazonia are in the state of Pará (51%), followed by 28% in Amazonas and 17% in Mato Grosso.

*Figure 11: FSC Certified Forests in the Amazon*

Source: FSC Brasil

FSC lists 24 companies as having full chain-of-custody certification in the Amazon region of Brazil. These companies produce a wide range of products, from sawnwood and plywood to doors, furniture and components, flooring, and musical instruments. Again, Pará has the largest number of certified companies (nine) followed by Amazonas with five.

### **Wood Products Trade**

Brazil's imports of tropical wood are negligible, and the plantation forest production is considered by most parties to be legal, so the focus of this section will be on Brazil's exports of tropical wood products. Due to problems with classification of exports, it is possible that some tropical wood products are classified as "other hardwood" or even in some cases mistakenly classified as oak or other temperate hardwoods. There are almost no exports of temperate hardwoods from Brazil, with the exception of a relatively small volume of eucalyptus lumber, flooring, and veneer. For this reason, we will assume for the basis of this study that all non-coniferous volume is tropical hardwood. The focus is on value for the most part, but we also include volume for sawnwood (4407) and plywood (4412). For veneer (4408) and processed wood (almost all flooring and moulding – 4409), the volumes are less meaningful and there are obviously problems with the data, so we report only value. By law, native hardwood logs cannot be exported from Brazil, only logs from plantations can be exported.

Sawnwood is the most important tropical hardwood export from Brazil, with an export value of US\$393 million in 2003. This was more than 10 times the value of hardwood veneer exports, and approximately three times the export value of 4409.20 – hardwood flooring and moulding. Hardwood plywood exports are also important, although we caution that there may be some mis-classification in this category due to the use of hardwood faces on pine core. We also caution that there are some discrepancies between sources. For example, the ITTO reports that in 2002 Brazil exported 440,000 m<sup>3</sup> of tropical hardwood plywood, while the Global Trade Atlas reports that the volume was nearly 979,000 m<sup>3</sup>, or more than twice as much.

**Table 20:** Value of Brazil's Exports of Hardwood Products, 2001 – 2003

Product	2001	2002	2003
	<i>million US\$</i>		
<b>Sawnwood</b>	303.4	331.8	392.9
<b>Moulding/Flooring*</b>	82.3	89.5	127.1
<b>Veneer</b>	32.1	36.3	33.4
<b>Plywood</b>	204.2	228.1	245.7

Source: GTIS

\*Includes all of the products classified under 4409.20

For many wood product exports, the USA is the major market for Brazil, but this is not the case with tropical hardwood sawnwood. In 2003, the USA only accounted for about 10% of Brazil's hardwood sawnwood exports, by value, while the EU was the destination for more than 40%. The value of hardwood sawnwood exports to China/HK has increased rapidly, from less than 16% of the total in 2001 to 33.0% in 2003. Shipments to China/HK were more than three times that to the USA in 2003.

**Table 21:** Brazil Hardwood Sawnwood Exports, Value by Destination

Destination	2002 Value (\$ million)	2002 %	2003 Value (\$ million)	2003 %
<b>USA</b>	41.9	12.6%	38.2	9.7%
<b>EU</b>	135.5	40.8%	159.2	40.5%
<b>China + HK</b>	85.6	25.8%	129.7	33.0%
<b>Japan</b>	6.1	1.8%	6.1	1.5%
<b>Mexico</b>	3.6	1.1%	2.0	0.5%
<b>Canada</b>	0.9	0.3%	0.6	0.2%
<b>Other</b>	58.1	17.5%	57.0	14.5%
<b>World</b>	<b>331.8</b>	<b>100.0%</b>	<b>392.9</b>	<b>100.0%</b>

Source: GTIS

\*Includes all of the products classified under 4407 with the exception of 4407.10

For flooring and moulding, the USA is by far the major market for Brazilian exports, accounting for more than 58% of total exports. In 2003 the EU accounted for more than 22%, Japan 6.4%, and China/HK 5.5%. Canada was the only other market of significance with 4.2% in 2003, leaving just 3.4% of exports of 4409.20 going to other markets.

**Table 22:** Brazil Hardwood Moulding & Flooring Exports, Value by Destination

<b>Destination</b>	<b>2002 Value (\$ million)</b>	<b>2002 %</b>	<b>2003 Value (\$ million)</b>	<b>2003 %</b>
USA	52.7	58.9%	73.9	58.2%
EU 25	18.5	20.7%	28.5	22.4%
China + HK	5.2	5.8%	7.0	5.5%
Japan	4.8	5.4%	8.1	6.4%
Canada	3.4	3.8%	5.4	4.2%
Other	4.8	5.4%	4.3	3.4%
<b>World</b>	<b>89.5</b>	<b>99.9%</b>	<b>127.1</b>	<b>100.0%</b>

Source: GTIS

\*Includes all of the products classified under 4409.20

For hardwood veneer exports, again the USA is the major destination with more than 53% of total value in 2003. The EU accounts for just over 20% of the total, and China/HK another 6.0%. Japan is not a target market for hardwood veneer from Brazil (only 0.6%). The 19.8% of veneer exports going to “Other markets” includes a wide range of countries, with the largest being Argentina (7.8%) and Israel (2%).

**Table 23:** Brazil Hardwood Veneer Exports, Value by Destination

<b>Destination</b>	<b>2002 Value (\$ million)</b>	<b>2002 %</b>	<b>2003 Value (\$ million)</b>	<b>2003 %</b>
USA	18.9	51.9%	17.8	53.3%
EU 25	7.7	21.2%	6.8	20.4%
China + HK	0.9	2.5%	2	6.0%
Japan	0.2	0.5%	0.2	0.6%
Other	8.7	23.9%	6.6	19.8%
<b>World</b>	<b>36.4</b>	<b>100.0%</b>	<b>33.4</b>	<b>100.0%</b>

Source: GTIS

\*Includes all of the products classified under 4408 with the exception of 4408.10

The EU is the primary destination for hardwood plywood exports from Brazil, accounting for 45% of the total value in 2003. The USA is also a significant market (nearly 36%), but China and Japan are almost non-existent. A relatively small market has developed in Mexico (2.8% of the total in 2003) and in Puerto Rico (7.2%). It is believed that the later market serves as a distribution point for other Caribbean markets.

**Table 24:** Brazil Hardwood Plywood Exports, Value by Destination (\$million)

Destination	2002 Value (\$ million)	2002 %	2003 Value (\$ million)	2003 %
USA	77.4	34.0%	87.3	35.5%
EU 25	105.3	46.2%	110.4	44.9%
China + HK	0.1	0.0%	0.2	0.1%
Japan	0.1	0.1%	0.0	0.0%
Mexico	3.5	1.5%	6.9	2.8%
Puerto Rico	15.3	6.7%	17.8	7.2%
Other	26.4	11.6%	23.2	9.4%
<b>World</b>	<b>228.1</b>	<b>100.0%</b>	<b>245.7</b>	<b>100.0%</b>

Source: GTIS

\*Includes all of the products classified under 4412 with the exception of 4412.19

### Exports by State

Statistics on tropical hardwood exports by state, and in detail for the state of Pará were provided to us by AIMEX (Associação das Indústrias de Madeira do Estado do Pará), the primary association representing wood product exporters in the Amazon.

Given the distribution of tropical log production and processing, it is not surprising that exports of tropical hardwood products from Brazil are heavily concentrated in two states, Pará and Mato Grosso. In 2003, Pará accounted for 59% of the value of wood exports from the Amazon region and Mato Grosso 21%.<sup>29</sup> Since the production of tropical hardwood logs in those two states is reportedly quite close in volume, it is evident that the Mato Grosso production is more heavily oriented to the domestic market, while the majority of Pará's production is exported. The export values of wood products by state in the Amazon are shown in the following table. Total export value increased 66% between 1998 and 2003, to US\$631 million.

**Table 25:** Value of Tropical Wood Exports by State, 2002 (\$ million)

State	1998	1999	2000	2001	2002	2003
<b>Pará</b>	255	278	309	286	313	373
<b>Mato Grosso</b>	29	58	78	84	105	135
<b>Rondônia</b>	29	43	55	52	61	77
<b>Amapa</b>	38	26	21	18	12	18
<b>Amazonas</b>	26	23	19	18	13	15
<b>Maranhao</b>	2	3	4	6	9	13
<b>Total</b>	<b>379</b>	<b>431</b>	<b>486</b>	<b>464</b>	<b>513</b>	<b>631</b>

Source: AIMEX

Pará has long been the dominant state in exports of tropical hardwood products from Brazil. The largest category by value has been sawn timber, which in 2003 accounted for 47% of the total. However, this was down markedly from 1998, when sawn timber accounted for nearly 65% of the total. The fastest growing category has been "value-added", including primarily flooring and moulding. In 2003 this category accounted for more than 25% of the exports from Pará, second only to sawn timber. Veneer made up more than 19% of exports in

<sup>29</sup> Does not include the very small value from the states of Acre, Roraima, and Tocantins.

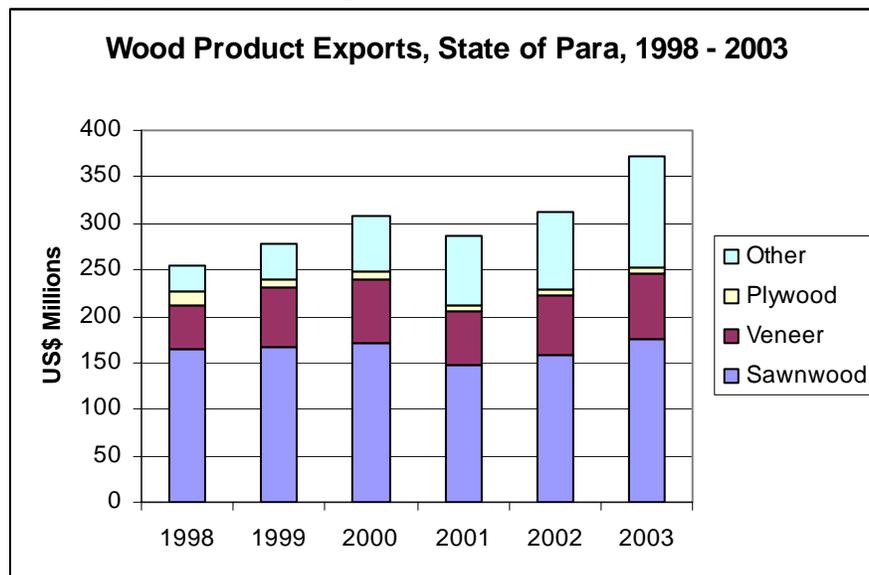
2003, but plywood was only 1.6%. Plywood was also the only category to show a decrease in value from 1998 to 2003, with the value of exports dropping nearly 58% over this time period.

**Table 26:** Exports from the State of Pará (\$ million)

Product	1998	1999	2000	2001	2002	2003	2003 %
<b>Sawn Lumber</b>	165.2	166.5	171.1	148.3	157.4	175.7	47.2%
<b>Veneer</b>	47.3	64.3	67.8	56.9	64.1	71.1	19.1%
<b>Plywood</b>	14.4	9.0	8.1	5.7	6.7	6.1	1.6%
<b>More Value Added (*)</b>	10.7	21.1	46.4	59.4	66.7	94.3	25.3%
<b>Other</b>	17.4	16.8	15.6	15.9	17.8	25.3	6.8%
<b>Total</b>	<b>254.9</b>	<b>277.6</b>	<b>309.0</b>	<b>286.3</b>	<b>312.7</b>	<b>372.5</b>	<b>100.0%</b>

Source: AIMEX

**Figure 12:** Wood Exports from State of Para, 1998 - 2003



Source: AIMEX

Exports from Pará more or less follow the total for Brazil, in that the USA and Europe were the top destinations in 2003. However, China has been growing in importance, and accounted for nearly 9% of wood exports from Pará in 2003, by value, up from only 2.6% in 2001.

**Table 27:** Exports from the State of Pará, 2003

Destination	2003 Value (US\$ Million)	Percent Of Total
USA	131.6	35.3%
Europe	147.6	39.6%
China	32.9	8.8%
Japan	9.8	2.6%
Mexico	1.9	0.5%
Other	48.7	13.1%
<b>Total</b>	<b>372.5</b>	<b>100.0%</b>

Source: AIMEX

### ***Illegal Logging***

Illegal logging first became an issue in Brazil in the early 1990s, and primarily revolved around the mahogany trade (see later section on Mahogany). A campaign in the UK by Friends of the Earth, and a series of reports by Amigos da Terra and Greenpeace Brasil reinforced the image of the Amazon as a relatively lawless region where logging and deforestation were out of control. It was during this period that the level of illegal timber harvesting in the Amazon was estimated at 80%. Smeraldi (2003) states that this figure originated in 1997, when it first appeared in a report by a confidential government task force set up by the “Secretary of Strategic Matters”, part of the “Office of the President”. The study, which focused on the period prior to 1996 when new policies began being implemented by IBAMA, was leaked to the press<sup>30</sup>. Smeraldi’s group (Amigos da Terra) also used this figure in some of their reports, and it appears to have been repeated since in many reports, seemingly without question. For example, the 2001 Solid Wood Products Annual Report for Brazil prepared by USDA Foreign Agricultural Service states that:

*“There are no reliable numbers on illegal timber removed from the Amazon region. Our best estimate is that about 25 million cubic meters of logs are removed from the Amazon region, per year, and only 20% come from areas with forest management plans. All other timber comes from illegal deforestation, Indian reserves, and public lands.”*

Thus, again, 80% is deemed “illegal.” This report also points out that most illegal timber is not exported, but is sold in the Brazilian domestic market.

The 80% figure is also cited in the reports “The Timber Footprint of the G8 and China”, by Toyne, et al (2002); in the Friends of the Earth report “European League Table of Imports of Illegal Tropical Timber” (Matthew 2001); also in another FOE report, “Import of Illegal Tropical Timber to the UK” (2001?); and in the 2002 RIIA report by Brack et al, “Controlling the International Trade in Illegally Logged Timber and Wood Products”.

Much of the industry in the Amazon region of Brazil strongly rejects this claim of 80% illegality, and this opinion is perhaps best summarized by an article written by the consulting firm STCP. Regarding the continued claim in many publications that 80% of the harvest in the Amazon is illegal, STCP states:

<sup>30</sup> Later published by Gazeta Mercantil newspaper

*The private sector considers this can not be the case and that the original figure was not correct, and has been reproduced in publications over the years. On the point of view of the private sector there is clear evidences that changes have taken place along years, and it can not be accepted that all effort made by the national and state government in improving legal framework and law enforcement, and also the work developed by NGOs, did not have some impact on this situation. (STCP, 2004)*

Smeraldi of Amigos da Terra and his group also apparently believe that this 80% illegal figure now no longer has credibility. This is partly the result, says Smeraldi, of the development of the legal framework regarding forest management and harvesting in the Amazon since 1996, which “has led to numerous prohibitions and restrictions (Act 9605/98) dealing with environmental crimes and providing for fines that were far higher than before.” (Smeraldi, 2003) Due to the very large volume of legal (but unsustainable) logging taking place on small ownerships, where settlers are permitted to clear 3 hectares per year for agriculture, Smeraldi now believes that approximately 75% of the total wood harvest in the region comes from this source. With another 5% of the total coming from legal forest management plans, this means that approximately 80% of the wood produced in the region is legal. He gives the example of the State of Acre, where in 2002 some 20,000 small landowners petitioned IBAMA for permission to clear 3 hectares each. That’s a total of 60,000 hectares, and assuming removal of at least 20 cubic meters of commercial wood per hectare, the total estimated harvest from legal deforestation in the State should have been about 1.2 million m<sup>3</sup>. This compares with an estimated industry demand in the State of only 300,000 m<sup>3</sup>. Smeraldi maintains that it is hard to imagine too much illegal harvesting occurring in situations such as this, when the volume of wood available from legal deforestation is much greater than the domestic demand.

Opinions continue to vary on the level, and definition of, illegal logging in Brazil. Hummel (2001) concluded that 67% of the timber supply in 1996-97 came from illegal sources. Greenpeace has not moderated their stand as much as Amigos da Terra. In their most recent publication on the region, Greenpeace estimates that only 44% of the volume of timber harvest in Pará state can be accounted for by legal deforestation and approved forest management plans.<sup>31</sup> Their estimate shows only a very small volume (about 122,000 m<sup>3</sup>) of timber coming from legal deforestation, which is radically different from Smeraldi’s analysis. Thus they conclude that at least 56% of the total is still illegally sourced.

The Brazilian NGO IMAZON also believes that legal deforestation is supplying a smaller volume of the current harvest than Smeraldi, but would put the level of illegal logging closer to 47%. (Perhaps better stated, they account for 53% of the wood as being “authorized” either through legal deforestation or approved forest management plans). WWF concurs with IMAZON’s estimate for Brazil. The University of Brasília carried out yet another study, on the state of Mato Grosso, and concluded that more than 50% of logging in that state has been illegal.

### ***The Cost of Illegal Logging***

It has long been assumed that timber generated through illegal logging is much less expensive than that generated through legal channels, and that this low-cost wood distorts

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<sup>31</sup> In “Pará: State of Conflict”, 2003.

markets both in the domestic country and internationally. Indeed, this is one of the basic premises of the analysis in this report. While it is true that total costs of lumber and plywood production for companies operating outside the law may be lower than for legal companies, much of the “savings” has to do with avoidance of taxes, both on profits and employees. The cost of the wood itself may or may not be significantly less expensive than that generated through legal channels. In Brazil, it appears that a significant portion of the illegal harvesting activity occurs because of frustration with the bureaucratic regulations on management plans, and the severe problem of lack of clear land tenure. Because of the latter problem, many landowners have no prospect to harvest timber legally, and any activity on their lands (without clear title) will be by definition illegal.

In addition, the costs of logging illegally have been made significantly higher in recent years, due to more aggressive monitoring by the state. Starting in late 1999, IBAMA began a more aggressive enforcement of wood harvesting and transport, and began issuing fines which were substantial. This began in late 1999 with the fining of the logging company Cilla for a total of US\$230,000 for a series of violations, including the illegal logging of 1300 m<sup>3</sup> of mahogany. By 2001, the total fines imposed in that year reached more than US\$16 million. While only a small percentage of the fines have actually been collected, the process at a minimum raises costs for the companies involved due to legal fees incurred, negative public image which could hurt business, and the possibility of loss of assets, including loss of raw materials. In addition, Smeraldi demonstrates that the costs of illegal activity (bribes, the cost of phony permits, etc) has risen sharply, and in one case study the cost of “legitimizing” illegal timber had increased from R\$1.5/m<sup>3</sup> to R\$10-15/m<sup>3</sup>, a cost higher than that paid to the small landowner for the logs. Paulo Barretto at AMAZON uses a similar analysis to show companies that illegal logging may not be saving them as much as they think, if one considers all the costs and risks involved.

### ***IBAMA increasing forest regulation***

From several recent actions by IBAMA, it appears that illegal logging continues to be a problem in this region. In November 2003 IBAMA published the results of a six month investigation. Their report charged 182 companies with illegal activities, including the falsification of 1,293 Forest Product Transportation Permits and tax evasion. ([www.amazonia.org](http://www.amazonia.org), 2003) This was followed up in January 2004, when IBAMA announced the arrest of the owners of 16 timber companies charged with these illegal activities. Most of the companies investigated were described as “mid-sized companies”. (Correio Braziliense, 2004)

One of the most common ways that illegal logging occurs in the Amazon is through the issuance of illegal harvest and transport permits. For example, in September 2003 IBAMA arrested 17 people in Rondonia who had illegally cut down 10,000 m<sup>3</sup> of timber. In order to transport this timber on the roads, this group had allegedly bribed 5 IBAMA employees to obtain the necessary transport permits.<sup>32</sup>

This most recent (2003) crackdown on illegal logging by IBAMA has been much more aggressive than past campaigns. In early 2004 even the President of AIMEX, the Association for Industrial Timber Exports from the State of Para (Elias Salame) was charged with logging in

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<sup>32</sup> Reuters, 9/17/2003, as reported on [http://www.enn.com/news/2003-09-17/s\\_8498.asp](http://www.enn.com/news/2003-09-17/s_8498.asp)

excess of the permitted volumes in his management plan, and also logging in some conservation areas. He was fined R\$3 million (about US\$1 million). (Agência Estado, 2004) In total, Marina Silva, the Minister for Environment, reported in December 2003 that fines for illegal logging were up 54% over the previous year. (Munk and Chetwynd, 2003)

The group IMAZON has long advocated that a better method of tracking timber transport is needed in the Amazon region. They have suggested that trucks be equipped with GPS system so they can be tracked by radar. This system is used commercially by thousands of trucks in Brazil, although it would be expensive to equip all the log trucks in the Amazon with the proper equipment, and to maintain it. However, IBAMA is conducting a test during the first half of 2004 in the state of Pará, equipping 300 trucks with the devices. (O Liberal, 2004)

Since 2002, Brazil has had a new system in place to monitor activity, including illegal logging, in the Amazon. Called the System for the Vigilance of the Amazon, or SIVAM, it is a \$1.4 billion network of radars, control towers and aircraft designed by the U.S. defense contracting company Raytheon Co. Researchers at MIT have proposed using the system to actively monitor logging activity. By requiring a GPS system at each logging site, to give off a distinct signal, the system could be utilized to quickly detect unauthorized logging.<sup>33</sup>

One important factor that needs to be pointed out is that much of the discussion on illegal logging has focused on a narrow view of illegal harvesting and transport. In this case study we have also focused only on wood illegally harvested. Extending the discussion to forest trade and related illegalities really needs to be addressed as well as simply regulating logging. In his presentation to the 2004 IWPA Annual Meeting, Zugman expressed the view held by his company (and we assume also by the industry association ABIMCI) that “transfer pricing and money laundering (covering discrepancies in volume and value declaration, under-pricing, manipulation of accounting systems to transfer money to parent companies, over-pricing of imported goods and services, and other associated practices) are the most serious illegality, taking into consideration their economic dimension and the indirect social and environment implications.” He points out that the industry acknowledges the problems with illegal logging, and wants to be part of the solution, but that the issue is quite complex and does not lend itself to simplistic solutions.

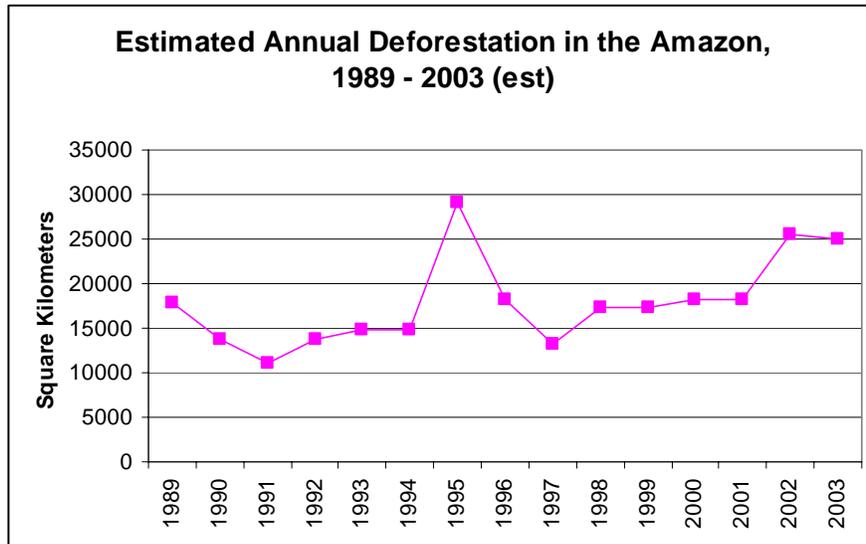
### ***Deforestation and Illegal Logging***

Deforestation has continued in Brazil at a surprisingly high rate. More than 25,000 square kilometers were reportedly cleared during both 2002 and 2003. As stated earlier, deforestation is not necessarily illegal, and in fact government policies have been encouraging this trend as part of a plan to develop the Amazon region. According to Science magazine (2004), “The plan, formerly called 'Avança Brasil' (Advance Brazil), could ultimately involve over US\$40 billion in investments in new highways, roads, power lines, gas lines, hydroelectric reservoirs, railroads, and river-channelization projects.” By providing access and infrastructure in previously remote parts of the Amazon, most observers expect that this program will mean a continuation of deforestation in the region. The chart below, based on data from INPE, the Brazilian Space Authority illustrates that deforestation in the past two years has been

<sup>33</sup> Source: [http://web.mit.edu/12.000/www/m2006/final/solutions/sols\\_loggins.html](http://web.mit.edu/12.000/www/m2006/final/solutions/sols_loggins.html)

substantially higher than during most of the 1990s. Despite this on-going problem, the total area deforested in the region has been estimated at no more than about 15%.

**Figure 13:** Annual Deforestation in the Amazon Region



Source: ITTO (2002), INPE

In response to concerns over deforestation, the Lula government announced in March 2004 a new plan to address the issue. This US\$136 million plan will include the Brazilian army, and combines the efforts of 11 ministries over an 8-month period. The plan includes a further crack-down on illegal logging. However, the Brazilian Government has made it clear that the Amazon is “not off-limits”, and the intention is to utilize the resources of the region to better the lives of the Brazilian people. A plan has been discussed to establish a series of National Forests (FLONAS), where timber could be sustainably harvested under properly regulated concessions. However, the plan cannot be implemented until the issue of uncertain land tenure has been addressed.

Recently, Brazil's Environment Ministry agreed to provide over \$3 million to the Defense Ministry in effort to curb illegal deforestation in the Amazon. The Defense Ministry will assign 100 soldiers and 18 helicopters to transport environment enforcement agents throughout the region. The army is also making its bases available to the agents and will establish roadblocks and checkpoints along the Amazon's rivers.

Land reform in Brazil has meant the resettlement of around 50,000 families per year to the Amazon region, primarily in states such as Pará and Mato Grosso. The very large volume of wood which these settlers are permitted to harvest and sell to the industry has greatly reduced the interest in sustainable forest management in the region, despite some impressive gains by FSC. This wood has very low cost, cannot be truly labeled as “illegal”, and saves the companies purchasing this wood a lot of time and cost in trying to work through the system to have approved management plans to source wood. A number of Brazilians feel that as long as this low-cost alternative remains available to the industry, it will be impossible to achieve the goals

stated in the Brazilian National Forest Plan of having 20 million hectares in the region under sustainable forest management.

### ***Illegal Logging and Brazil's Wood Product Exports***

It is impossible to make a precise estimate of the volume/value of Brazilian wood products from illegal/suspicious sources which enter the international wood markets. In terms of this study, it is apparent that relatively little illegal wood from Brazil (i.e., wood harvested in violation of Brazil's laws) competes with U.S. export products in the international markets today.<sup>34</sup> Several facts support this conclusion:

First, mahogany, which has long been associated with problems regarding illegal logging, has almost disappeared from Brazil's export trade today. Further, since the decline in shipments to the UK during the 1990s, the U.S. itself has been the dominant market for Brazilian mahogany exports. In 2002, the U.S. imported 4,870 m<sup>3</sup> of mahogany from Brazil. However, since its listing on Appendix III, and more recently on Appendix II, no new permits have been authorized for exporting big-leaf mahogany. Thus, exports of mahogany in 2003 and 2004 are much lower than in 2002. While we do not have current statistics on mahogany exports, the volume has gotten so small from Brazil as to be insignificant in terms of the impact on the international sawnwood markets.

Second, the most reasonable estimates of illegal harvesting in the Amazon range from 20-47%. This eliminates the higher percentage estimated by Greenpeace and Hummel, but it also eliminates the much lower estimates from the wood industry. We should point out that IMAZON's estimate of 47% illegal was based on 2001 data, and we believe it is likely that when their new survey is completed in 2004, the intensified regulation efforts by IBAMA will show a much reduced level of illegal logging. Even accepting the estimate of 20-47% illegal timber harvesting, it seems to be generally accepted that the majority of illegal wood is probably consumed in the domestic market, where fewer questions may be asked on wood origin than in the export markets. IMAZON, which has done the most detailed surveys, estimates that 86% of the Amazon timber harvest is consumed within Brazil.

Third, exporting tends to be done by larger companies, those with relatively larger, better quality processing facilities. Since these companies are larger and well-known, it is logical to assume that IBAMA supervision would be heavier on this group, rather than the smaller mills, and that relatively less of the wood produced by these companies would be illegal. (This is not to say that these larger companies are perfect--- some of the fines imposed by IBAMA on these companies indicate that there still are at least some problems.) Given these conditions, and even accepting a range of 20-47% of harvesting as illegal in the region, it is hard to believe that more than 10-20% of exported wood, *at most*, is of illegal or suspicious origins.

Finally, the relatively small volume of FSC certified lumber and plywood produced in Brazil is mostly aimed at the European market. Since this wood is all sourced from legal harvesting, this means that the volume of illegal wood being exported from Brazil should be

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<sup>34</sup> A larger, but unknown, portion of the tropical wood exported from Brazil is illegal in the sense of violating tax laws and other broader illegalities pointed out by Zugman (2004).

much lower to the European market than to the other primary market, the U.S.. Even if 15-20% of the tropical wood exported from Brazil to the U.S. may be of suspicious origin (and it may in fact be much lower), the percent of wood being exported to other markets (primarily Europe) which is illegal is likely much lower, probably below 5%.

Finally, we note that tropical hardwoods make up a minor portion of Brazil's total wood exports today. Considering only solid wood products, we estimate that roughly 45% of the value of Brazil's exports may be from tropical hardwoods, with the volume percentage no more than 35%. If one includes the much larger pulp and paper export values, then the percentage of tropical wood in exports falls to only about 20% of the total value. This means that in terms of Brazil's total wood product exports, illegal wood cannot make up more than 5-10% of the total, and in terms of total forest products exports (including pulp and paper), illegally sourced wood cannot account for more than about 2-4% of the total. Again, for the markets in which U.S. wood exports compete with Brazilian exports, the percent of illegally sourced wood is likely even less, due to the FSC certified wood volume.

In terms of the objectives of this study, then, we believe that the impact of illegally sourced wood from Brazil on exports of U.S. wood products is extremely low. However, this is not to deny that illegal logging is a serious problem in some areas of the Amazon, and certainly contributes to the problem of deforestation. Numerous groups are working to reduce this problem. We believe the most constructive solutions are focused on strengthening regulatory institutions in Brazil, through training of staff and efforts to streamline the relatively bureaucratic approval process for management plans. In combination with this approach, and the more technical regulatory methods being tested, a solution to the problem will also require training programs for landowners and loggers. For example, the programs developed by the Tropical Timber Foundation address this need and appear to have good potential for success. Finally, long-term solutions to deforestation and illegal logging will require some solution to the land tenure problem, and economic development to provide jobs for the millions of Brazilians who have been resettled in the region.

While the social/economic/political efforts needed to reduce deforestation and illegal logging are well beyond the scope of this study, we would point out that overly restrictive certification/verification procedures imposed by importing companies trying to eliminate illegal wood may in fact be counter-productive. If unrealistic requirements are imposed overnight, even some of the better companies, in the process of improving, may be forced out of business. We are encouraged that most of the parties working on certification in this region appear to believe strongly in a "step-wise approach", that will allow companies adequate time to move toward better forest management, rather than simply forcing them out of business and killing the export trade. Should that happen, the value of the forest (in terms of the wood markets) would go to zero, and the incentive to clear land for agriculture or other land uses would be even stronger.

### ***Concluding Observations***

The situation regarding illegal logging in Brazil is at once more complicated than we had first understood, but at the same time in a sense the situation is perhaps more positive than in many other countries. It is our understanding of Brazil that:

1. An estimated two-thirds of wood production in the country is from plantations, most of which have been established on lands which were long ago cleared of native forest. During the height of the plantation incentive program (1966 – 1986) there were certainly cases of lands being cleared of native vegetation, but that practice has been prohibited for sometime. If plantations of exotic species are still replacing native vegetation, it must be only occurring on lands owned by small farmers. In general, the discussion of illegal logging in Brazil has focused only on the one-third of timber production occurring on native lands, most of which takes place in the Amazon region.
2. The country currently has sufficient (some would argue more than sufficient) legal safeguards to prohibit illegal logging. However, the system is bureaucratic, there are serious problems regarding with land tenure that block many landowners from harvesting timber legally, and in fact the current system really provides an incentive for companies to cheat.
3. The majority of wood in the Amazon most likely comes from legal (but unsustainable) land clearing by the more than one million settlers relocated to the Amazon by the Brazilian government. While this wood is legal, the large volumes available makes supervision of wood sourced from management plans and any potential concessions much more difficult. In addition, this large volume of wood from land clearing drives down prices to the extent that it severely discourages sustainable forest management.
4. Technical solutions exist to reduce illegal harvesting in the Amazon, and some have recently been adopted, while others are being tested. However, solving the problem will not be a simple matter of increasing supervision and increasing the severity of the fines and other punishment imposed.

### Mahogany Trade

On July 30, 2003, U.S. Secretary of State Colin Powell announced that the United States would provide \$15 million in the first year of a project to reduce illegal developing-country logging. In this announcement Powell pointedly mentioned the problem with mahogany logging. "We will work with Bolivia, Brazil, Peru and Guatemala to help them protect their big leaf mahogany trees, in compliance with their international obligations, while still benefiting from legal trade in this valuable resource," Powell said.<sup>1</sup>

Partly because of its relatively high value (the FOB price of mahogany<sup>2</sup> sawnwood in Brazil in 2003 was reportedly US\$1400/m<sup>3</sup>), the mahogany trade has long been the focal point of the illegal logging dispute. Despite the risks involved, the profits have evidently been sufficiently high to induce at least some illegal activity, although whether or not this actually reached the levels claimed by some groups is at least open to question. In 1992, the NGO Friends of the Earth launched a campaign aimed at mahogany retailers in the UK, under the name "Mahogany is Murder."<sup>3</sup> The group linked a number of murders of indigenous people in the Amazon in Brazil with mahogany logging in the late 1980s. Nearly a decade later, the NGO Greenpeace (2002) summarized its active campaign against mahogany extraction during the 1990s in the report, "Partners in Mahogany Crime."

A key claim in the Greenpeace study was that "Illegal mahogany is laundered through fraudulent use of official documents. By the time it is shipped from the Amazon, the mahogany appears legal and its illegal origins are untraceable." The study went on to name a number of well-known companies that import mahogany, saying that "However unwittingly, manufacturers and retailers in North America, Europe and Japan are aiding and abetting high level crime." Needless to say, being named in this campaign did not sit well with companies which had been shown all proper documentation from the exporting companies on their mahogany supplies, which from an importer's point of view meant that the wood must be legal.

Brazil has long been one of the major sources of mahogany in international trade, and the NGO campaigns listed above (as well as many others) have tried to pressure the Brazilian government into better regulation of mahogany harvesting and trade. The mahogany trade is targeted because NGOs believe that this helps to open up forests to further exploitation. For example, roads are typically pushed into virgin forest areas by pioneering groups such as miners and those seeking very high value timber such as mahogany. Once roads become established and improved, they provide access to those seeking farm lands or timber of secondary importance (such as ipe, etc.). By trying to restrict the extraction of the pioneering groups, NGOs hope to decrease access to remote forest areas.

Grogan et al (2002) report that the total volume of mahogany harvested in Brazil in the 30-year period of 1971 – 2001 was 12.6 million m<sup>3</sup>. This was used to produce approximately 5.7 million m<sup>3</sup> of sawnwood, of which 30% (1.7 million m<sup>3</sup>) was consumed in the domestic market, and 70% (about 4.0 million m<sup>3</sup>) was exported. Between 1992 and 1996, Brazil permitted the export of 650,000 m<sup>3</sup> of *S. macrophylla*, according to data compiled by Brazil's Departamento de Operações de Comércio Exterior (DECEX, Department of External Trade) and cited by TRAFFIC (2002).

<sup>1</sup> BBC Brasil, July 29

<sup>2</sup> Unless otherwise stated, "mahogany" here refers only to *Swietenia macrophylla*, commonly referred to in English-speaking countries as "big-leaf mahogany."

<sup>3</sup> <http://www.ru.org/82econot.html>

In 1996 and again in 1999, IBAMA temporarily suspended mahogany operations following wide-spread allegations of illegal activity. The government suspended the granting of new authorizations for mahogany logging in 1996, for a period of two years. This ban was extended for two more years in 1998 and again in 2000, and logging was restricted to those areas with plans approved prior to 1996. In addition, a quota system was established<sup>1</sup> which reduced the export quota for mahogany sawn timber from 150,000 m<sup>3</sup> in 1990 to 50,000 m<sup>3</sup> in 2000, and to 30,000 m<sup>3</sup> in 2001. Some companies challenged these quotas, and in some cases the Brazilian courts allowed exceptions.

Partly in response to the Greenpeace campaign, IBAMA imposed a freeze on the logging, transport, and export of mahogany in October, 2001.<sup>2</sup> In our visit to the IBAMA Belem office in April 2004, the agency confirmed that they have not issued any new permits for transport (ATPF) since that date. In addition, the agency launched its own operation to crack down on illegal harvest, transport, and trade of mahogany. The news reports documenting IBAMA's efforts testify to the size of the problem--- for example, in June 2002, the agency reported it had seized 7,000 mahogany logs that were illegally harvested from an Indian reservation in the state of Pará, worth an estimated US\$29 million. Later that year in October, the agency seized two shipments of mahogany destined for export. Greenpeace continued to report claims that illegal harvesting of mahogany was occurring on Indian lands in Brazil, especially in Pará. Various news items on seizures of smaller quantities of mahogany have been evidence that at least a small minority of suppliers in 2003 continued to try and circumvent the regulations on mahogany in Brazil.

The scale of illegal logging has been fairly high, with 100,000 m<sup>3</sup> of timber, including 40,000 m<sup>3</sup> of mahogany, seized by IBAMA in the state of Pará between 2001 and 2002. A 2004 news item reported that some of this impounded timber would be used to construct 5,000 houses in the state, with the mahogany sold to generate money for socio-economic projects.<sup>3</sup>

Finally, in June 2003, the Lula government announced new regulations for the harvest and marketing of mahogany. New management plans will reportedly be issued, beginning in July 2004, but will be extremely restrictive. Some changes include an increase in the minimum diameter of mahogany trees which may be harvested (now 60cm), and a requirement to leave 20 seed trees within the forest area to ensure future supply. This is seen by some in the industry as an important step forward, as to maintain a total ban on mahogany logging in Brazil has the unfortunate impact of encouraging illegal logging, both within Brazil and in other countries such as Peru. (Due primarily to the crackdown on illegal logging in Brazil and lack of new harvesting permits, Peru has now become the leading source of mahogany in the international markets.)

In response to more than a decade of campaigns against mahogany, the countries that are party to CITES<sup>4</sup> finally voted to upgrade big-leaf mahogany from a CITES Appendix III listing to Appendix II in October 2002, with implementation beginning in November 2003. This upgraded listing is intended to provide better control over trade in mahogany by tougher requirements for export permits, and regulation by importing countries. Both exporting and importing countries will be required to report their international transactions in mahogany.

<sup>1</sup> TRAFFIC. "Legislation and Controls for Harvest and Trade of Big-leafed Mahogany *Swietenia macrophylla* in Bolivia, Brazil, and Peru." October 2001. Reference to Portaria 71/N, July 1994, the "Control System for Rationed Sawed Timber (SISMAD). <http://www.traffic.org/mahogany/legis.html>

<sup>2</sup> Grogan, et al, 2002.

<sup>3</sup> Ministry of the Environment, as reported on <http://www.amazonia.org.br/english/noticias/noticia.cfm?id=97877>

<sup>4</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora.

The WWF website summarizes the significance of the Appendix II listing: “Under the provisions of Appendix II, international trade is strictly regulated - an exporting state must determine that any big-leaf mahogany (including logs, sawn wood, veneer sheets, and plywood) has been legally obtained and that harvest was not detrimental to the survival of the species; only then can a CITES export permit be issued. States importing the products must not accept shipments that are not accompanied by a CITES permit issued by the exporting country.”<sup>1</sup>

### Markets for Mahogany

At least in part because of the active campaigns against illegally sourced mahogany, demand in the European market and especially in the UK reduced during the 1990s. The volume imported in 1993 was more than 35,000 m<sup>3</sup>, but this reduced to only 10-15,000 m<sup>3</sup> in 1996, and has reduced even further since. The US has been the primary market for mahogany from Brazil. US imports of mahogany from Brazil were as high as 76,645 m<sup>3</sup> in 1994, but declined to 33,000 m<sup>3</sup> in 2001 and were only 4,900 m<sup>3</sup> in 2002.

In 2002, the US imported a total of 61,706 m<sup>3</sup> of mahogany sawn wood and 1,371 m<sup>3</sup> of veneer. All of the veneer was from Brazil, but 74% of the sawnwood was from Peru. Brazil supplied only 8% of the US imports of big-leaf mahogany in 2002, and we believe the figure was substantially smaller in 2003. Conversations with US importers in June 2004 revealed that the trade from all countries has been reduced as a result of the CITES Appendix II listing, including even Peru.<sup>2</sup>

Source Country	Volume (m <sup>3</sup> )	Percent
Peru	45,574	73.9%
Brazil	4,870	7.9%
Bolivia	4,020	6.5%
Nicaragua	3,599	5.8%
Guatemala	2,057	3.3%
Belize	788	1.3%
Panama	424	0.7%
Mexico	324	0.5%
Ecuador	50	0.1%
Total	61,706	100.0%

In 2002 the US government cooperated with Brazil to ensure that no illegal mahogany from that country would enter the US market. A number of shipments were held in US Customs, some for as much as six months or longer, until “adequate proof” was submitted that the wood in question was legal.

The CITES Appendix II listing and the revised regulations for mahogany are of course no guarantee that zero illegal mahogany logging will take place in Brazil. The U.S. Government, through its Fish and Wildlife Service, will enforce the CITES regulations on mahogany. Shipments of mahogany plywood, logs, sawnwood, and veneer sheets will not be permitted entry into the U.S. unless accompanied by the proper CITES export permit and non-detriment finding certification from the source country, or a re-export permit from a second country. All shipments must be cleared through an APHIS-designated port of entry.

<sup>1</sup> [http://worldwildlife.org/trade/faqs\\_mahogany.cfm](http://worldwildlife.org/trade/faqs_mahogany.cfm)

<sup>2</sup> Rodney Newman, Newman Lumber Company, personal communication, June 11, 2004

Some international traders of mahogany think the Appendix II listing has gone “too far”, while others say the main problem is lack of definition on what is required. Uncertainty in the market over changing regulations has made it hard to maintain a legal mahogany trade, but without this trade there is little interest in maintaining sustainable management of the species. Some companies, such as Robinson Lumber, have begun trading mahogany from plantations, such as the FSC-certified plantations in Fiji. While this may reassure their customers about the legality of the wood, it does nothing to encourage better forest management in the tropical areas.

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## Indonesia

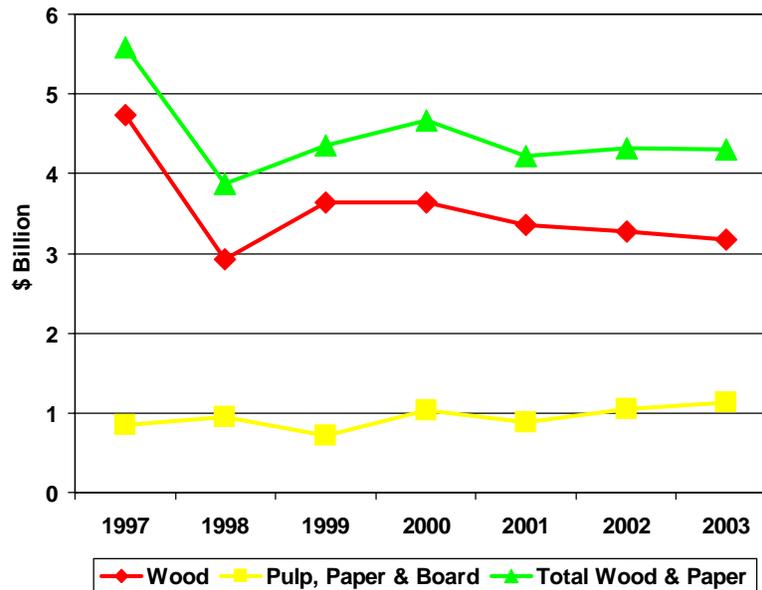
### *Overview/Observations*

- Of the countries/regions profiled, Indonesia has the highest rate of illegal logging, close to 60% of timber production.
- Corruption has always been a pervasive problem in Indonesia, but was further exacerbated with decentralization following the demise of the Suharto regime. The deforestation rate is very high – from 1.3 to over 2.0 million hectares per year.
- Indonesia accounts for about one-quarter of the world’s tropical wood production and tropical hardwood lumber exports, and about half of global tropical hardwood plywood exports.
- We estimate industrial roundwood production at 51 million m<sup>3</sup> in 2002, significantly higher than the probable legal volume of between 20 and 25 million m<sup>3</sup>. The annual allowable cut (AAC) set by the Central government for the HPH concession program is currently only 5.7 million m<sup>3</sup>. Because a high percentage of timber harvests might be considered suspicious, so would a high share of Indonesia’s lumber and plywood production and exports.
- Indonesia reimposed a log export ban in 2002, but unreported trade of raw logs is an acknowledged problem. We estimate that almost 2.9 million m<sup>3</sup> were exported to Malaysia, China, Thailand and the Philippines.
- Indonesia has entered into joint agreements with other countries in an effort to collaborate on the illegal logging problem.

### *Background/Introduction*

Indonesia is a major wood products producer, accounting for as much as one-quarter of the global tropical timber production. It is the world’s largest hardwood plywood producer and ranks among the top two or three tropical hardwood lumber producers. Wood and paper product exports are a major contributor to Indonesia’s merchandise trade balance (*Figure 14*).

Indonesia is one of the main, if not the principal, target of international attention on illegal logging and destructive forest practices. The country has been experiencing deforestation at a rate of between 1.3 and 1.5 million hectares annually. The consensus view among forestry analysts is that concessions have been poorly managed, forests are degraded and industrial capacity has expanded beyond the ability of the resource to be managed sustainably. The government indicates that at least one third of the logging concessions can be considered of being in “degraded conditions.” Political and business corruption (not just in the forestry sector) is historically well-rooted in Indonesian society, although the country has recently experienced remarkably orderly elections.

**Figure 14: Indonesia Wood and Paper Exports**

### Resource Situation

The mixed tropical hardwood forests of Indonesia have historically been some of the most extensive and commercially valuable in the world. Covering an area of approximately 110 million hectares, Indonesia ranks only behind Brazil in extent of tropical forest area. The largest expanses of tropical forest in the country are found in the provinces of Sumatra and Kalimantan.

The tropical rainforests of Indonesia are comprised of over 4000 species of which only 40 to 50 are utilized commercially. The forest is primarily comprised of Dipterocarps and related species such as Meranti (*Shorea spp.*), Keruing (*Dipterocarpus spp.*), and Ramin (*Gonystylus bancanus*), and a small volume of native pine (*Pinus merkusii*). With the exception of a small area of forest estates dating back to the Dutch colonial days, the production forests of Indonesia are owned and controlled by the Central government. They are leased to private companies through area-based concessions (HPH) that grant the right to harvest timber for a period of 20 years or more. Many sawmills and most plywood and pulp mills have their own concessions and, in fact, as a result of a 1985 law, companies were required to set up processing mills in order to retain their timber concessions.

A significant portion of the forests of Indonesia is, at least theoretically, protected from industrial harvesting activities (as much as 54 million hectares of Protection and Conservation Forests), leaving a potentially commercial forest area of approximately 58 million hectares. In 2001, the Ministry of Forestry divided provincial land and forestland into three main groups:

1. **Conservation Forests** (23.2 million hectares): forestland with “particular characteristics” where the main purpose is to preserve unique ecosystems.

2. Protection Forests (29.0 million hectares): forests where land is protected mainly to control flooding and erosion. These forests are often completely closed to both commercial and recreational uses.

3. Production Forests (57.7 million hectares): forests whose main function is to produce forest products. This group, in turn, is divided into three categories: Natural or Regular Production Forests, Limited Production Forests and Plantation Forests. The basic requirement for the Natural Production Forests is that the management has to be sustainable. Additional requirements are that selective felling methods should be used and only trees larger than 50 cm DBH can be removed. Limited Production Forests, which are managed for timber production, may have lower allowable harvest levels due to environmental concerns. Only selective felling is permitted. When a forest area drops below a productivity threshold it can be reclassified, cleared and converted to become a timber plantation or cash crop plantation of oil palm or other commodity.

In addition, some 14 million hectares of forestland is classified as “conversion” forest, defined as forestland potentially available for expanding agriculture or other uses, although according to one government official, this category is no longer a separate group but is included in Production Forests. Deforestation is occurring as these lands are converted to other, mostly agricultural, uses. The log quality of the timber in this sub-category is often lower than in other Production Forests as they have been previously logged. Log sizes are also smaller and typically consumed by the pulp industry.

### ***Plantations***

The Indonesian government launched an aggressive industrial plantation program in the early 1990s to encourage investments in the forest industry, and industrial timber plantations were promoted and subsidized for supplying a growing pulp and paper industry. Due to low plantation establishment costs and excellent growth rates the program attracted many investors with the objective of establishing over four million hectares by the year 2000. However, the goal was not met and the current plantation area is approximately 2.5 million hectares. Of these, an estimated 1.5-2.0 million hectares are short-rotation plantations for pulp production.<sup>35</sup>

About 9 million hectares of mostly degraded natural forests have been allocated for industrial timber plantations. Few believe that much more than 4 million hectares will eventually be planted. The plan calls for about 50 percent of the plantations to be short-rotation species for pulp production and the remaining area to be planted with slower growing and more valuable species to be used for plywood manufacturing. Currently, there are 212 units of nationally authorized timber plantations. Of these, 35 are for the purpose of growing pulpwood, while most of the rest are for the purpose of growing “construction timber,” which means trees that will be sawn into lumber. Only a handful of the pulp plantations are productive, while none of the construction timber plantations are believed to have reached maturity.

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<sup>35</sup> We note that other sources paint a less optimistic picture. For example, DANA Ltd report that total plantations actually established by the pulp and paper industry total less than 1.0 million hectares, and that while growth rates on some sites might be described as “excellent”, the actual rates achieved on other sites has been considerably lower. (Ref: The International Pulpwood Resource and Trade Review, 2004 Edition, published by DANA Ltd.)

The majority of government planted forests in the 1980s and early 1990s were planted Teak, and mixed hardwood forests on the island of Java; their contribution to the country's industrial roundwood requirement is limited. Of more importance are the short-rotation plantations established primarily on the islands of Sumatra and Borneo. Approximately 400,000 hectares are conifer (pine), and 1.3 million hectares are non-conifer species (primarily Acacia, Eucalyptus, Gmelina, and Albizia). The majority of these plantations has been established since the mid-1990s and has increasingly been an important supply source for the pulp and paper industry. A smaller volume of Teak and Albizia is consumed by the plywood industry.

### *Harvesting*

The Production Forests of Indonesia (HPH) are nationally authorized, natural forest timber concessions, from which timber is selectively felled. As of 2002, a total of 270 HPH concessions covering an area of 28.1 million hectares were officially authorized. This is considerably lower than ten years ago when 580 concessions covering an area of 61.4 million hectares were operating -- a decline of nearly 55%.

Typically, concessions are granted for 20 to 30 years. Longer durations of up to 100 years are currently being considered by the Ministry of Forests. By the terms of the HPH, the concession holder is obligated to:

- establish integrated wood processing facilities,
- submit annual harvesting plans,
- pay a reforestation fee for sawlogs, ranging from \$5/ m<sup>3</sup> to US\$8/ m<sup>3</sup> depending on species group,
- pay a royalty fee for sawlogs of between US\$1.60-4.00/ m<sup>3</sup> (varies by species)
- limit harvest to trees greater than 50 cm DBH on Production Forests, and 60 cm DBH on Limited Production Forests, and
- assure that the harvested area is reforested through natural or artificial regeneration.

Historically, enforcement of these obligations has not been particularly strict. Holders have over-cut their concession areas, resulting in degraded stands. They have also sold cutting rights to third party contractors/loggers in violation of the rule that the concession holder must manage and harvest the timber for its own account. Reforestation of the natural forest has been minimal. Over the past few years the central government has begun to tighten the control of the forest concession licensees by suspending concession privileges and canceling expired concessions for holders who have not established wood processing facilities, or who have failed to regenerate cutover areas. However, when the new central government after Suharto decided to decentralize decision-making in the late 1990s it also reduced its control of forest concessions. A problem is now that local governments reportedly are continuing to issue small-scale concessions without the approval of the central government.

According to some sources, Indonesia is losing 1.5 - 2.0 million hectares of forest cover annually. Lowland rainforests in Sumatra have practically disappeared. At current harvesting rates, most of the existing forests in Kalimantan will be cleared within 10 to 20 years. In an effort

to better control harvesting activities in the natural forest, the government of Indonesia has declared that no new HPH concessions will be granted.

The annual allowable cut (AAC) on the native forests of Indonesia (not plantations) is in theory set by the Central government as part of the HPH concession program. It has dropped substantially since the early 1990s when the AAC was set at over 26 million. In 2001, the ACC was 12 million m<sup>3</sup> and in 2004, the Ministry of Forests reduced the AAC to 5.74 million m<sup>3</sup>. For 2005, the logging quota is to be further reduced to just 5.45 million m<sup>3</sup>. Within 10 years, the AAC is expected to be no more than 2 million m<sup>3</sup> for natural production forests.

The Government of Indonesia (GOI) claims that for 2003, 16 million m<sup>3</sup> of timber supply originated from plantations. This is overstated and probably includes third-time or fourth-time selective harvesting or clear-felling of degraded forests since only about six million m<sup>3</sup> was cut in short-rotation plantations, mainly for pulp manufacturing. The national Department of Forestry has no reliable way of knowing how much the logging of these natural forests actually amounts to, in view of the fact that provincial departments of forestry which provide authorization for such logging tend not to report that information to the national government. In fact, no reliable national statistics are kept on the felling of HPH timber or other timber sources. As a result, the GOI does not issue at present any official statistics on the level of the approved national harvest. This does not mean, however, that the Department is always silent on the matter. In a presentation in the UK earlier this year, the Indonesian Department of Forestry's Director General of Forest Production claimed that 42.3 million m<sup>3</sup> was legally harvested in Indonesia in 2003. Based on the detailed list of sources presented, historical data and the lack of harvest data collection, the numbers are very much disputed by observers outside the government. One expert in the field, David Brown, an Indonesian-based consultant, has followed the market for many years. Brown has analyzed the newly released official harvests and estimate that a more realistic legal harvest volume should range between 20-25 million m<sup>3</sup>.<sup>36</sup>

### ***Industrial Roundwood Consumption***

Accurate harvest statistics for Indonesia are non-existent. Therefore, we have derived total roundwood production for 2002 by using estimated industry production data, yield and conversion factors, and net trade of logs. Even estimates of these data are not very reliable. As an example, the GOI estimated that total plywood production in the country was 1.2 million m<sup>3</sup> in 2002, while exports were reported at almost 5 million m<sup>3</sup>. According to official statistics, Indonesia also imported over six million m<sup>3</sup> of softwood logs from Malaysia from 2001 to 2003, a highly unlikely scenario. We therefore had to rely on import statistics in countries trading with Indonesia, estimate domestic consumption, and then calculate the total industry production in the country. We used yield factors collected from industry sources to estimate log consumption for each industry sector.

The official harvest level in 2002 was less than 25 million m<sup>3</sup>, but it is clear that the actual harvest was far in excess of this figure. We estimate industrial roundwood production in Indonesia at nearly 51 million m<sup>3</sup> in 2002, based on domestic industry production data, log trade

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<sup>36</sup> Personal communication with David Brown, independent consultant in Jakarta.

data from trading partners, and from various non-government sources in Indonesia. Although officially Indonesia reported practically no exportation of tropical logs in 2002, we estimate that almost 2.9 million m<sup>3</sup> were exported to Malaysia, China, Thailand and the Philippines.

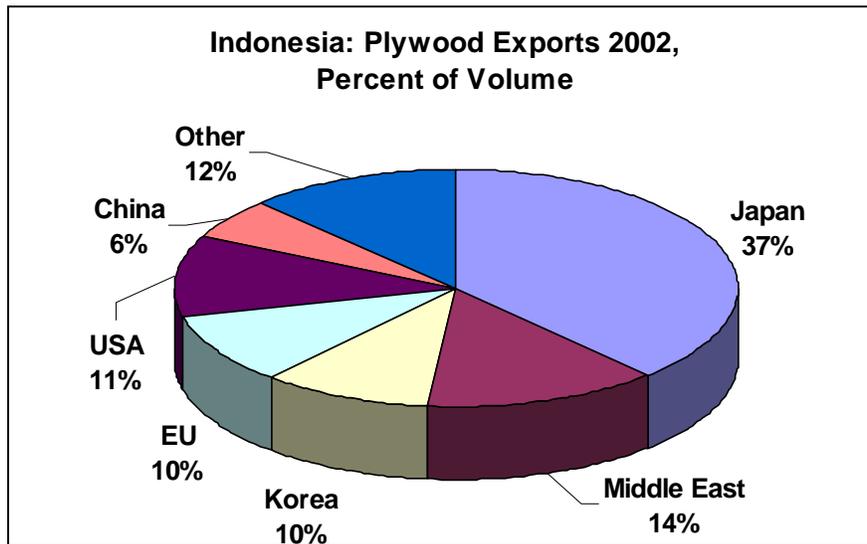
Historically, the plywood industry was the largest log-consuming sector in Indonesia, but in recent years, both the pulp and lumber sectors have gained in importance. The pulp sector is estimated by WRI to consume 42% of total domestic roundwood demand, while plywood mills consumed 30% and sawmills 27%. Roundwood consumption by the pulp industry has increased by over 70% since 1998 while declining in plywood and lumber by an estimated 15% and 29%, respectively.

The official legal permitted installed capacity for the Indonesian forest industry in 2001 was 63 million m<sup>3</sup> according to the Department of Forestry. The sawmills were running at 64% operating rate, the plywood mills at 84% and the pulpmills ran close to full capacity. Overcapacity will almost certainly lead to a substantial downsizing of the solid wood industry in the coming decade. Plants on Sumatra, in particular, face raw material shortages from increasingly denuded forests. The pulp industry has a greater chance to survive at current production levels because of short-rotation plantations established during the past ten years. The current use of plantation fiber in the pulp industry is more than 25 percent but varies from plant to plant.

Sawmills and plywood mills source about 25% of their timber from first selective harvesting of natural forests on a legal and sustainable basis. The remaining 75% originates from second passes of selective logging, usually from illegal operations. The pulp industry procures wood fiber mainly from three sources: plantations (30%), legal cuttings from second selective logging operations (20%) and the remaining volumes from third-time thinnings, which often are both illegal and unsustainable.

### ***Industry Sector***

The plywood industry in Indonesia has long been the most important sector in the forest industry. An estimated 107 plants have a capacity of almost 10 million m<sup>3</sup> annually but the actual production is much lower and has been declining for the past ten years. In 2002, production totaled approximately 7.5 million m<sup>3</sup> of which 6.7 million m<sup>3</sup>, or more than 85 percent, was exported. Plywood exports in 2002 were valued at over \$1.6 billion and accounted for almost 30 percent of global plywood trade. Major markets for Indonesian plywood include Japan, the U.S., South Korea, China and the EU (*Figure 15*).

*Figure 15: Indonesia Plywood Exports, 2002*

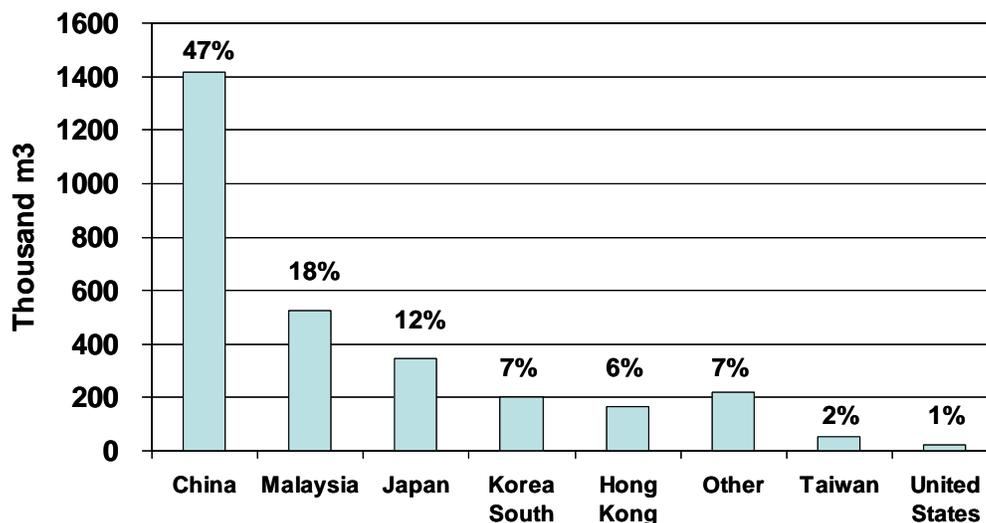
Source: APKINDO

Plywood production costs have increased by 30 to 40 percent since 2001 at the same time that competition from China, Russia and Eastern Europe has put downward pressure on global prices. As a result, the Indonesian plywood sector has been forced to downsize. The industry is hoping to use more fast-growing *Albizia* in the future as an additional, more stable supply source. The species is said to reach 40 cm DBH in only 8-10 years.

Estimates differ as to the size of the sawmilling industry, but installed capacity ranges from 12 to 16 million m<sup>3</sup> annually, depending on the source. Regardless of the actual figure, the sawmill industry suffers from gross overcapacity. The operating rates have consistently been low, ranging from 50 to 60 percent. Production levels appear to have remained fairly stable during the past several years. Statistics are unreliable and every government agency seems to have their own set of industry production numbers. We estimate production in 2002 was approximately 6.5 million m<sup>3</sup>, of which a major share was consumed by secondary manufacturers in the domestic market.

In 2002, Indonesia exported almost three million m<sup>3</sup> of tropical hardwood lumber mainly to China, Japan, Hong Kong and South Korea. Sawwood (i.e. lumber) exports to Malaysia include rough sawn logs of up to 200mm by 200 mm shipped to Malaysian sawmills for further breakdown. The trade of these products, often cut to squares by chain saws in the forest, is a way to circumvent the log export ban and a legal way of exporting square logs.

The pulp and paper industry consists of seven wood-consuming pulpmills with installed capacity of over six million tons per year. Despite as much as 11 million m<sup>3</sup> of manufacturing residues produced each year by the solid wood products industry, the pulp industry depends largely on roundwood to meet its fiber requirements. This sector is the largest consumer of roundwood in Indonesia; an estimated 25% to 35% of its fiber is sourced from plantations.

*Figure 16: Indonesia Lumber Exports, 2003*

Source: WRI

Despite wood supply problems in much of Indonesia, pulp capacity is expanding. A new pulpmill is planned in Kalimantan. The investors claim that the mill will be supplied mostly from nearby plantations, but many observers are skeptical. WWF Indonesia recently charged Indonesia's largest pulp producer, Asia Pulp & Paper Co. (APP), with using illegal wood fiber sourced from national parks and from other areas without proper licenses. In a letter to its customers, APP denied the charges but stated that it was working to implement a system to track wood from its source to the mill in a manner that could be independently verified.<sup>37</sup>

### **Manufacturing Costs**

The estimated manufacturing cost for hardwood plywood in Indonesia ranges from \$85-200/ m<sup>3</sup> depending on quality and for lumber it can be as low as \$50/ m<sup>3</sup> for the lowest grades to more than \$300/ m<sup>3</sup> for the most valuable species. The highest cost component for hardwood plywood and lumber is wood, accounting for 60-75 percent of the total production cost. Therefore, log costs are of great importance for the solid wood sector to be competitive, not only with other domestic manufacturers but also with international producers of wood products.

Domestic log costs in Indonesia have trended upward since the late 1990s as a result of higher royalty fees, longer transport distances and increased competition for the logs. Some people also claim that "informal taxes" or costs for "specialty services" (euphemisms for bribes) have gone up.

Local log markets in Indonesia are fairly competitive due to a large number of buyers and sellers. The costs for legally sourced logs can vary from \$50-140/ m<sup>3</sup> delivered to plant. The low

<sup>37</sup> WWF Indonesia. "Legality of Timber Consumed by Asia Pulp & Paper's Mills in Indonesia, January – October 2003" and letter from Michael Black, Deputy CEO, Asia Pulp & Paper Co., Ltd. to APP customers. July 3, 2004.

end is close to what many companies reportedly use for transfer prices and the high end is what some are able to receive by exporting logs. Illegally traded logs are reportedly 35-50 percent of the legal timber price as buyers can pay less for undocumented logs and illegal logs need to be removed and sold quickly from harvest sites to elude detection. Some buyers (e.g. European buyers) are beginning to question mill sourcing.

### ***Roundwood Trade***

The export of unprocessed logs was banned by the government of Indonesia in 1985 in order to promote valued-added manufacturing. In many respects, the policy succeeded, as exports of plywood and other wood products expanded. However, low-cost logs led to overcapacity and provided little incentive for improving utilization. By the mid 1990s, Indonesia suffered through political and economic crises that directly impacted the forest products sector. The log export ban was lifted in 1998 as a provision of the international bailout of Indonesia's economy. Newly legal, as well as illegal roundwood exports, surged as concession holders and others heavily exploited the resource in search of hard currency. A log export ban was re-imposed in 2002.

When the export ban was originally lifted, roundwood exports were estimated by some sources to have reached 11 million m<sup>3</sup>. The main destination was Malaysia, although a large share of the volume was transshipped through Malaysia to other Pacific Rim countries. Reported statistics suggest a much lower, though still elevated volume. According to ITTO, estimated log exports increased from 99,000 m<sup>3</sup> in 1998 to 3.45 million m<sup>3</sup> in 2001 before declining again to 0.6 million m<sup>3</sup> in 2002, the year in which the ban was reinstated. Credible sources suggest that substantial volumes of undocumented logs continue to be shipped from Indonesia to other Asian markets. We estimate Indonesia's roundwood exports to be in the neighborhood of 2.9 million m<sup>3</sup>, mostly to Malaysia, China and Thailand. These logs are smuggled out of Indonesia so do not show up in official Indonesian export statistics.

### ***Illegal logging***

Reported estimates of illegal logging activity in Indonesia are commonly very high and range from 40% to 80% of total wood supply.<sup>38</sup> Costs (in lost government revenues) associated with illegal logging have also been variously estimated at anywhere from about \$600 million/year to \$3 billion/year. FAS reports that the total loss annually is US\$5.7 billion, including "\$4.08 billion from the price of logs and \$1.63 billion losses from the unpaid taxes and fees."<sup>39</sup> None of the estimates are predicated on hard data or are detailed enough to associate volumes or percentages with specific types of illegalities.<sup>40</sup> However, in contrast to most other

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<sup>38</sup> EIA/Telepak, Greenpeace, and Friends of the Earth (FoE) cite the same illegal logging estimate of 73% in their reports.

<sup>39</sup> USDA Foreign Agricultural Service. "Indonesia Solid Wood Products Annual 2004." GAINReport #ID4020, 7/1/2004.

<sup>40</sup> EIA/Telepak, Greenpeace, and Friends of the Earth repeat an estimate of 73%. Friends of the Earth also stated that in the 1990s 73% of exports were illegal. According to FERN and RIIA, the government itself estimated that in 2002, the costs related to illegal logging were \$3 billion/year. See "Controlling Imports of Illegal Timber: Options for Europe." FERN & RIIA, 2002.

countries, the government of Indonesia has itself acknowledged that illegal logging is a significant problem.

Evidence gathered surreptitiously by EIA/Telepak and others suggest that logging in national parks, outside concession boundaries and logging without authorization is commonplace. Another indication of suspicious activity is that the forest industry (pulp, paper, and plywood companies) seems to be running at a capacity that suggests fiber consumption is well beyond permitted harvesting levels. Additionally, corruption is known to be widespread within the police, military officials, and bureaucrats.

Based on roundwood demand by the domestic forest industry and net trade of logs the derived roundwood production in Indonesia in 2002 was 51 million m<sup>3</sup>. According to the government agency Directorate General of Forest Production Development the official harvest volume in 2002 was 8.1 million m<sup>3</sup> on Production Land. Approximately six million m<sup>3</sup> of natural forest timber was felled to make room for nationally authorized industrial timber and agricultural plantations. In addition to the volumes logged in natural forests we estimate that another six million m<sup>3</sup> was harvested from pulpwood plantations and one million m<sup>3</sup> from state teak and mahogany plantations, totaling an estimated 21 million m<sup>3</sup> of legally harvested logs. Indonesia also imported approximately two million m<sup>3</sup>. The difference between derived industry roundwood demand and documented logs sourced from production forests, plantation forests and imports was 30 million m<sup>3</sup> in 2002.

Logging of community forests close to villages, sometimes called “People’s Forests” would be in addition to the above estimates, although it is unclear how much volume is actually being produced from these areas. People who want to downplay the problem with illegal logging suggests that as much as 10 million m<sup>3</sup> is harvested in these forests, while more objective observers would estimate that harvest levels are less than one million m<sup>3</sup>. Taking production from these community forests into account, we estimate that the total legal harvest volume in 2002 was approximately 22 million m<sup>3</sup>, or 43% of the total derived industrial roundwood production.

Generally, illegal logging in Indonesia can be attributed to: (1) local people and log brokers, often under protection of local security officials (police and army); (2) district government officials who hand out felling licenses that are illegal under national law; and (3) national level forest management units, which log illegally. For such large illicit activities to take place, many in the nation’s forest products manufacturing sector must be complicit or at least apathetic. Corruption is known (and even accepted) in Indonesian society, and was exacerbated by decentralization following the removal of President Suharto.

In domestic pronouncements, as well as at international fora, the Indonesian government has acknowledged that illegal logging exists and that it is a huge problem. Reduction of illegal logging is the stated top priority for improving the country’s forest situation, but enforcement of forest concessions has proven difficult. In a progress report listing seizures of illegal timber, the Indonesian Department of Forestry noted the volume seized over an 18 month period totaled only 117,459 cubic meters. This figure is quite small (less than 1 percent) of the total volume of timber estimated to have been felled illegally over that period. All of the seizures were by the

national government. A few actions have been undertaken by some provincial governments, but local government efforts to interdict illegal logs have been minimal.

The GOI has taken a number of actions to address illegal logging, such as:

- Announced efforts to increased enforcement of logging bans in protected areas and crack down on smuggling. Results of this effort to date include:
  - In June 2001, Indonesian customs seized two ships attempting to smuggle ramin logs en route from Riau in Sumatra to Batu Pahat, on the west coast of Peninsular Malaysia.
  - In August 2002, Indonesian authorities seized a vessel trying to smuggle ramin from Medan in Sumatra to Port Klang in Malaysia.
  - In March, 2003, Indonesian customs from Riau in Sumatra stopped a barge carrying 500 ramin logs headed for Batu Pahat.<sup>41</sup>
- In August 2001, petitioned to have ramin listed on Appendix III of the Convention on International Trade in Endangered Species (CITES);
- In September 2001, participated in the Asian FLEG meeting and signed the Bali declaration;
- In December 2001, banned all exports of ramin, except for a small quantity of certified wood exported by one company;
- In 2002, signed a bilateral agreement with the United Kingdom addressing the need to stop the trade of plundered timber between the two countries;
- In August 2002, signed a letter of intent with Norway in which both countries agreed to reduce and eventually eliminate illegal logging and trade on illegal timber and timber products;
- In December 2002, signed a Memorandum of Understanding with the Government of the People's Republic of China concerning cooperation in combating illegal trade of forest products;
- In 2003, the Ministry of Forestry allocated Rp 10 billion for operations against illegal logging;
- The State Minister of the Environment stated that the government won full support from the House of Representatives to impose harsher punishment on illegal loggers;
- In September 2003, at the commemoration of the 10th anniversary of CIFOR, President Sukarnoputri said that the government now had a conservation plan to eradicate illegal logging and restructure the forestry sector (no further details provided by the president);
- In January 2004, Indonesia tightened control over illegal logging proceeds entering the financial system (notably banks) and stepped up efforts against lending to companies engaged in illegal logging or damaging the environment.

Indonesia and Malaysia are at odds on the subject of illegal logging. Government officials of both countries have exchanged barbs in the press, each blaming the other for exacerbating the problem. In the wake of an EIA/Telepak report accusing Malaysia of not

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<sup>41</sup> Malaysian Timber Council. "Illegal Indonesian Ramin Crackdown." 2004.

honoring its international commitments, Indonesia's Forest Minister, Mohammed Prakosa, called for a European ban on importing Malaysian wood products.<sup>42</sup>

In April, 2004, the European Commission offered Indonesia an \$18.5 million grant to help eradicate illegal logging by improving governance and enforcement. The funds are to be used to establish a public database on forestry crimes, to finance logistics for police operations and to create a system for tracking illegal logs. In May, 2004, the government was drafting new regulations to greatly increase penalties and punishment for illegal forest activity and make it easier to prosecute related crimes.<sup>43</sup>

### *Certification*

Very few companies operate certified forest concessions in Indonesia. FSC certified forest area as of April 2004 was 90,240 hectares. Local governments are discussing different alternatives to promote certification, log legality verification and chain-of-custody schemes but nothing has yet been implemented. The Nature Conservancy is currently engaged in a three-month pilot project with two Indonesian firms to study tracking system for wood from "stump-to-store."

The Indonesian Eco-labeling Institute (LEI) was established in 1994. The agency has developed a Sustainable Forest Management certification system with criteria and indicators similar to the Forest Stewardship Council (FSC) and in discussion with ITTO. LEI, which is partly funded by WWF and USAID, is not a new unique certification scheme but an accreditation institute. The Institute states the following about its role in Indonesia:

"Foreseeing the many eco-label schemes, it is necessary to create a reliable certification system from entities also reliable to consumers. LEI positioned itself as an accreditation institute and a certification system developer holding 'reliability' and 'credibility' in the eyes of stakeholders. It is why LEI must be neutral and not leaning to any side."

Concessions that subscribe to the LEI system are apparently given somewhat greater latitude in annual allowable cut limits and LEI has a joint certification protocol developed with the FSC. However, despite almost five years in existence, only a few areas have been certified jointly by LEI and FSC.

The Indonesian Ministry of Forests and Ministry of Trade and Industry have set up an agency named BRIK (Forest Industry Revitalization Agency) to track log supply to the solid wood industry and to prevent companies from using illegally sourced logs. The agency is charged with granting export licenses, but in Europe, its credibility is suspect.

Several NGOs have initiated projects to implement tracking and labeling systems on the Island of Borneo. The Nature Conservancy is working with two timber firms to track species

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<sup>42</sup> Wood Purchasing News. "TTF to Stand Firm in Illegal Logging Issue." June/July 2004.

<sup>43</sup> The Jakarta Post. April 3, 2004 and May 15, 2004, available at <http://www.thejakartapost.com>

and origin from legal concessions through processing. The pilot program includes a verification system by an independent auditor and will track between 20,000 and 30,000 m<sup>3</sup> of timber from the East Kalimantan province.

### ***Implications for U.S. Exporters***

Our wood flow analysis indicates that hardwood plywood exports from Indonesia would decline by over 4.6 million m<sup>3</sup> if the country exported only wood products manufactured from legally harvested logs. However, the majority of exported plywood is comprised of lower quality grades used for concrete forming and underlayment mainly in Japan, the U.S., China, South Korea and Taiwan.

Japan is the largest consumer of plywood from Indonesia although the volume has declined during the past few years. With declining availability of tropical logs and high manufacturing costs in Japan, the country has increasingly replaced domestic hardwood plywood with domestic softwood plywood from imported Russian logs, temperate hardwood and tropical hardwood plywood (mainly from Indonesia and Malaysia), as well as substitute panels such as OSB and MDF. If Indonesia only exported plywood made from legally sourced logs, Japan would have to substitute an estimated 1-1.5 million m<sup>3</sup> of plywood. Since much of the imported Indonesian plywood is of lower grades and is used for concrete form work and underlayment in houses, there would be good opportunities for U.S. softwood plywood and OSB manufacturers to increase their market shares in this market. In 2002, Japan imported veneer and plywood from the U.S. valued at only \$5.7 million indicating the limited presence by U.S. panel manufacturers in this market.

China is also a major consumer of Indonesian plywood. Recently, China moved from being a net importer of plywood to a net exporter, in part due to having zero tariffs on imported roundwood and a 15% on imported plywood. However, in January of 2004 import tariffs on all wood products were reduced sharply. China has imported between 400-500,000 m<sup>3</sup> of plywood from Indonesia in recent years and it is likely that if the Indonesian industry reduced plywood production, China could try to increase imports from Malaysia and Russia, or reduce exports to the U.S., Japan or South Korea. The U.S. is currently a small player in the Chinese panel market but, as with Japan, there could be future opportunities for supplying additional volumes of softwood plywood and OSB for the housing sector and hardwood plywood for furniture, cabinets and flooring. Reduced imports of Indonesian logs to China will also have an impact on the plywood production level and the volumes of tropical plywood currently being exported to Japan.

Hardwood lumber is the only other major primary wood product being exported from Indonesia. Global trade of lumber would be markedly impacted if Indonesia were to drastically reduce harvesting of illegal timber. Between 3.5 million m<sup>3</sup> and 4 million m<sup>3</sup> would need to be replaced by other suppliers in the three key markets for Indonesian lumber, namely China, Malaysia and Japan. The greatest opportunities for U.S. manufacturers would be in China and Japan, where many U.S. companies are already present.

China is an important market for U.S. hardwood lumber producers and had in 2003 the second largest market share behind Indonesia. Imported lumber is commonly manufactured into flooring and furniture, of which particularly furniture is often re-exported back to the U.S.. The rapid increase in hardwood lumber exports from the U.S. to China in recent years could likely continue and U.S. suppliers would be one of the major beneficiaries if the Indonesian sawmilling sector were to cut back production due to the lack of legally sourced logs.

Imports of hardwood lumber (temperate and tropical) to Japan have declined over the past four years, while softwood lumber imports, particularly from Europe and Russia, have increased. Indonesia and Malaysia have for a long time been the largest suppliers of tropical lumber to the Japanese furniture and millwork industry. In recent years there has been increased substitution of tropical hardwood lumber by both temperate hardwood and softwood so there will likely be opportunities for both U.S. softwood and hardwood producers to expand into Japan if Indonesian lumber volumes were to decline.

## Malaysia

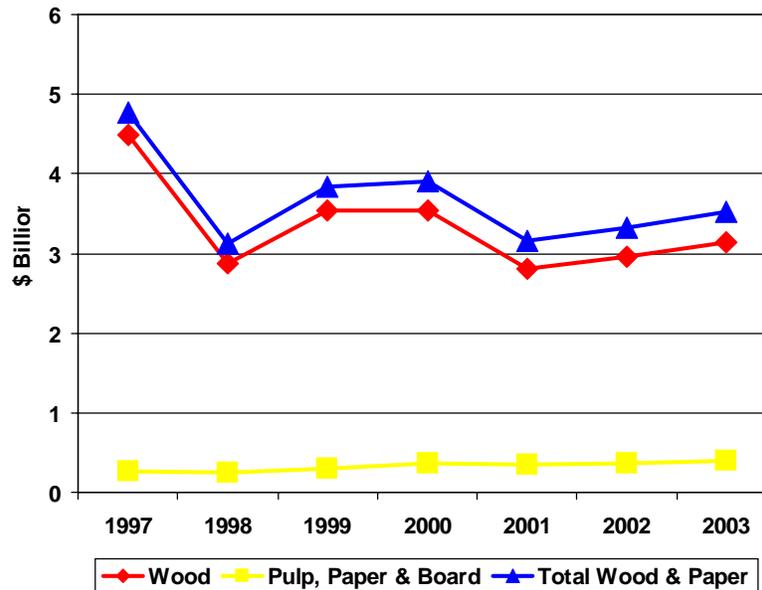
### *Overview/Observations*

- NGO allegations of illegal domestic forest activity are likely overstated since regulations for timber operators and companies appear to be well-enforced. Malaysia has strong government and private sector forestry institutions.
- Cronyism is (and has always been) part of the timber concession system; some companies and/or individuals have powerful political influence, but laws and regulations are very clear. However, NGOs have accused Malaysian firms of engaging in illegal forest activity and trade through networks and investments in other countries.
- The forest and regulatory situation is different in each of three main regions: Peninsula Malaysia, Sarawak and Sabah. Each operates independently. Most reports of illegal activity involve trade abuses between Indonesia and either Sarawak or Sabah.
- Smuggling of timber from Indonesia to Malaysia for processing or re-export has been alleged and occurs to some extent. Malaysian authorities indicate that they have tightened enforcement and increased prosecutions of violators. Even more rigorous enforcement has probably been hampered by a “blame game” that transpires between Indonesia and Malaysia.

### *Background/Introduction*

Malaysia is a country of 13 states of which 11 are found on Peninsular Malaysia (PM), with the remaining two being the larger and heavily forested states of Sabah and Sarawak on the island of Borneo. The latter two states share a long land boundary with Indonesia. Much of the shared border is remote, making trade difficult to monitor and control. Ports and villages also dot the coastal landscape.

Malaysia’s forest industry sector occupies a dominant place in the country’s economy. Forest products exports are valued at between \$3.5 - 4 billion annually and account for almost 30 percent of the total government revenues in Sabah and Sarawak. Based on these facts alone, the state governments and the Malaysian industry try hard to promote a positive image in world markets, particularly the U.S. and Europe, of forest management methods practiced in Malaysia.

**Figure 17:** Malaysia's Forest Products Exports, 1997 - 2003

Source: GTIS

### ***Forest Policy and Legal Framework***

Although Malaysia has a National Forestry Policy, the management of land and forests are defined by the constitution as state matters. As a result, the Forest Departments and industry organizations of each state often operate independently, with the federal government serving in an advisory by providing technical assistance, training and research. The federal government controls trade policy, import and export controls and, of course, enters into international agreements. Matters of forest law enforcement are largely overseen by the state governments.

As in Indonesia, the majority of the native forests of Malaysia have historically been leased through concessions to private companies for the export of logs and manufacturing of plywood and lumber. Nearly all forests are owned by the Federal government but managed by individual State Forest Departments on the Peninsula, Sarawak and Sabah. Some aspects of forest resource and utilization policies are common to all the three regions, including an emphasis on forest-based utilization and wood production as contrasted with non-commodity outputs. In all three regions, timber harvesting rights are allocated to private sector firms through a system of forest licenses. These concessions are granted for periods of 5 to 20 years to individuals and state entities. Forest licenses are generally operated by large timber contractors, who harvest, process and market the annual log allotments. Each concession must have an approved plan detailing:

- how harvesting is to be carried out;
- the species that can be harvested;
- a minimum cutting size limit;
- the annual harvesting area/volume allowed;
- environmental impacts; and,
- penalties for residual damages.

## ***Resource Situation***

Total forest cover in Malaysia is over 19 million hectares. The forest resources of all three Malaysian regions (Peninsular Malaysia, Sarawak and Sabah) are dominated by native tropical rainforests, primarily Dipterocarp species such as Meranti and Keruing, and approximately 300,000 hectares of native conifer (*Pinus merkusii*). Agricultural land clearing and development has reduced the country's forest cover. The FAO estimated the rate of deforestation at 1.2% annually between 1990 and 2000.

The National Forestry Policy established the Permanent Forest Estate (PFE), currently comprising 78 percent of the country's forestland. The PFE was set aside to provide protection from further land clearance for agriculture and urban developments that took place during the 1970s and 1980s. The result is that Malaysia's forested area has been very stable over the past ten years. The PFE will always be either be totally protected or managed on a sustainable basis. Approximately 10.6 million hectares are productive forests and 3.8 million hectares are protected land where commercial logging is prohibited. Almost half of the productive forestland is in the state of Sarawak while 27 percent is in Peninsular Malaysia and 25 percent in Sabah. Most of the protected forest area is on the densely populated Peninsula, where 40 percent of the forestland is set aside and withdrawn from any type of harvesting operations.

The native forests have traditionally been managed using the Malayan Uniform System, which was based on the objective of converting multi-species and multi-aged forests to more or less even-aged forests with a higher percentage of commercial species. Clear-cutting all trees greater than 45 cm DBH, and selective thinnings of defective and non-commercial species achieved this objective. While the system proved to be successful in some forest types, it failed to encourage natural regeneration in other forest types.

As a result, an alternative system, the Selective Management System, was initiated and has become the mainstay of Malaysian forest management practices. This system favors a more diverse forest by varying the diameter by species, and by limiting the volume of timber removed during any one felling period. Clear-cuts are not permitted on Permanent Forest land and only trees larger than 60 cm DBH (*Dipterocarpus spp*) and 45 cm DBH (other tropical hardwood species) can be selectively logged. The average volume that is anticipated over a 25-45 year cutting cycle is 30-40 m<sup>3</sup>/ha. The cutting cycle varies from 25 years in parts of Sarawak, to as much as 80 years for most of the forests of Sabah.

About 2 million hectares of rubberwood (*Hevea braziliensis*) plantations are being used to supply roundwood to the lumber and composite board industries. In 1950s, the government of Malaysia began to establish plantations of valuable hardwoods such as Teak, Mahogany, and Meranti, but they provide only a modest contribution to industrial roundwood supply. Short-rotation plantations have also been established, primarily in Peninsula Malaysia and Sabah. Estimated at approximately 190,000 hectares, these plantations consist primarily of *Acacia mangium*, Albizia, Eucalyptus and a very small area of *Pinus caribaea*. Since most plantations (exclusive of rubberwood plantations) have yet to reach maturity, they have contributed less than one million m<sup>3</sup> annually to wood fiber supply.

### **Forest Tenure**

Malaysian forests are government owned. Forest tenure in some areas is being disputed by local native communities who claim ownership, but the local court systems appear to have been successfully resolving at least some of these disputes.

Although there is currently strong interest on the part of the private industry to establish forest plantations, and in fact some are being established on land leased for a period of over 60 years, the majority of forest plantations today are mostly controlled by states (such as the government of Sarawak), and state enterprises (such as Sabah Forest Industries). Most industrial plantations have been established on degraded agricultural lands, much of which was initially native hardwood forest. There is potentially more land available, particularly on Sabah, for additional plantations of up to one million hectares.

### ***Illegal Logging in Malaysia***

While NGOs have complained about over-cutting and forest practices in parts of Malaysia that they view as unsustainable, “illegal” forest activity with respect to domestic harvesting does not appear to be a severe problem in the country. Government officials acknowledge that some illegal logging occurs in remote areas of Sarawak and Sabah, but are confident that the volumes are very small (less than 5%). Not directly related to activity within Malaysia, some NGOs have accused Malaysian firms of engaging in illegal forest activity and trade through networks and investments in other countries.<sup>44</sup>

The installed capacity of Malaysia’s primary log processing equipment is approximately 40 million m<sup>3</sup> distributed between 1100 sawmills and 170 plywood/veneer mills. Many of these mills date back to the period when domestic harvest levels were much higher than the current 20 million m<sup>3</sup>, so there is likely some harvesting in excess of prescribed or authorized levels. Anecdotal evidence supports allegations about illegally imported logs from Indonesia processed in Malaysia or relabeled and transshipped through to other destinations. However, major violations of Malaysian law with respect to domestic harvesting do not appear to be significant. A calculation of derived roundwood demand based upon net trade of logs and the official harvest places domestic harvest at near the official level and thus supports this conclusion.

### ***Roundwood Production and Trade***

Malaysia’s harvest levels have declined dramatically over the last ten years due to government set asides, and the realization that historical removal levels on natural forests were unsustainable. Log production in 2003 was 20 million m<sup>3</sup>, a decline by over 50 percent since peaking at over 40 million m<sup>3</sup> in the early 1990s. Although government officials claim that log removals in 2003 were on a sustainable level, some argue that the sustainable annual log supply from natural forests is lower, closer to 18 million m<sup>3</sup>. This lower level is warranted, they argue, due to historically poor forest management and over-cutting of concession areas.

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<sup>44</sup> See for example: “The Untouchables: Rimbunan Hijau’s World of Forest Crime and Political Patronage.” Greenpeace. February 3, 2004. Available at: [http://www.greenpeace.org/international\\_en/reports/ex-summary?item\\_id=398660&language\\_id=en](http://www.greenpeace.org/international_en/reports/ex-summary?item_id=398660&language_id=en)

Lumber and plywood are the two major domestic end-uses of roundwood, together consuming almost 90 percent of total domestic log consumption. The largest log consumer in Malaysia has historically been the lumber manufacturing industry, although this has changed somewhat in the past few years with a declining sawmilling sector and a slight increase in plywood production. The composite board industry and the wood-based pulp and paper industry each consume approximately one million m<sup>3</sup> of hardwood roundwood. The utilization of manufacturing residues for forest products in Malaysia is negligible.

Like Indonesia, the government of Malaysia embarked on an aggressive campaign to forward integrate and restructure its domestic forest products industry in the 1980's and 1990's. As a result, Malaysian log exports have declined from 20 million m<sup>3</sup> in 1990 to 5.1 million m<sup>3</sup> in 2002, before increasing to about 5.5 million m<sup>3</sup> in 2003 due to higher demand in China and India. Despite the decline over time, Malaysia still remains the largest exporter of tropical hardwood sawlogs in the world, accounting for almost 35 percent of all tropical hardwood timber traded worldwide.

Raw log exports are entirely banned from Peninsular Malaysia and restricted from Sabah. In 2003, Sarawak exported an estimated 4.4 million m<sup>3</sup>, down from 6.1 million m<sup>3</sup> in just three years. While Japan historically was the largest market for tropical hardwood logs from Malaysia, demand has more recently shifted to India and China. In 2003, each of these three countries accounted for about one-quarter of Malaysian log exports.

Officially, reported imports of logs to Malaysia in 2002 were less than 0.7 million m<sup>3</sup>. Over 90 percent originated in just four countries, Thailand, Myanmar, New Zealand and the U.S.. In addition, we estimate that Malaysia imported at least 1.8 million m<sup>3</sup> of logs from Indonesia despite Indonesia's export ban. Some of the volume was consumed by the domestic industry and some was transshipped to log markets in Singapore, Hong Kong, China, Taiwan and Japan.

### ***Lumber and Other Exported Wood Products***

The sawmilling industry consists of about 1110 sawmills, with the largest number located on Peninsular Malaysia. These sawmills consumed an estimated 8.2 million m<sup>3</sup> of roundwood in 2002 to produce 4.7 million m<sup>3</sup> of sawnwood. Of this amount, 2.7 million m<sup>3</sup> (57%) was exported, mainly to markets in China, Europe, Thailand, Taiwan, South Africa and Singapore. Less than 50 percent of produced lumber was consumed domestically to manufacture mouldings, furniture components and millwork. Many secondary products such as wooden furniture and mouldings are exported to the U.S., Europe, Japan and Australia. The rapid growth of the furniture and millwork industry has had the effect of reducing the exports of sawnwood from 5.4 million m<sup>3</sup> in 1993 to 2.0 million m<sup>3</sup> in 2003.

The plywood industry is comprised of 177 mills with the largest and most efficient plants located in Sarawak. The industry consumed an estimated 7.8 million m<sup>3</sup> of roundwood in 2002 to produce 4.4 million m<sup>3</sup>, which is close to record levels for the Malaysian plywood industry. Over 70 percent of production is targeted towards the export markets in Asia, with as much as 40

percent of the exports to Japan alone. Other important markets included South Korea, the U.S., Taiwan and China .

### ***Wood Flow and “Suspicious” Product***

NGO reports indicating that as much as 35% of Malaysia’s harvesting and or exports are illegal are very likely exaggerated.<sup>45</sup> In general, Malaysia has a relatively stable and effective legal and enforcement system. However, some illegal logging occurs despite log tracking systems and highly publicized punishment of unauthorized loggers. The illegal harvesting that does occur is in remote areas with low risk of detection and at places where logs can quickly be converted to lumber. Thus, it is unlikely that more than one million m<sup>3</sup> annually, or less than five percent of the total domestic harvest, can be attributable to significant legal abuses.

While incidences of illegal domestic harvesting are relatively few in Malaysia, unauthorized imports of hardwood logs from Indonesia are a recognized problem. After three years during which an historic ban on log exports was lifted, Indonesia re-imposed the ban in 2001 and, under pressure mostly from non-governmental organizations NGOs, the Malaysian government decided to ban logs imported from Indonesia in June, 2002. This ban was extended in May, 2003 to also include imports of squared logs larger than 60 square inches (or roughly 200mm by 200mm). Some NGOs continue to see this trade as a big loophole (although legal) for sending marginally processed logs from Indonesia to a raw-material starving industry in Sarawak and Sabah.

In Sarawak, Indonesian wood products can only enter legally at five crossing points. Every shipment is checked to ensure that material carries the appropriate industry or regional certification. Sarawak officials indicate that all shipments are backed by the proper certificates.

Based on our calculations we estimate that an approximately 1.8 million m<sup>3</sup> of logs are illegally imported from Indonesia to Malaysia mostly to the Peninsula and Sabah. The government believes that the volume is much smaller and states that the situation is rapidly improving with the increased involvement of the military in seizing vessels with logs destined for Malaysia. However, environmental NGO estimates of illegal logging activity are much higher. According to Greenpeace and the WWF, Malaysia has a 35% illegal logging rate.<sup>46</sup> Thirty-nine percent of the timber used by the Malaysian timber industry was illegally imported or logged inside Malaysia according to FERN.<sup>47</sup> EIA/Telepak alleged that in 2001, 40% of Malaysia’s consumption and export of timber (13,395,000 m<sup>3</sup> round wood equivalent) was estimated to have been acquired illegally.<sup>48</sup>

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<sup>45</sup> WWF, Greenpeace, and Friends of the Earth (FoE) assume Malaysia’s illegal export rate of 35% translates into an illegal logging rate of 35%. WWF and Greenpeace cite Dudley, N., Jeanrenaud, J.P. and Sullivan, F., 1995. *Bad Harvest? The Timber Trade and the Degradation of the World’s Forests*. Earthscan, London.

<sup>46</sup> See Greenpeace Japan and Greenpeace International. “Chains of Destruction leading from the world’s remaining ancient forests to the Japanese market. 2002. WWF International. “The Timber Footprint of the G8 and China: Making the Case for Green Procurement by Government. 2002.

<sup>47</sup> See FERN. “Statement Against the Malaysian Timber Certification Council.”2003.

<sup>48</sup> EIA/Telepak. “Profiting from Plunder: How Malaysia Smuggles Endangered Wood.” 2004.

## ***Ramin Trade***

Ramin has been placed on the World List of Threatened Trees and is classified by the World Conservation Union (IUCN) as vulnerable to extinction. About 30 species of ramin can be found in peat-swamp forests native to Indonesia and Malaysia. At least six are commercial and highly valued. Trade of ramin (*Gonystylus spp*) has been a topic of heated discussions in Malaysia and Indonesia. Malaysia has been accused by NGOs of illegally importing ramin logs from Indonesia despite the ban of such trade. The Malaysian government disputes the claim and insists that the problem is overstated. Traders in Singapore have also been implicated in illegal ramin trade. At a 2004 workshop on ramin, representatives of the three countries agreed to establish a task force on CITES enforcement of ramin trade. In October, 2004, the CITES parties agreed to an Indonesian proposal to list ramin on Appendix II.

Ramin is a light colored, fine-grained wood with highly desirable machining properties that is very popular for use in furniture, cues, tool handles, wood blinds and mouldings. Temperate species including beech, ash and tulip poplar can be substituted in many of these applications, but ramin is preferred by Asian manufacturers. Ramin prices have increased substantially which has resulted in continued over-cutting in recent years with the consequence that the species has become increasingly scarce. Ramin harvests in Indonesia peaked in the 1970s at 1.5 million m<sup>3</sup> and have since dropped to 131,307 m<sup>3</sup> in 2000. In Malaysia, the ramin harvest has decreased from a peak of 600,000 m<sup>3</sup> in 1989 to 137,512 m<sup>3</sup> in 2000.<sup>49</sup>

In 2001, the Indonesian government placed ramin on Appendix III of the Convention on International Trade in Endangered Species (CITES). All ramin wood products and wood components exported from Indonesia should carry a CITES export permit certifying that the shipment was legally obtained. However, Malaysia requires CITES certificates only for imported logs and lumber, not further processed wood products. The Malaysia Timber Industry Board is the CITES Management Authority for Peninsula Malaysia and Sabah, but in Sarawak, five District Forest Offices can also issue CITES certificates. In 2002 and 2003, 16 cases of CITES violations were prosecuted involving a small volume (less than 500 m<sup>3</sup>) of wood coming into Malaysia from Indonesia.<sup>50</sup>

An investigation by EIA/Telepak alleges that large volumes of ramin are being imported from Indonesia to Sarawak and Peninsular Malaysia without documentation, and that these shipments are labeled as “origin Malaysia” before continuing on to China, Hong Kong, the U.S. and Europe. However, the Malaysian government’s position is that ramin from Malaysia is legally sourced domestically and that all trucks entering Sarawak from Indonesia are checked both by customs officers and officers from the Forest Department to make sure that no ramin wood is passing across the border. EIA has used hidden video and tape recorders to charge that logs are illegally harvested in Simunjan in southern Sarawak. They also allege that two-thirds of the almost 8,000 m<sup>3</sup> of ramin dowels, moldings, and other items shipped from Malaysia to the

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<sup>49</sup> Traffic International. “Framing the Picture: An Assessment of Ramin Trade in Indonesia, Malaysia and Singapore.” August, 2004

<sup>50</sup> Ministries of Primary Industries, Malaysia. “Actions Taken by Malaysia to Help Indonesia Who is Facing Problem of Illegal Logging.” 2004.

U.S. over a several month period in 2001 – 2002 were illegal because they were not accompanied by CITES permits.<sup>51</sup> In 2003, U.S. authorities seized more than 120,000 pieces of illegal ramin exported from China, most of which is believed to have been smuggled through Singapore and Malaysia.<sup>52</sup>

### ***Efforts to Address Illegal Logging Issue***

The Malaysian government's response to illegal logs in the country has been to implement log-tracking systems, to ban log imports from Indonesia and to increase law enforcement activities. The State Forestry Departments have been setting up State Security and Protection Units within their organizations. They have also asked for assistance from the police and military to curb illegal activities. Punishment for illegal logging or importing banned timber can be quite severe. For example, penalties for cases that go to court in Sarawak can result in payments of up to ten times the value of seized timber, plus a US\$15,000 fine, plus a jail sentence of up to five years. Numerous offenses have been prosecuted. For example, in Peninsular Malaysia, some 324 forestry offenses were recorded involving illegal logging, improper logging licensees, felling immature trees and encroachments. However, environmental NGOs claim that there are many more violations that are undetected.<sup>53</sup>

The Malaysian government views the management of its forests as within the purview of its own sovereignty. Government and industry officials are confident that little illegal forest activity occurs in Malaysia and that its enforcement mechanisms are highly effective. When the illegal logging issue recently arose in the context of negotiations toward an economic partnership agreement with Japan, Malaysian representatives were adamant that matters of illegal logging are strictly dealt with. On concerns about Malaysian imports from Indonesia, they contended that imports from Indonesia carry the relevant certificates. The Japanese negotiators indicated that proof of legality for Malaysian wood products entering Japan would be a prerequisite to furthering negotiations on the economic agreement.<sup>54</sup>

Unlike any other Asian country, Malaysia has had a fairly comprehensive log tracking system for several years, which has limited the ability of manufacturing plants to purchase and consume logs from unspecified sources. On the Peninsula, every cut tree on PFE land is tracked from the stump to the processing plant. The stump is left with a plastic tag which includes an I.D. number corresponding to the tags on all the logs cut from the individual tree. Before the logs leave the forest, an officer checks the tag numbers in the "Tree Tagging and Timber Production Control Book". The logging company needs to fill in a "Forest Harvesting Control and Monitoring Form" for each stand to be checked regularly by a state official. Each month, the Forest Range Officer in charge completes a "Monthly Forest Harvesting Process Report" to ensure the licensee only harvests trees according to the permit.

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<sup>51</sup> See EIA/Telepak. "Profiting from Plunder: How Malaysia Smuggles Endangered Wood." 2004. and The Star Online. "Big Seizure of Illegal Logs in National Park." 2003.

<sup>52</sup> EIA. "Environmentalists Accuse Singapore of Illegal Trade in Endangered Timber and Harmful Chemicals at UN Conference; US Sanctions Possible as Trade Threatens Biodiversity, Human Health." 2004.

<sup>53</sup> "Environmental and social NGOs reject the Malaysian Timber Certification Council's Scheme"

<sup>54</sup> Nikkan Mojkuwai Shimbun. "Japan Concerned About Illegal Logging, Japan-Malaysia FTA Negotiations Forest Products for a Subcommittee." July 23, 2004.

To verify that sawmills and plywood mills use legal logs exclusively, state officers in Peninsula Malaysia make unannounced visits to manufacturing plants to confirm that all logs have plastic tags. Timber trucks can also be stopped on highways for verification of the logs' origin. A similar tracking system was put in place in Sarawak in 2001, although the logs can only be traced back to a specific stand, not to an individual tree. The Forest Research Institute Malaysia (FRIM) is actively exploring the possibility of tracking logs through DNA analysis. If successful, this could also be a very useful tool for an improved Chain-of-Custody scheme currently being discussed in Malaysia.

Malaysia has a timber certification scheme operated by an independent organization called the Malaysia Timber Certification Council (MTCC). The Council is governed by a Board of Trustees with representatives from the forest industry, government agencies, NGO's and academic institutions.

The MTCC program began in 2001 and the first shipment of MTCC-certified wood was exported in July, 2002 to the Netherlands. Since then, MTCC-certified wood has been exported to other countries in Europe including Belgium, Germany, the United Kingdom and France. The Ministry of Environment in Denmark has included the MTCC scheme as one of the accepted certification schemes for purchasing tropical timber.

Initially, the standards used for MTCC were based on the 1998 ITTO's *Criteria and Indicators for Sustainable Management of Natural Tropical Forests*. These included economic, social, environmental and conservation aspects. In the next phase of the certification scheme, MTCC will use a new standard that is technically compatible with the principals and criteria listed by the Forest Stewardship Council (FSC). This change is expected to be adopted in early 2005. In addition to cooperation with FSC, the Malaysian organization is also having discussions with the Pan European Forest Certification Council (PEFC) on how to increase collaboration between the different schemes.

The MTCC issues two types of certificates, Certification for Forest Management (CFM) and Certificate for Chain-of-Custody (C-o-C). There are currently seven CFM's, which have been issued covering 4.11 million hectares of the Permanent Forest Estate. The Certificate for C-o-C has been issued to 45 timber products manufacturers or exporters. These companies have been given the permits to use the MTCC logo to provide assurances of sustainability and legal sources of forest products to buyers of Malaysian forest products. These companies are subject to regular visits by independent assessors to confirm their continued compliance with the standards of the scheme. Products which have received the certification can use the official MTCC logo and have the following statement attached to the product: "The wood in this product comes from forests independently certified according to the rules of the Malaysian Timber Certification Council."

Over 90% of the timber produced in Peninsular Malaysia is certified by the MTCC system with very effective tracking and labeling, although the volume of exported MTCC-certified products has been small. As of April, 2004, only 12,412 m<sup>3</sup> of MTCC-certified wood products had been exported to Germany, the Netherlands, the United Kingdom, Belgium, France

and Australia. In addition to forestland certified by the MTCC, Malaysia also has 77,242 hectares certified by the Forest Stewardship Council (FSC).

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## West/Central Africa

### *Overview/Observations*

- Poverty and armed conflict are the two main drivers of illegal logging in West/Central Africa.
- Historically, Europe was the main market for African timber, but in recent years China has become a major buyer.
- Ghana has instituted a total ban on log exports and the United Nations imposed sanctions on Liberia in July, 2003 that were intended to prevent timber revenues from being used to finance armed conflict. In both cases, NGOs have claimed that these policies have not been strictly enforced or effective.

### *Background/Introduction*

As in a number of other tropical forest regions, severe problems with illegal logging have been identified in Central and West Africa. For the purposes of this profile, West/Central Africa comprises the following countries: Benin, Cameroon, Central African Republic, Congo (Brazzaville), Dem. Rep. of the Congo, Cote d'Ivoire, Equatorial Guinea, Gabon, Ghana, Liberia, Nigeria, and Togo.

In addition to the usual problems with inadequate or legislation, poor governance, corruption, etc., the situation in Africa is compounded because of "conflict timber." Conflict timber is defined by Global Witness as "*timber that has been traded at some point in the chain of custody by armed groups, be they rebel factions or regular soldiers, or by a civilian administration, or its representatives, involved in armed conflict, either to perpetuate conflict or take advantage of conflict situations for personal gain.*"<sup>55</sup> ARD further defines conflict timber as either "Type I" – where conflict is financed or sustained through the harvest and sale of timber – or "Type II" – where conflict emerges as a result of competition over timber or other forest resources.<sup>56</sup> The problem of conflict timber usually accompanies severe political instability and civil war. The situation in Liberia became so chaotic in 2003 that the United Nations imposed sanctions that included a prohibition against trade of Liberian wood products that was being used to finance warring parties. Conflict timber has also been identified as a problem in other African countries including the Democratic Republic of the Congo and Cote d'Ivoire.

The west/central African region includes 261 million hectares of forest, according to the latest Forest Resource Assessment by the FAO. The 'Congo Basin' countries of Cameroon, Central African Republic, Congo, Dem. Republic of the Congo, Equatorial Guinea and Gabon

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<sup>55</sup> "Forests: Introduction and Campaign Aim", Global Witness web-site, <http://www.globalwitness.org/campaigns/forests/>

<sup>56</sup> ARD, "Conflict Timber: Dimensions of the Problem in Asia and Africa", submitted to US AID, under the Biodiversity and Sustainable Forestry (BIOFOR) IQC, Contract No. LAG-I-00-99-00013-00, Task order 09.

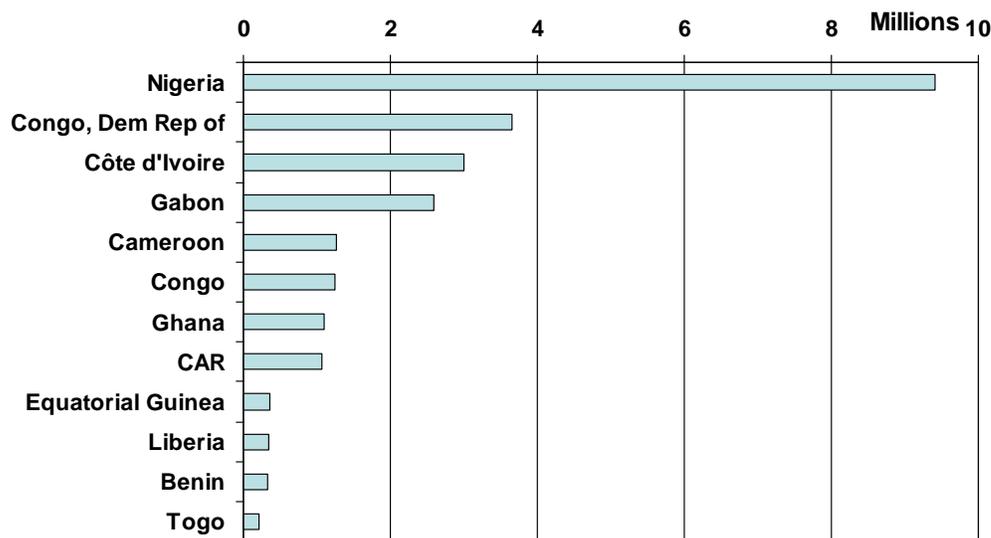
represent 87% of the total. The Dem. Republic of the Congo contains over 135 million hectares or 52% of the region's total.

**Table 28:** Forest Cover in West/Central Africa  
(million hectares)

Country	Forest Area (000 ha)	%
Dem. Rep. Of the Congo	135,207	51.8%
Cameroon	23,858	9.1%
Central African Republic	22,907	8.8%
Congo	22,060	8.4%
Gabon	21,826	8.4%
Nigeria	13,517	5.2%
Cote d'Ivoire	7,117	2.7%
Ghana	6,335	2.4%
Liberia	3,481	1.3%
Benin	2,650	1.0%
Equatorial Guinea	1,752	0.7%
Togo	510	0.2%
<b>West/Central Africa Total</b>	<b>261,220</b>	<b>100.0%</b>

Source: FAO Forest Resources Assessment 2000

According to FAO data, the production of industrial roundwood in West/Central Africa has been remarkably stable, at or near 25 million m<sup>3</sup> since 1995, peaking at 26.5 million m<sup>3</sup> in 1997, before dropping back to 25 million m<sup>3</sup> in 2002. We note that FAO is dependent on harvest data as reported by the various governments, and these figures may not reflect some illegally harvested roundwood. FAO reported that in 2002, Nigeria had the highest level of harvest in the region, accounting for 38% of the total. The next largest reported harvest was in the Democratic Republic of the Congo, which accounted for 15% of the total, followed by Cote d'Ivoire with 12%. Statistics for 2003 are going to show a marked decline in West/Central African production as both Cote d'Ivoire and Liberia production fell significantly.

**Figure 18:** West/Central Africa Industrial Roundwood Production, 2002

Source: FAO

### Roundwood Trade

The majority of the timber harvest in West/Central Africa is consumed within the domestic market. FAO reported 2002 log exports in West/Central Africa were 5 million m<sup>3</sup>, 20% of the 25 million m<sup>3</sup> harvested in that year. Exports of hardwood logs from West/Central Africa increased from around 4.0 million m<sup>3</sup> in 1990 – 1995 to a peak of close to 6.0 million m<sup>3</sup> in 1997, according to FAO data. Log exports declined to around 5.0 million m<sup>3</sup> in 2002. Of the total exported, 50% of the volume was from Gabon and 20% from Liberia. Exports from Liberia dropped significantly in 2003 after U.N. sanctions were imposed and should have been close to zero in 2004.<sup>57</sup> Some volume of illegal timber continues to be smuggled out of Liberia, according to some NGOs. Although the forest area in the Congo-Brazzaville is only about 15% of the forest area in Democratic Republic of Congo, the former country accounted for 11% of log exports from the region in 2002 while the larger country exported only a negligible amount. Equatorial Guinea, another country with only a relatively small forest area, was the only other major log exporter from the region, accounting for 10% of the volume in 2002 (**Figure 19**). Officially, Ghana has had a ban on unprocessed log exports since 1995.

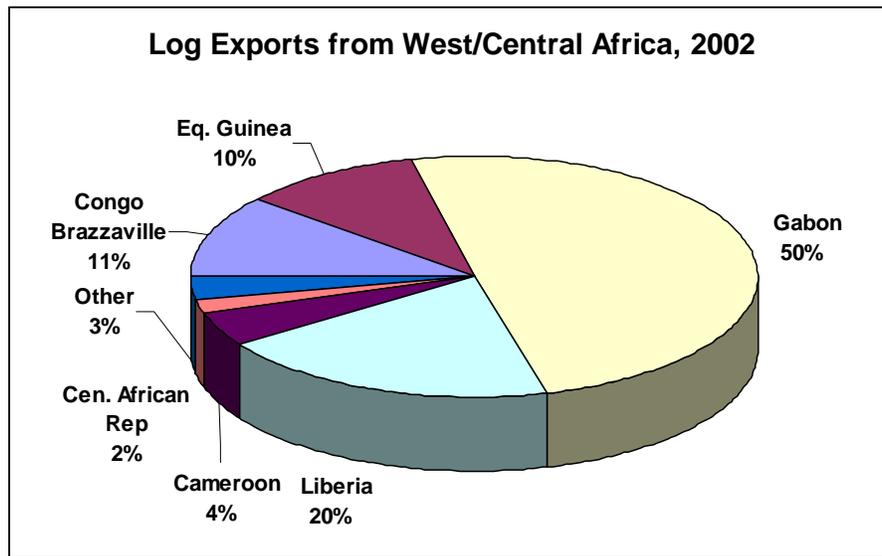
The two main markets for West/Central African logs are Europe and China. Historically, log exports from West/Central Africa went primarily to Europe, but the trade has shifted during the past five years. GTIS reported data for imports shows that China accounted for 42% of GTIS partner country imports of West/Central African hardwood logs in 2003 and the EU-15

<sup>57</sup> According to FAO data, Liberia exported 1.0 million m<sup>3</sup> of logs in 2002 while producing just 337,000 m<sup>3</sup>. Normally one would simply attribute this to an error in data reporting, although this might also be attributed to massive illegal logging to fund arms purchases. China imported 365,000 m<sup>3</sup> of logs from Liberia in the first half of 2003, but in the second half of the year, exports plunged to just 30,000 m<sup>3</sup>, and through the first half of 2004 China had imported no logs from Liberia.

accounted for 34%. About 11% of the 2003 EU-15 hardwood log imports originated in west/central African countries. Turkey is also a significant destination for West/Central African logs.

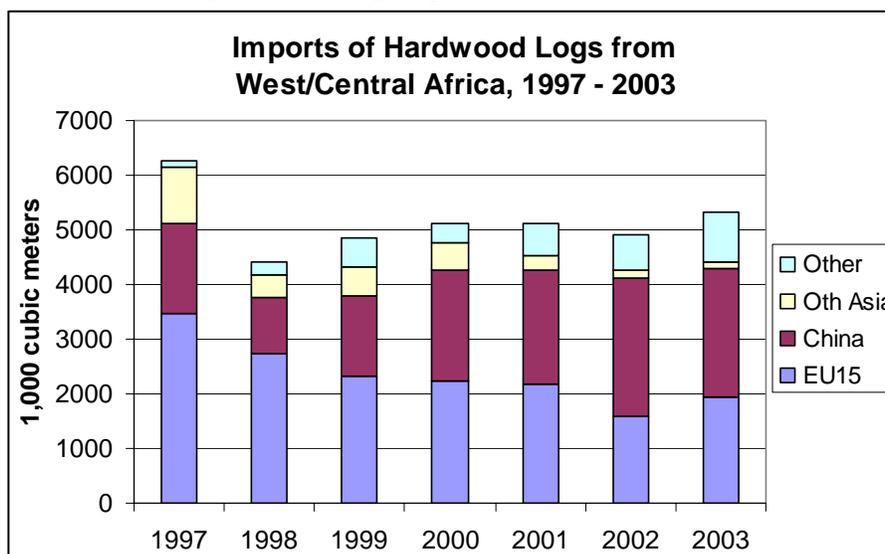
As previously noted, Gabon is the major supplier of hardwood log exports from this region. Gabon supplied 46% of 2003 EU-15 imports of West/Central African logs, and 40% of China’s imports from this region. Cameroon was an important supplier of logs for the EU-15, but not for China, while the reverse was true for Equatorial Guinea.

**Figure 19:** Log Exports from West/Central Africa, 2002



Source: FAO

**Figure 20:** Log Imports from West/Central Africa



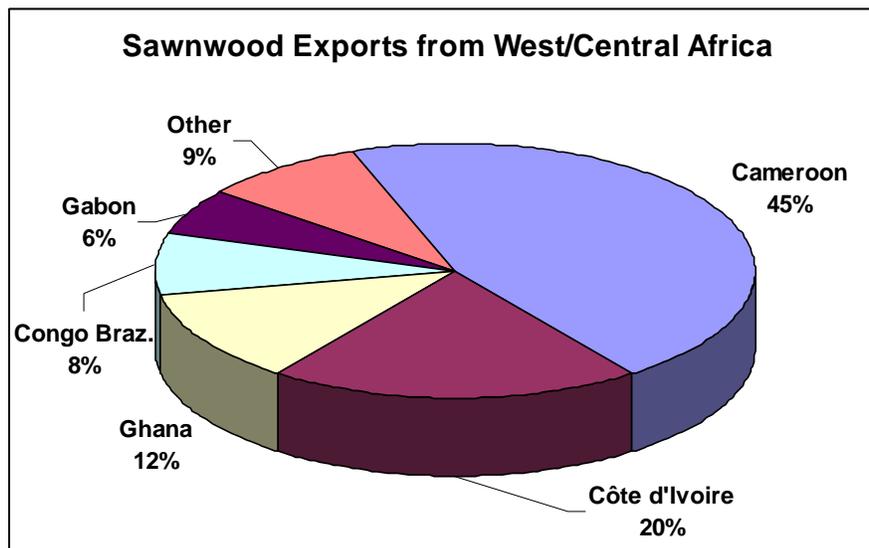
Source: GTIS

In 2004, Chinese imports of tropical hardwood logs from West/Central Africa plunged by more than 47% during the first half of the year. Most notably, no logs were imported from Liberia in 2004, but imports from the other supplying countries declined by more than 25% also. In contrast, imports in the EU-15 from this region have not changed significantly.

### *Sawnwood Exports*

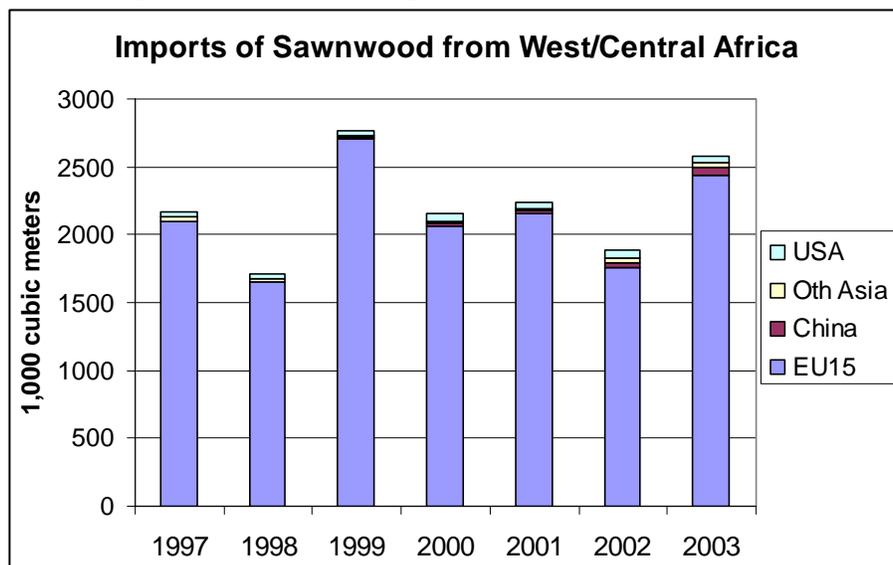
While exports of logs from West/Central Africa increased from 4.0 million m<sup>3</sup> in 1990 to 5.0 million in 2002, exports of sawnwood from the region increased proportionately more, from 1.1 million m<sup>3</sup> to 1.7 million m<sup>3</sup>, or 54%. Cameroon was the major source of sawnwood exports from the region, accounting for 45% of the total exports in 2002. Côte d'Ivoire was the second largest source of sawnwood exports, at 20% of the total, followed by Ghana (12%), Congo-Brazzaville (8%) and Gabon (6%).

**Figure 21:** Lumber Exports from West/Central Africa



Source: FAO

GTIS data indicate that the EU-15 is by far the dominant market for sawnwood exports from West/Central Africa, accounting for nearly 90% of the total. Indeed, no other country or region is a significant market, as shown in the chart below.

**Figure 22:** Lumber Imports from West/Central Africa

Source: GTIS

### Other Products

While logs and lumber accounted for roughly 85% of the value of wood product exports from West/Central Africa in 2002, the region produces and exports some veneer and plywood. Veneer exports were US\$ 195 million from this region in 2002 (11%), and plywood exports were US\$ 67 million (4%). The EU is the major market for both veneer and plywood exports, although the U.S. is also an important market for these products from West/Central Africa. China imports only a very small volume (around US\$2 million) of veneer from Africa, and virtually no plywood.

**Table 29:** Value of Wood Product Exports from West/Central Africa, 2002  
(\$ million)

	Logs	Lumber	Veneer	Plywood	Total
Central	587.7	369.4	84.7	36.5	1078.3
West	310.6	197.0	110.0	30.7	648.3
Total	898.3	566.4	194.7	67.2	1726.6
<b>Percent</b>	<b>52%</b>	<b>33%</b>	<b>11%</b>	<b>4%</b>	<b>100%</b>

Source: FAO

More than 80% of veneer exports from this region in 2002, by value, were supplied in roughly equal measure by Ghana, Côte d'Ivoire, and Gabon. Almost all of the plywood exports were supplied by Ghana, Gabon, Côte d'Ivoire, and Cameroon.

### Competition with U.S. Wood Product Exporters

For U.S. wood product exporters, competition with African suppliers is primarily in Western Europe and to a lesser extent China. Most of the competition would be in markets for hardwood lumber, veneer, and plywood. There is relatively little cross-over with softwood

markets, with the possible exception of some plywood used for concrete form. As mentioned in the section on China, some of the African wood imports (primarily okoume logs) are used to produce products for export, for example plywood for export to Japan and other markets. These re-exported products, produced with African wood, may also compete with U.S. plywood exporters in various markets.

### ***Illegal Logging***

The most important West/Central African countries, in terms of their impact on U.S. exporters in the international markets, are Gabon and Cameroon for almost all products discussed above. In addition, Ghana and Côte d'Ivoire are relatively important sources of hardwood lumber, veneer, and plywood for international markets. Finally, Equatorial Guinea is a relatively important source of logs for China. Of these countries, Gabon, Cameroon, Equatorial Guinea and Ghana are frequently the focus of groups concerned about illegal logging.

Although it is difficult to verify their estimates, groups such as WWF, Friends of the Earth, and Global Forest Watch all cite similar statistics on illegal logging in these four countries: Cameroon (50%)<sup>58</sup>, Equatorial Guinea (50%), Ghana (60%) and Gabon (70%)<sup>59</sup>. We note that most of these estimates appear to be based on studies done in the 1990s, and, as in other parts of the world, percentage figures are repeated from report to report without any new supporting evidence. For example, the estimate of 70% illegal logging in Gabon appears to have been developed by Friends of the Earth, based on a study published in 2000 by Global Forest Watch. In that study, GFW mentioned that only 5 concession holders out of 200 had started to write a forest management plan, as required by law. The GFW report also stated that the largest 5 concession holders controlled 30% of the concession *area*. FOE apparently took those two separate facts, and deduced that 30% of the timber harvest *volume* was legal, and therefore 70% must be illegal.

Another clear example of how some estimates get distorted is the FERN report on Cameroon, which states “The World Resource Institute reports that illegal logging in Cameroon accounts for 50% of all timber harvesting.”<sup>60</sup> As reference, the FERN report cites a 2000 report by Global Forest Watch.<sup>61</sup> However, nowhere in that GFW report does it say that “illegal logging in Cameroon accounts for 50% of all timber harvesting.” The closest that the GFW report comes to this is: “Over half of operating licenses in 1997-98 failed to comply with the new regulations.” And later, “More than half of existing licenses, which are to be phased out in favor of the new UFA concessions, operate in violation of the law.” That FERN should rely on a report written in 2000 which discussed problems with a concession licensing system in 1997/98 (which was to be

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<sup>58</sup> The source for this estimate on Cameroon is evidently Centre pour Environment et Development (CED), in their publication *Inside Cameroon*, quoted in FOE Briefing European League Table of Imports of Illegal Tropical Timber. Some other sources of support are cited in the paper by Toyne, et al., “The Timber Footprint of the G8 and China”, published by WWF International, 2002.

<sup>59</sup> Again, this estimate seems to come from the FOE Briefing Paper, this time citing the Global Forest Watch study “A First Look at Logging in Gabon”, by Global Forest Watch/World Resource Institute, 2000.

<sup>60</sup> FERN, “Cameroon: Illegal Logging Fact File”, October 2003,

[http://www.fern.org/pubs/media/Cameroon\\_factfile.pdf](http://www.fern.org/pubs/media/Cameroon_factfile.pdf)

<sup>61</sup> “An Overview of Logging in Cameroon”, Global Forest Watch, 2000,  
<http://www.globalforestwatch.org/common/cameroon/english/report.pdf>

phased out!) as proof that 50% of current logging in Cameroon is illegal, is hardly convincing evidence.

The World Bank estimates that in African countries, millions of dollars in revenue are being lost every year due to poor regulation of timber production – in Cameroon, losses are estimated at \$5.3 million; in Congo Brazzaville, \$4.2 million; in Gabon, \$10.1 million; and in Ghana, losses reportedly reach \$37.5 million per year. A number of reports discuss the problem without giving estimates on the volume of illegal logging.<sup>62</sup> For purposes of analysis, we have elected to use an estimate of 30% of West/Central African production as being illegal. Based on our review, this would seem to represent the order of magnitude of West/Central African production that currently would be illegal in the context of international significance described at the beginning of the report. However, we note that, because of the degree of uncertainty surrounding data on timber production in this region, it is quite possible that the percentage of illegal logging could be higher than 30%.

Whatever the figure, there is a general consensus that the problems of lack of governance, corruption, civil disorder, etc. are so great that neither the industry nor the governments of these countries deny the problem. In fact, the countries appear to be quite willing to line up for foreign assistance to obtain help in gaining better control over their natural resources. At a Ministerial Planning meeting for AFLEG (see below) in Brazzaville in 2002, ministers from central African countries listed the following causes of illegal logging and forest activity in the region:

- Inadequate staff in the forest administration;
- Corruption of policy makers and staff;
- Slow administrative procedures;
- Weak penalties for forest crimes;
- Inadequate cooperation between stakeholders;
- Lack of transparency;
- Pressures exerted by multinational companies;
- Armed conflict; and
- Institutional instability<sup>63</sup>

Despite the almost overwhelming list of problems listed at the planning meeting, some progress does appear to be happening. In October 2003, 39 countries committed to a Ministerial Declaration and Actions targeted at combating illegal logging, associated illegal trade, and corruption in the forest sector at the Africa Forest Law Enforcement and Governance (AFLEG) conference held in Yaoundé, Cameroon. The ministers attending the meeting stated that problems associated with conflict timber<sup>64</sup> must be addressed and problems of illegal exploitation of forest resources and associated trade are the shared responsibility of producer and

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<sup>62</sup> World Bank/WWF Alliance. “Forest law assessment in selected African countries”, published by SGS Trade Assurance Services, Geneva, Switzerland, 30<sup>th</sup> October 2002.

<sup>63</sup> “Report of the Africa Forest Law Enforcement and Governance Ministerial Planning Meeting”, Sustainable Developments, published by IISD, Vol. 60, No. 2, June 2002

<sup>64</sup> Like “conflict diamonds”, “conflict timber” is timber sold or traded by political factions (and sometimes governments) to raise funds to buy arms to support a civil conflict.

consumer states.<sup>65</sup> The Ministers at AFLEG signed a Declaration, which among other points confirms:

- “Governmental commitment and will to eliminate illegal logging, associated illegal trade and corruption in the forest sector, including actions to monitor wildlife trade;
- The need for shared responsibility and cooperation between stakeholders to address these issues – this will include action and partnerships from producer and consumer governmental programs, donor programs, civil society, and the private sector; and
- Establishing a Program of Action to move these intentions forward.”<sup>66</sup>

Three of these countries with pervasive problems of illegal logging (Cameroon, Gabon, and Equatorial Guinea) are part of the Congo Basin Forest Partnership (CBFP). This group also includes the Democratic Republic of Congo and Congo-Brazzaville, as well as Canada, France, Germany, the U.S., the UK, South Africa, and Japan, and a host of NGOs. This project was launched in September 2002, and aims to promote economic development, reduce illegal logging, and preserve parks and wildlife. AF&PA is a part of this project, as are the Society of American Foresters, ITTO, and the World Bank. We understand that the primary effort to combat illegal logging in this region is taking place under the direction of AFLEG, the African Forest Law Enforcement Group mentioned above.<sup>67</sup>

Concerned over possible loss of markets in Europe due to consumer boycotts, a number of “more progressive” logging companies in Central Africa in March 2004 asked Global Forest Watch to serve as an independent monitor of logging operations in the region. GFW has partnered with the Inter-African Forest Industries Association (IFIA), the World Conservation Union (IUCN), and the World Wildlife Fund to develop a monitoring system that can independently document the industry's logging practices in Central Africa, and highlight the companies that are making the most significant strides toward sustainability.<sup>68</sup> Previously (2002) GFW had signed an agreement to develop a mapping and monitoring program for Cameroon.<sup>69</sup>

Other efforts have been made to ensure the legality of forest production in Africa. For example, IFIA, in cooperation with the other groups including IUCN, WWF and WRI/GFW, has

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<sup>65</sup> “A Summary Report of the Africa Forest Law Enforcement and Governance Ministerial Conference (AFLEG), in Sustainable Developments, published by IISD, Vol. 60, No. 7, 19 October 2003.

<sup>66</sup><http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20138130~menuPK:34457~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

<sup>67</sup> Congo Basin Forest Partnership Update, Forest Certification Watch 2004, March 28, 2004.

<sup>68</sup> Curtis Runyan, “Timber Companies Agree to Oversight in Africa”, GFW Press release March 2004 <http://www.globalforestwatch.org/english/about/pressreleases/200403.africa.workshop.htm>

<sup>69</sup> “WRI, Cameroon Ink Pact to Monitor Forests, Curb Illegal Logging”, June 6, 2002

developed a voluntary and independently monitored “Code of Conduct” for the sustainable management of African forest concessions. This code is intended to serve as a certificate of legality and engagement towards sustainable forest management. Recently, at the October 2003 AFLEG meeting, WWF launched its Central and West African Producers Group. The WWF has been pushing to develop sources of certified forest products for international markets, under the FSC criteria. Progress to date in Africa has been slow, as might be expected given the huge economic, social and political problems in the region.

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## Russia

### *Overview/Observations*

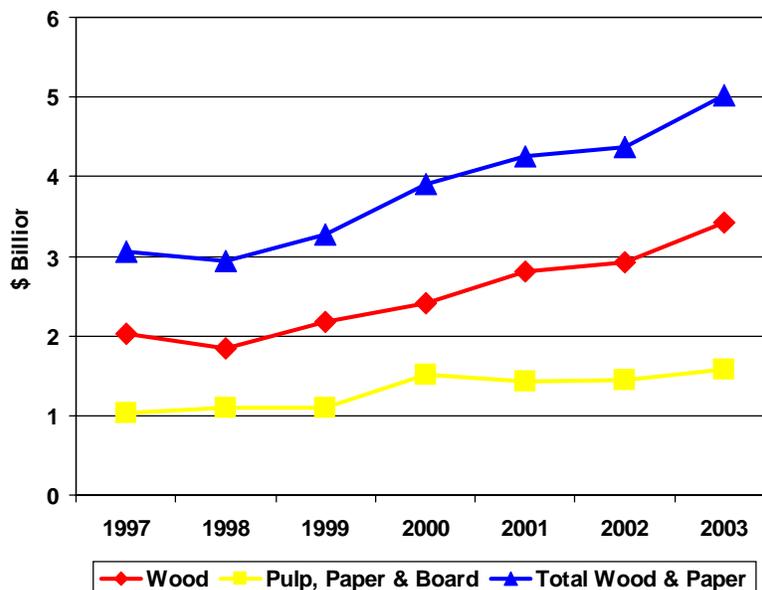
- Russia has a vast forest resource that is almost all state-controlled. The regulatory framework is comprehensive, if not always enforced. Much of the Russian resource is uneconomic to harvest and the country contributes only a relatively small percentage of the world's wood products. Even so, a surge in log exports in recent years, to both Asian and European markets, has meant an increase in influence for Russian timber in international wood markets.
- While some in the Ministry responsible for overseeing Russia's timber harvest maintain that illegal logging represents less than 1% of total harvest, most other sources believe that between 20-30% of the harvest is illegal and this percentage may reach 50% in some parts of the country. Official estimates of large losses of revenue (>US\$1 billion per year) have spurred the central government to reform the Forest Code and to try to address this pervasive problem. Illegal logging only emerged in Russia in the 1990s, the result of the chaos and economic difficulties which accompanied the breakup of the Soviet system.
- We examined both published sources and made field visits to gain an understanding of the illegal logging problem in Eastern Russia. Our best estimate is that 15-20% of the harvest in Russia may be "illegal", but with a higher percentage in log exports (estimated to average 25%). At least in some regions, the government has taken concrete steps in the past several years to try to reduce the problem of illegal logging, and in particular the European market has been pushing for forest certification and better controls. However other markets, notably China, seem much less concerned about the problem.
- We believe the exact volume of Russian log exports is understated because, in some cases, exporters under-report to avoid paying export taxes, product is shipped through remote border points and the way trade data are compiled by the central government likely leads to some discrepancies.
- Russian softwood logs go primarily to China (44% of the total volume) where Russia has become the dominant supplier, and to a lesser extent to Finland (19%) and Japan (17%). Hardwood log exports are approximately one-third of the volume of softwood log exports, but in some cases are much higher value. Exports to Finland (66% of the total volume) include a large volume of pulpwood, but exports to China (19%) are mostly high value sawlogs.

### *Background/Forest Resource Situation*

Russia has an estimated 20% of the world's forest area and 25% of the standing stock of timber. Its proportion of the world's softwood forests is even higher, as Russia's forests are primarily softwood. The Russian Forestry Journal reports that annual total forest growth is 359 million m<sup>3</sup> in European Russia, and 611 million m<sup>3</sup> in Eastern Russia. However, current timber

harvests remain far below this projected growth level, and Russia only contributes an estimated 2 - 4% of the world's wood products.

**Figure 23:** Russia's Exports of Wood and Paper Products, 1997 - 2003



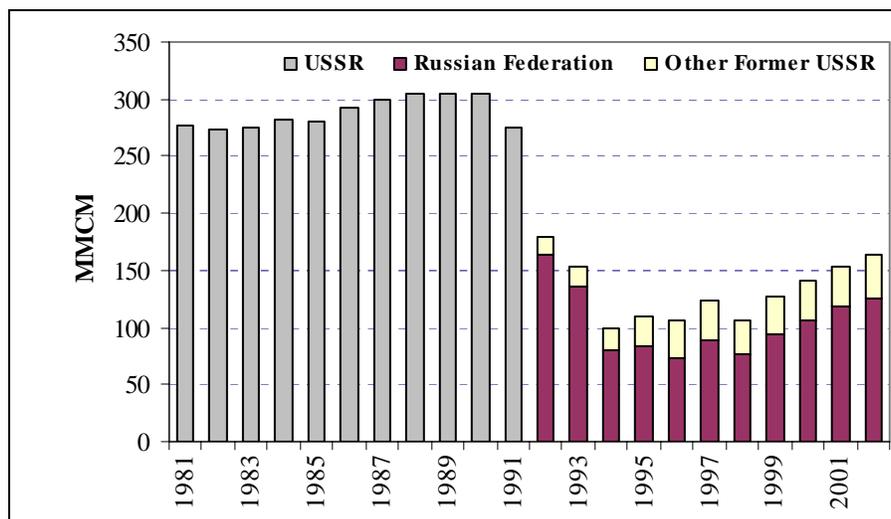
Source: GTIS

During the 1980s the official total timber harvest in the Soviet Union (mostly in what is now Russia) averaged close to 300 million m<sup>3</sup> per year. The collapse of the Russian economy during the 1990s severely impacted the forestry sector, and timber harvest and wood product manufacturing dropped sharply. The following chart (*Figure 24*) shows timber harvest data<sup>70</sup> from the FAO for the USSR (1981-1991) and then shows the harvest for 1992-2002 split between the Russian Federation and the “Other Former USSR” countries. There are several key points to understand behind this chart. First, statistics produced under the Soviet regime are suspect, due to the problem, often encountered in China and in other state-run economies, whereby the “planned” volume inevitably becomes the “achieved” volume. As there was little incentive in the Soviet days for illegal logging (at least, private profits were not supposed to be an incentive, so it is unlikely that actual harvest exceeded the recorded harvest), we believe that the USSR-era data were most likely overstated.<sup>71</sup>

<sup>70</sup> In this case, the data is Production of Industrial Roundwood, so does not include fuelwood.

<sup>71</sup> Anatoly Kotlobay, a WWF Russia analyst discussed later in this section, has spent many years studying Russian forestry data, and he concurs that the often reported figure of “more than 300 million m<sup>3</sup>” of timber harvest in the USSR was likely overstated by a considerable degree.

**Figure 24:** Russia and Other Former USSR: Timber Harvest 1981 – 2002  
(million m<sup>3</sup>)



Source: FAO

After the break-up of the USSR, there was a distinct drop in timber harvesting that has been reported in the market. However, the harvest of 300 million m<sup>3</sup> shown above in 1990 was not for Russia, but for the entire USSR. As this included harvest from all the Soviet Republics, such as Belarus, Ukraine, etc., the harvest for Russia itself was of course somewhat lower than 300 million m<sup>3</sup>, and hence the decline in the 1990s was not as great as indicated in some reports.

In addition, it is very difficult to reconcile statistics on timber harvest in the Russian Federation. For example, the State Statistics Committee reports that harvest in 2002 was only 91 million m<sup>3</sup>, while the Ministry of Natural Resources reported a harvest of 165 million m<sup>3</sup>.<sup>72</sup> Burdin (2004) illustrates the huge differences in reported harvest for some regions in Russia between these two data sources (see following table – *Table 30*).

**Table 30:** Comparison of Statistics on Timber Harvest in Russia, Select Regions, 2002

Region	SSC (000 m <sup>3</sup> )	MNR (000 m <sup>3</sup> )	Difference (000 m <sup>3</sup> )	% Difference
Karelia	5,642	6,871	1,229	22%
Leningrad	4,007	7,399	3,392	85%
Pskov	791	1,530	739	93%
Moscow	379	2,145	1,766	466%
Krasnodar	218	662	444	204%
Amur	1,309	1,872	563	43%
Primorsky	2,485	3,515	1,030	41%
Irkutsk	14,341	20,461	6,120	43%
Chita	593	1,675	1,082	182%

Source: Burdin, N.A. (2004)

<sup>72</sup> USDA FAS GAIN Report #

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### ***Forest Policy and Legal Framework***

The primary legislation governing management of forests in Russia is the Forest Code of the Russian Federation (January 1997). We understand that this legislation replaced a Forest Code established in the early 1990s, and in 2004 the details of a new Forest Code were being finalized.

Under the current Forest Code (1997), all forest land in Russia is owned by the State. This may change under the new Forest Code being debated this year, although the exact mechanism on how (or if) some forest land may be transferred to the private sector has not been specified. Prior to May 2000, forests in Russia were under the control of the Russian Federal Forest Service (Rosleskhoz). Decree 867 (signed by President Putin May 17, 2000) abolished the Federal Forest Service, and placed forest management under the Ministry of Natural Resources.

Most forests in Russia (95.8%) are controlled by the Ministry of Natural Resources, another 3.6% by the Ministry of Agriculture and Provisions, and the remainder by the Ministry of Education, the Ministry of Defense, or municipal governments. Forests are directly managed by state forest management units (called *leskhoz*s), which are supervised by regional committees under the Ministry of Natural Resources. Forests can be leased by companies or private persons for periods ranging from 3 to 49 years. Of the total 1,129.4 million hectares of Russian forest, 80.9 million hectares were leased as of January 1, 2001.

Under the current Forest Code (1997), there are basically four methods of acquiring timber:

- A company negotiates a timber lease with the local *leskhoz* and state authorities.
- A timber lease is sold through a competitive process, where companies submit proposals and the winner is determined by both financial and other criteria (e.g., the bidder promises to build a mill).
- Timber is sold through competitive auction, with the winner determined strictly on the price bid for timber.
- Short-term leases (one year) can be granted to publicly funded organizations (such as schools, hospitals, etc.), nominally to supply the organization with timber for a specific project, or fuelwood.

The *leskhoz* sometimes also does sanitation cuttings itself, or can contract these out on a short term basis.

Normally a leaseholder must submit a forest management plan for the entire lease area, including planned layout of roads, year of planned harvest for each block, etc. This plan is submitted to the Ministry of Natural Resources, which checks the plan for “ecological expertise,” in accordance with the existing forest inventory, specific regional rules, etc. For each stand, the local *leskhoz* issues a logging permit which is good for one year. A Forest Officer from the *leskhoz* is supposed to go out and inspect the unit, sometimes marking unit boundaries, and sometimes marking individual trees to be felled. This permit lists the total volume and species to

be cut (based on the forest inventory), and the percentage of each in small, medium, and large diameter logs, as well as the volume of industrial wood vs. fuelwood.

There are numerous and precise regulations governing logging in Russia. For example, logging is greatly restricted on slopes exceeding 20 degrees, and is strictly forbidden on slopes greater than 30 degrees. The size of clearcuts is limited to 50 hectares, and in areas with selective logging the volume of wood which may be harvested from each stand is regulated by the local forest service. Certain species are prohibited from cutting, and in others (such as Korean pine – *Pinus koriansis*) harvest is limited to secondary or salvage operations. By law companies are to maintain a copy of the logging permit on site, and trucks must have special transport permits when hauling logs.

### ***Illegal Logging in Russia***

While forest regulation appears quite structured in comparison with many countries, illegal logging has become a serious problem in Russia, as the following sections describe. Part of the cause for this has been the relatively chaotic situation which followed the break-up of the Soviet Union. This change from a state-run economy to a market economy required an entirely new system of management and control, but unfortunately the Federal Forest Service was more or less thrown into this new situation without time to develop systems and procedures to regulate the newly privatized forest sector. In addition, the shift from state-owned to private companies in much of Russia led to sudden and wide-spread unemployment. In much of the forest areas of Russia, there were few or no other employment opportunities for loggers and mill workers who suddenly found themselves without the means of earning a living.

The combination of an immature forest regulatory system, combined with widespread unemployment has created the conditions for corruption and illegal logging to develop in Russia. When these conditions were matched by a sudden surge in demand for logs from China, the situation quickly spiraled out of control. While it appears that the Government of Russia is quite serious about addressing this problem, and a number of steps have been taken to reform the system, change is unlikely to occur quickly. It took more than a decade for illegal logging to reach its peak in the late 1990s and early 2000s, and it will likely take a few years to improve the situation.

### ***WWF Assessment of Illegal Logging in Russia***

The NGO, Worldwide Fund for Nature (WWF- formerly known as the World Wildlife Fund), has an active chapter in Russia, and the forest division headed by Anatoly Kotlobay has made detailed assessments of timber supply and demand in various regions as a way of estimating the degree of illegal logging. Kotlobay does not label the discrepancy between harvest data and consumption data as necessarily “illegal”, but prefers to call the surplus of wood consumed over the reported timber harvest “wood of unknown origin.” This is akin to what we are describing in many parts of this report as wood of legally suspicious origin.

Typically, WWF Russian analyses estimate the volume of industrial roundwood supply based on harvest figures from the regional Forestry Departments. “Harvest” in these statistics is

reportedly all timber cutting, based on the forest inventory of the areas scheduled for logging. Leaseholders are authorized to harvest a certain volume of wood every year, based on the inventoried volumes in the stands to be harvested. If actual harvest exceeds the inventory volume by more than 10%, the leaseholder is required to report this difference to the Forestry Department, and to pay stumpage on this volume. If actual harvest is less than the inventoried volume, the stumpage payment remains the same. The volume reported as harvested, then, is the volume of wood showing in the pre-harvest inventories of all the stands harvested that year.

In the Soviet system, an intensive and detailed forest inventory throughout the country was updated on a regular basis. Unfortunately, since the breakup of the Soviet Union, it has been difficult for the local leskhozoes to obtain funding necessary to update the inventory, and we were told that in some areas the inventory is now becoming quite outdated. This is likely yet another problem in trying to rationalize the reported harvest data with the timber supply actually produced in the field.

### ***Examples of WWF Calculations on “Wood of Unknown Origin”***

Because we visited the Primorsky Krai with Mr. Kotlobay, we summarize below his analysis of timber supply and demand in that region. This same type of analysis has been performed on a number of different regions in Russia.

Obtaining official timber harvest data from the Regional State Forest Service is the first step. This figure reports all the volume listed in the forest inventory for the sites logged, not the volume of timber actually removed from the woods. Because not all of the wood harvested is of industrial quality, and because typically not all of the logs are removed from the woods, the assumption in this region is that approximately 58% of the “harvest” volume is actually industrial roundwood sold to mills or to export. For Primorsky this amounted to just over 2.0 million m<sup>3</sup> in 2002. In addition, 140,000 m<sup>3</sup> was imported from other regions.<sup>73</sup> The total industrial roundwood supply for Primorsky is calculated at 2.16 million m<sup>3</sup>.

The total amount of finished products produced in Primorsky is quite small: 164,000 m<sup>3</sup> of sawnwood, 21,000 tonnes of cardboard, 5,200 m<sup>3</sup> of particleboard, and 42,000 tonnes of woodchips for export. In **Table 31** below, Kotlobay estimates the volume of industrial roundwood required to produce the sawnwood and other products and log exports in Primorsky. The notes below the table explain Kotlobay’s assumptions.

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<sup>73</sup> This does not include the very large volume of logs produced in Kharbarovsk, for example, and then shipped by rail through Primorsky to China.

**Table 31:** Allocation of Industrial Roundwood in Primorsky Krai

Item	Reported Statistics (000 m <sup>3</sup> )	Recalculation into industrial roundwood (000 m <sup>3</sup> )
<b>Supply sources</b>		
Total annual harvest (including fuel wood)	3,464.4	2,016.3
Importation from the neighboring regions	140.4	140.4
Total income		<b>2,156.7</b>
<b>Total Supply</b>		
Production of sawn wood	163.8	262.1
Production of cardboard (thousand tons)	21.1	0.0
Production of particle boards	5.2	0.0
Production of wooden chips	40.9	40.9
Exportation to the neighboring regions	3.9	3.9
Export	3,905.9	3,905.9
Total outcome		<b>4,212.5</b>
<b>Balance</b>		<b>(2,055.8)</b>

## Notes to the calculation:

1. Average output of industrial wood (sawn & pulp logs excluding fuel wood) from total harvest (including fuel wood) is 58% in accordance with the data of Regional State Forest Service.
2. Importation and exportation of wood between neighboring regions are given in accordance of the data of railway transportation database.
3. Productions of sawn wood, particle boards, cardboard and wooden chips are given in accordance of the data of State Statistics Committee.
4. Export data are in accordance with M\_INFO database of customs declarations.
5. The coefficient 1.6 is used for the recalculation of sawn wood into sawn log volume because of the assumption that the bulk of the wood is not a high quality so the output of final product during a processing is about 60%.
6. The coefficient 0 is used for the recalculation of cardboard and particle boards into industrial wood volume because of the assumption that all of these products are produced from wood waste.

In this example, Kotlobay concludes that given these assumptions, some 2.06 million m<sup>3</sup> of industrial roundwood is unaccounted for, or “wood of unknown origin.” As nearly 93% of the calculated industrial roundwood demand of 4.2 million m<sup>3</sup> are log exports, there seems to be little room to dispute these data. We note that Kotlobay considers this volume a minimum volume, as very little is accounted for by the primary products produced. The total of “wood of unknown origin” could be as much as 2.4 million m<sup>3</sup>, in Kotlobay’s opinion.

During our site visit and interviews in Primorsky, we were told repeatedly that one of the biggest problems of illegal logging involves relatively high value hardwood logs. Because of this, we asked Kotlobay to analyze the supply/demand situation with hardwoods only. The following example (**Table 32**) is for 2003. The data on harvest were received from the Regional State Forest Service on June 23, 2004.

**Table 32:** Allocation of Industrial Hardwood Roundwood in Primorsky Krai, 2003

Type of harvest	Total Volume Harvested (000 m <sup>3</sup> )	Out of this industrial, (000 m <sup>3</sup> )
Main cutting	2,960.0	1,814.7
Intermediate cutting	815.4	385.3
Other cutting	174.2	No data
<b>Total</b>	<b>3,949.6</b>	-
Of this oak	345.6	No data
Of this ash	191.0	No data

The State Forest Service was unable to provide data on the harvest of industrial hardwood logs, only total “harvest.” From his own investigations (based on calculations of the data from real cutting tickets in some Primorsky and Khabarovsk leskhoses), Kotlobay insists that the maximum output of industrial hardwood logs out of total harvest is 40-45% for oak and is 60-65% for ash. The low level is primarily due to much of the tree being left in the woods, as only relatively high grade oak is desired for export, the dominant usage for this species. The output of sawn wood from sawn logs during processing is assumed to be about 50%, as most lumber is exported as green unfinished boards. Kotlobay makes the following calculations (**Table 33**) of the volume of oak needed to provide just the volume of logs and lumber exported from Primorsky in 2003:

**Table 33:** Calculation of Oak Industrial Roundwood Usage in Primorsky, 2003

	Volume Exported	Formula	Industrial Roundwood
Export Logs	190,000 m <sup>3</sup>	190,000 x 2.2	418,000 m <sup>3</sup>
Sawnwood	46,400 m <sup>3</sup>	46,400 x 2 x 2.2	204,200 m <sup>3</sup>
Total			622,200 m <sup>3</sup>

*Note:* assumes that 40% of oak “harvest” is extracted as industrial roundwood suitable for export logs or sawnwood; the factor(s) in the formula accounts for material felled but not removed.

The implied harvest is 622,000 m<sup>3</sup>, while the official reported harvest is only 346,000 m<sup>3</sup>. These calculations suggest that the real total harvest must be 1.8 times more than that officially reported by the State Forest Service.

As previously mentioned, Kotlobay has performed similar analyses on other regions of Russia. The percent of wood of “unknown origin,” relative to total consumption, varies considerably by region. In the following table (**Table 34**), we list some of the results from Kotlobay’s work, with the caution that some of these studies are still in draft form and the final results may change. For all of Russia, Kotlobay roughly estimates that perhaps 20-30% of the timber harvest is “unauthorized cutting”, or “wood of unknown origin”.

**Table 34:** WWF Estimation of Percent of Timber “Of Unknown Origin”  
(000 m<sup>3</sup>)

Region	Year	“Unknown Origin”	Total Consumption	Percent of “unknown origin”
Kharbarovsk	2002	7,083	13,243	53%
Irkutsk	2002	3,721	23,068	16%
Amur	2001	579	1,725	34%
Primorye	2001	2,056	4,212	49%
Vologda	2002	1,297	9,023	14%
Archangelsk *	2002	5,206	19,423	27%
Krasnoyarsk **	2002	533	7,281	7%

\* Subject to revision – not final and possibly over-stated

\*\* Low-end estimate, “Unknown Origin” volume could be as high as 1.1 million m<sup>3</sup> if pulp included

### ***Other Estimates of Illegal Logging in Russia***

Another WWF study in early 2003 focused on the Russian-Swedish wood trade, and did a similar analysis to that described above for Northwestern Russia.<sup>74</sup> That study indicated that in Northwestern Russia in 2001 total consumption of industrial roundwood was 43.2 million m<sup>3</sup>, but reported harvest was only 31.0 million m<sup>3</sup> and imports from other regions were 1.0 million m<sup>3</sup>, leaving a total of 11.2 million m<sup>3</sup> of wood of unknown origin (roughly 36%). Yet another WWF study found that perhaps 20% of the Russian wood being exported to Denmark could be illegally harvested.<sup>75</sup>

The USDA Foreign Agricultural Service reported in 2003<sup>76</sup> that the following factors contributed to illegal logging in Russia:

- General criminalization of certain sectors of the resource extraction economy
- Lack of proper enforcement by regulatory agencies
- Poor coordination efforts between the Natural Resources Ministry and law enforcement agencies
- Lack of reliable forestry documentation/registration.

Citing a study by the Audit Chamber of the Russian Federation, the FAS stated that illegal logging costs the Russian Government about \$5.5 billion rubles (US\$1.8 billion) annually. This report also estimated that one-third of the wood and wood products being sold to Japan and

<sup>74</sup> Lopina, Olga; Ptichnikov, Andrei; and Alexander Voropayev, “Illegal Logging in Northwestern Russia and Export of Russian Forest Products to Sweden”, WWF Russia, January 2003.

<sup>75</sup> “Twenty per cent of timber reaching Denmark from Russia could be illegal”, Dec 21, 2003. [http://www.panda.org/news\\_facts/newsroom/other\\_news/news.cfm?uNewsID=10245](http://www.panda.org/news_facts/newsroom/other_news/news.cfm?uNewsID=10245)

<sup>76</sup> GAIN Report RS3021, 9/23/2003

China is not reported to Customs. (Note: this figure seems too high, given our analysis of trade data between China and Japan --- see later in this section.)

Another news article report by Reuters states that “A state audit in 2002 showed the Russian budget was losing \$20 billion a year from the illegal logging trade.”<sup>77</sup> Greenpeace has produced a number of reports on the region, including “Survey of Illegal Forest Felling Activities in Russia (forms and methods of illegal cuttings)” by Alexey Morozov. - Greenpeace Russia, 2000.

Friends of the Earth Japan also produced a report in 2000, in collaboration with BROCC and the Pacific Environment Center, called “Plundering Russia's Far Eastern Taiga: Illegal Logging, Corruption, and Trade”. Among other charges, this report stated that the total harvest in Khabarovsk might be as much as three times greater than the 3.8 million m<sup>3</sup> officially reported. This report also cited unnamed “officials in the Primorsky Region Administration” as saying that in 1998 40-50% of the hardwood logs exported to China and Japan were logged illegally.

The UK-based group Forest Monitor has also been active in the region, working with Russian organizations such as BROCC (Bureau for Regional Outreach Campaigns) and Friends of Siberian Forests (FSF). On May 10, 2004, the group issued a press release discussing “new reports” which documented the continuing problem with illegal logging in the Russian Far East, and the economic losses that this was causing the country. However, like some previous work by this group, the press release was long on rhetoric and short on specifics or statistics. As of mid-July, the “new reports” were not yet posted on web-sites related to Forest Monitor or the Russian groups (at least, not in English).

Russia’s Institute for Economic Research estimates that at least 20% of the value of timber exported from the Russian Far East to China, Japan, and Korea is illegal.

In May 2004, the Russian consulting firm Lesprom Industry Consulting stated in a presentation to the All-Russian Timber Industry Forum that 30-50% of all the timber felled in Russia is illegal.<sup>78</sup> According to this firm, the cost of illegal logging in terms of lost revenue to the government of Russia is U\$30 billion (although we question if perhaps the firm was misquoted, and the 30 billion figure should have been in rubles).

Viktor Doroshenko, Director General of Primorsklesprom (the Krai’s largest timber exporter), has been quoted as saying that “...as much as 40-50% of Russian timber is sold to Pacific Rim countries under dumping prices and faked contracts.”<sup>79</sup>

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<sup>77</sup> “Russia forest law to raise income, greens critical”, Reuters, February 2, 2004, by Oliver Bullough.

<sup>78</sup> “30% to 50% of timber felled in Russia is illegal, industry consultant says”, Pravda, May 19, 2004.

<sup>79</sup> Contreras-Hermosilla (2001), page 2 and FOE (2000), citing as reference “Vladivostok News as reported in Russian Far East Update, February 1998.”

Dr. Andreas Ottitsch is currently directing a study for the European Forest Institute on the “Impact of reduction of illegal logging in European Russia on the EU and European Russia forest sector and trade.” The study is to be completed in December 2004.

A number of officials in the Russian government have been quoted as saying that “illegal logging” only amounts to about 1% of the total harvest. As discussed above, most NGOs use a figure of 20-30% illegal logging, as an average for the country. Part of the difference, of course, is the definition of illegal logging used. In Russia, some of the most common forms of illegal logging include:

- Authorized Logging Operations
  - Logging in excess of the volume permitted for a given area
  - Logging beyond the boundaries of the area authorized
  - Logging species which are restricted from cutting
  - Logging in violation of specified cutting type (e.g., clear-cutting in a shelterwood or “intermediate” cutting unit or logging commercial timber as “firewood” or salvage cutting)
- Unauthorized Logging Operations
  - Logging without permit
  - Logging with phony permits

### ***Improvements in Primorsky Krai***

Our site visit in Russia was intended only to gain some understanding of the process involved on the Russian side of the border, as a precursor to our case study on the China market. Despite the well documented problems with illegal logging in Russia (including this author’s own experience, see the sidebar “Poaching in Primorsky”), the government and the more responsible companies are apparently trying to take steps to improve the situation.

In our site visit we met with Pavel Korchagin, head of department for Primorye Region Administration, Forest Complex Department in Vladivostok. He reported that illegal logging is the most serious problem facing his department. This problem has developed over the past decade, the result of chaos following the breakup of the old Soviet system including the severe economic disruptions and the lack of clear regulatory policies for the emerging new system. His department had only been formed in late 2001, so he felt they were only now beginning to make progress on the issue. Steps that the Government of Primorsky have taken include:

1. Drastically reducing the number of short term timber leases. WWF and others have stressed that this has been a major problem in the region. In the past, numerous short term harvest permits were issued to the myriad of public organizations (schools, hospitals, etc.). Nominally this was just to provide the organization with fuelwood or small volumes of logs for specific construction projects. In practice, many of these organizations found that these provided effective fund-raising opportunities, as the permits could be sold to loggers who then harvested high value hardwoods and sold into the open market. We were told that today the government only allows these permits to be given to known logging companies which also have long-term leases, and these logging companies are supposed to supply the fuelwood or construction

- wood needed by the public agency. Any other timber harvested by the logging company counts against their annual allowable harvest.
2. For logging and transport, the Provincial Administration has increased the number of checkpoints and has developed a new transport permit, with embedded hologram, that is to be used in transporting the relatively high value hardwood. Mr. Korchagin showed us a new computer tracking system, and as an example pointed out where one trucker had illegally used the same permit twice. It is hoped that this new system will improve tracking and control of wood flows.
  3. Through a special order of the Governor of Primorsky, the number of log storage and loading yards has been greatly reduced. For example, in the town of Dalnerechensk, there had been 47 log storage and loading yards in 2002, but today there are only seven. There is a Customs office associated with each of the 28 official log storage yards in the Krai (these include those yards at ports such as Nahodka or Plastun), and logs can only be exported through these yards. These yards are operated by Russian companies, and in three cases there had been “problems”, so the Administration took away those operators’ licenses and gave them to another company. It is hoped that competition to maintain the license to operate these yards will help to reduce illegal activities.
  4. For hardwood logs, exporters must apply for an export permit, and must show the contract, bank registration, and source of origin. This system means tougher requirements than in the past, although we were later told by Customs that it is still relatively easy to obtain these permits.
  5. The Administration was “investigating” the numerous small, unofficial Chinese sawmills which have started up, and will reportedly close down any that have “safety or other violations.”

We also met with Sergei Kolobov, Executive Director of PALEX, the “Primorye’s Association of the Wood Industrialists and Exporters.” Since there is relatively little wood processing in Primorsky, this group consists primarily of companies exporting logs and represents what are likely the 26 largest companies in the business. Mr. Kolobov also told us that illegal logging “is a problem”, and in fact some of his members have hired private security teams to patrol their timber lease areas to reduce the problem. He believes that the problem is mostly connected with hardwoods, and almost all illegal activity is now associated (in his opinion) with the China log trade. He also told us that 12 of his members are “ready to start the certification process”, but since none of their customers are asking for certification, it is a slow process.

We met with Mr. Victor Kalinovsky, head of the State Forest Service, Ministry of Natural Resources, for Primorsky Krai. Mr. Kalinovsky pointed out that in Soviet times, there was no such thing as illegal logging. When the transition to a market economy occurred, his agency was totally unprepared to deal with this problem, and it has taken some time to “catch up.” (As in the U.S., it appears that loggers in Russia are also much quicker to adapt to changing conditions than government bureaucrats). He confirmed some of the new control measures mentioned by Mr. Korchagin, including the new permits for hardwood, and the database for logging permits and log transport tickets. Mr. Kalinovsky also pointed out that now Customs sends monthly summaries of log export data directly to the Forestry Administration, so they can

compare with volumes authorized for harvesting in various regions. There is a special Environmental Prosecutor Bureau now in Primorsky, to investigate and prosecute environmental crimes which would include illegal logging. Each month the Forest Service gives a detailed report to the Environmental Prosecutor, showing the number of violations, the trucks caught, volumes, species, etc. This is very detailed, and includes a written summary of the main violations. This has been in place, working fully, only since about the second half of 2003.

In addition, the State Forestry Service has 24 special teams, with 3 people each (2 inspectors and 1 police). These teams are mobile and supposed to focus on illegal logging. They are under the direction of the Vladivostok office, not the local offices or leskhoz. According to Mr. Kalinovsky, these groups have training, weapons, and good communications tools. They have also developed a network of informants so that they can catch poachers in the act, not just find the sites afterwards. With these informants, the number of cases where persons are caught in the act has increased from 30% to 70%.

### ***Illegal Wood Exports***

Russian log and lumber exports can be considered “illegal” either because the timber was illegally harvested, or because the wood becomes illegal through the export process.

One major loophole for exporters (at least in Primorsky) is the “Temporary Declarations” which must be filed with Customs when preparing logs for export. For bigger contracts that will have multiple shipments, each shipment can have a temporary declaration that only approximates the volume. At the end of each month exporters are supposed to file a final declaration that says exactly how much was shipped, but by that time the figure cannot really be checked. As Russian exporters pay a tax of 6.5% on log exports, there is an obvious incentive to under-report the volume exported.

Since most logs exported from Russia to China go via rail, it is not surprising that those involved with illegal activity have found various ways to “work the system.” In addition to the obvious strategy of trying to bribe customs officials to reduce the export taxes that must be paid, other methods are used. For example, some exporters in the Russian Far East have used rail cars with solid sides and ends, so that only the top third of the logs are visible. One tactic has been to put high value hardwood logs on the bottom of the car and cover them with lower value spruce or larch logs, with the export declaration only showing spruce or larch. This has evidently been such a large problem that the Governor of Primorsky Krai has issued a “strong recommendation” that only cars with open ends should be used for the log trade. In our visit to the Russia/China border crossings, we saw that both types of cars continue to be utilized.

According to information from WWF, in Irkutsk the Customs authorities have done a study and determined that exporters typically understate the volume of logs in a rail car by about 12%. Reportedly, as exporters learned how to load the cars more “efficiently”, they continued to report the same average volumes as before, so that Customs would not be aware of the problem. (Typically only a visual inspection is required for export.) This information was confirmed in part on the Chinese side of the border, in Manzhouli, where the logs are rescaled by Customs when they are transferred to the Chinese rail cars. Importers told us that they “always” had more

volume than had been reported on the Russian export documents, typically 3-4 cubic meters at least, in a rail car with 60-65 cubic meters of logs. This is less than 12%, but does indicate that some under-reporting likely occurs.

Data used to analyze Russia's total log and sawnwood exports are from two sources: GTIS and the M\_INFO database. The latter is a similar service to PIERS in North America and is particularly useful to examine trade between Russia and China. M\_INFO is a private service that compiles original information directly from each customs declaration. Anatoly Kotlobay, a Russian illegal logging expert, WWF uses this service to identify trends in log and lumber exports from Eastern Russia, because he believes it is much more accurate than Russian Customs data. Unfortunately, there are large differences between Russian Customs data as published and the M\_INFO database. For example, in 2003, for the period January – November, Russian Customs reported a total of 33.7 million m<sup>3</sup> of logs exported from Russia to all countries, while the M\_INFO database reported a total of 45.3 million m<sup>3</sup>. In comparing the two sources, Kotlobay determined that most of the discrepancies appeared to be in Eastern Russia. His explanation for the problem:

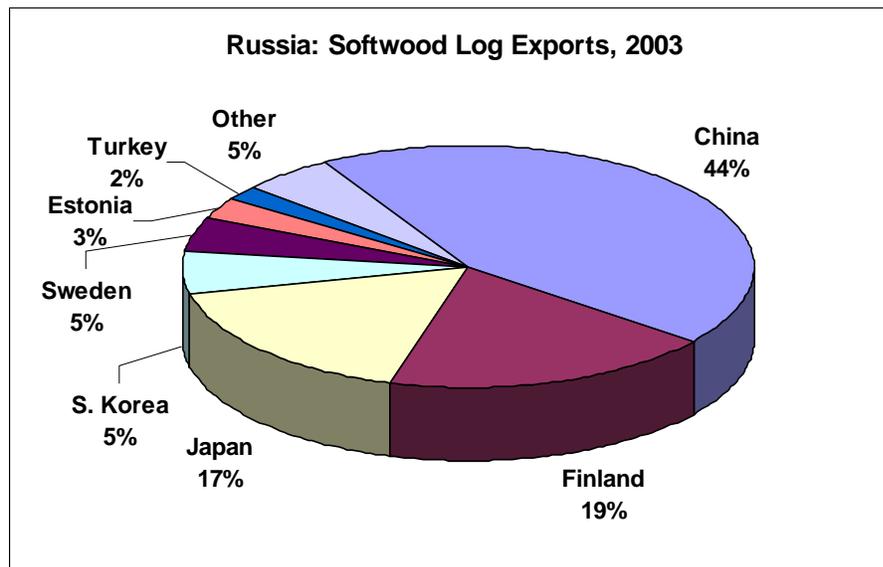
- The raw data from export declarations seems to be accurate, the problem is compiling this data in Moscow.
- The Customs Statistical Department, in spite of having a complete customs declaration database, actually receives partly processed statistical data on export from the regional branches. Quality (credibility) of this data depends on the accuracy of this primary data processing. Actually many regional branches, especially Far Eastern and Siberian, have a lack of human and financial resources for this job, non-proper software, etc. This is why the discrepancies in statistical data depend on the region. The reason is the accuracy of their procedures. Reportedly (source was from the Central Statistical Department) sometimes they receive data from regional branches even printed, not in electronic form ready for computer processing.
- The final statistical data, “processed” by this manner, are published monthly, quarterly and annually as printed issues and on the Customs Department's official website. Many domestic, foreign and international public organizations, including UN (FAO) and embassies, use these data since they prefer to refer to official sources.
- In interviews with many big exporting companies (both within and outside the timber industry), many of them don't trust the official Customs data. They prefer to get the complete database of customs declaration from such sources as M\_INFO and do their own analysis for business purposes.
- Finally, in a comparison between M\_INFO data on exports from Kharbarovsk and the data base from the Ministry of Transportation (railway data), the log volumes matched quite closely. This seems to be confirmation that the M\_INFO data is correct and not the official Russian Customs data.

The fact that the M\_INFO database indicates that log export volumes are perhaps 30% greater than reported by Russian Customs does NOT mean that these logs are necessarily illegal. The M\_INFO database contains only information from customs declaration forms, so this volume has in fact been declared by the exporting companies. The problem is in properly compiling the data in Moscow.

## Log Exports

China is by far the largest market for Russian softwood log exports, accounting for 44% of the volume exported in 2003. The other major markets included Finland (19%) and Japan (17%), with much lesser amounts going to South Korea (5%), Sweden (5%), Estonia (3%) and Turkey (2%). The volume to China increased very rapidly between 1997 and 2002, but the volume to other major markets has been relatively stable for the past 3-4 years.

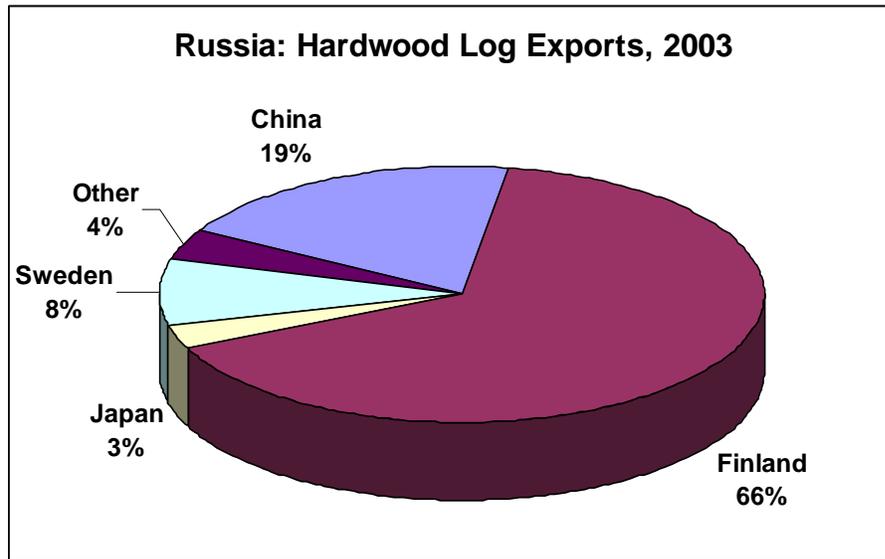
*Figure 25:* Russia Softwood Log Exports



Source: GTIS

Russia's exports of hardwood logs are primarily to Finland, which accounted for 66% of the total volume in 2003. Much of this is birch pulpwood, but a significant quantity of sawlogs are also shipped. China is the only other major market for hardwood logs, accounting for 19% of the total in 2003. Virtually all of this volume is sawlog quality, much of it high quality birch, oak, and ash.

**Figure 26:** Russia Hardwood Log Exports

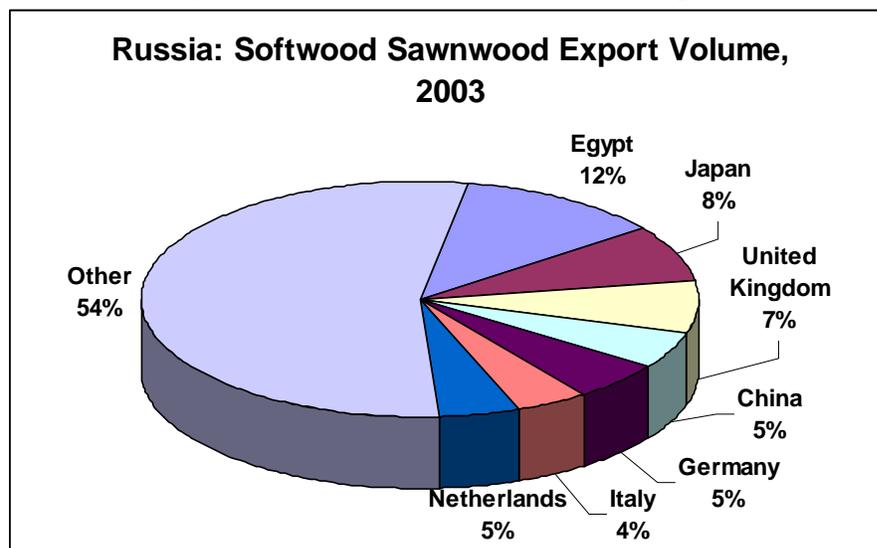


Source: GTIS

**Sawnwood Exports**

Russia is a major export of softwood sawnwood, shipping more than 10 million m<sup>3</sup> to other countries in 2003. Russia’s exports of sawnwood are much more diverse than its log exports, and a number of completely different markets are included. For example, the top market for softwood sawnwood exports from Russia in 2003 was Egypt (12% of the total). Japan (8%) and China (5%) are major log markets and also softwood sawnwood markets for Russia, but most of the other top sawnwood markets --- the UK (7%), Germany (5%), Italy (4%) and the Netherlands(5%), import only a very minor volume of logs from Russia.

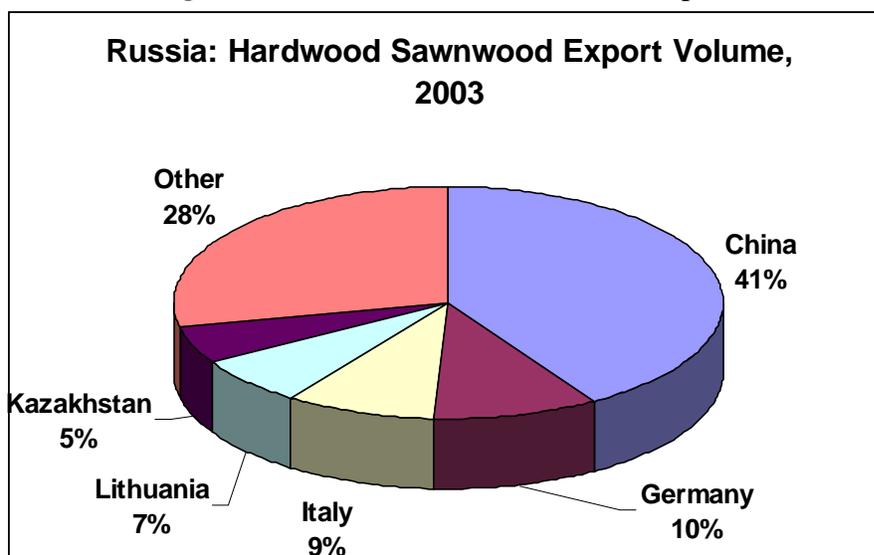
**Figure 27:** Russia Softwood Lumber Exports



Source: GTIS

Russia only exports a minor amount of hardwood sawnwood (320,000 m<sup>3</sup>) in 2003. By far the largest market was China (41%), with most of this being oak and ash lumber from Primorsky Krai. A significant share of this is produced in small, Chinese-owned sawmills, often with Chinese labor. Other relatively small markets for Russian lumber include Germany (10%), Italy (9%), Lithuania (7%), and Kazakhstan (5%).

**Figure 28:** Russia Hardwood Lumber Exports



Source: GTIS

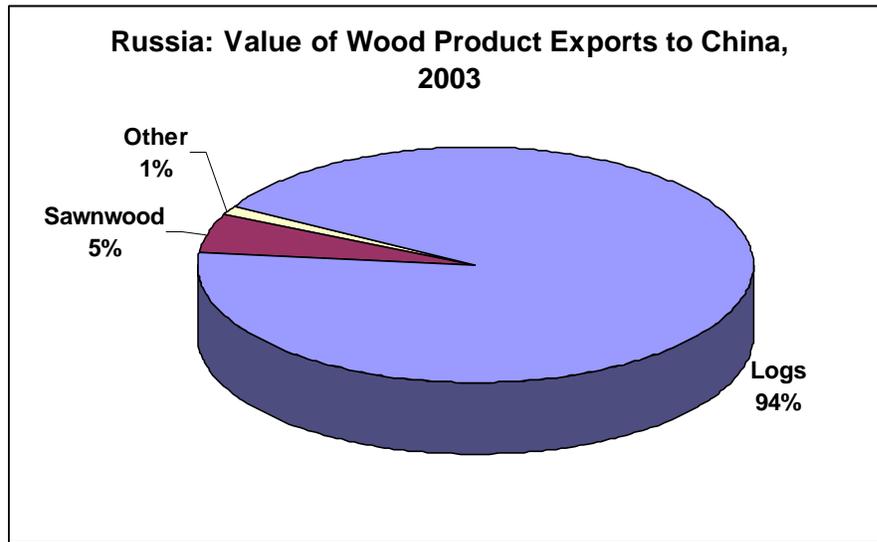
### *Exports to China*

Russia's trade in wood products with China is highly unbalanced and consists almost entirely of unprocessed logs. In 2003, 94% of the value of Russian wood product exports to China was in the form of logs, and only 5% was sawnwood. The export of other wood products is almost non-existent. Of course, Russia is also an important supplier of pulp to China, accounting for 18% of Chinese pulp imports in 2002 and nearly 15% in 2003.

Russia is by far the dominant supplier of softwood logs to China, as illustrated in the following chart. Russia's log exports to China surged from a reported 200,000 m<sup>3</sup> in 1995 to 12.9 million m<sup>3</sup> in 2002.<sup>80</sup> In 2003, the volume declined to 12.3 million m<sup>3</sup>. Russia has also been an important supplier of hardwood logs to China, although the volume has been much less than softwood logs. Russia's exports of hardwood logs to China increased from about 500,000 m<sup>3</sup> in 2000 to 1.8 million m<sup>3</sup> in 2003.

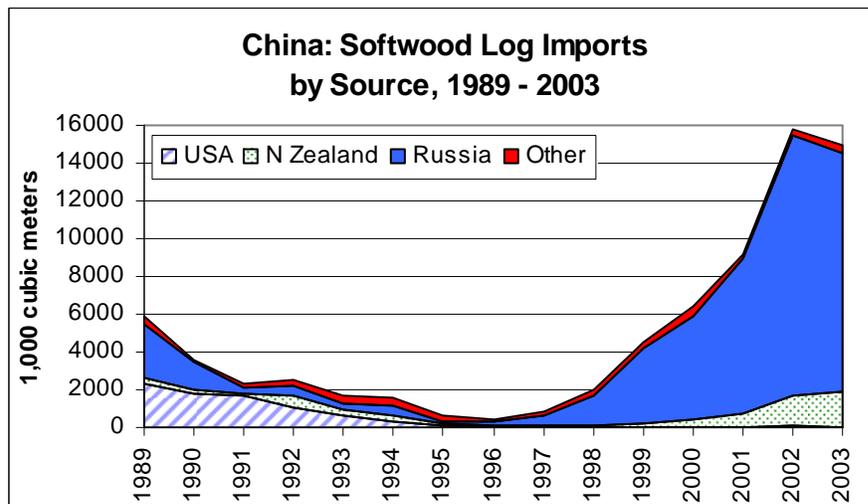
<sup>80</sup> This paragraph uses Chinese Customs import data, which differs somewhat from Russian export data.

**Figure 29: Wood Products Exports to China, 2003**



Source: Russian Customs, via M\_INFO

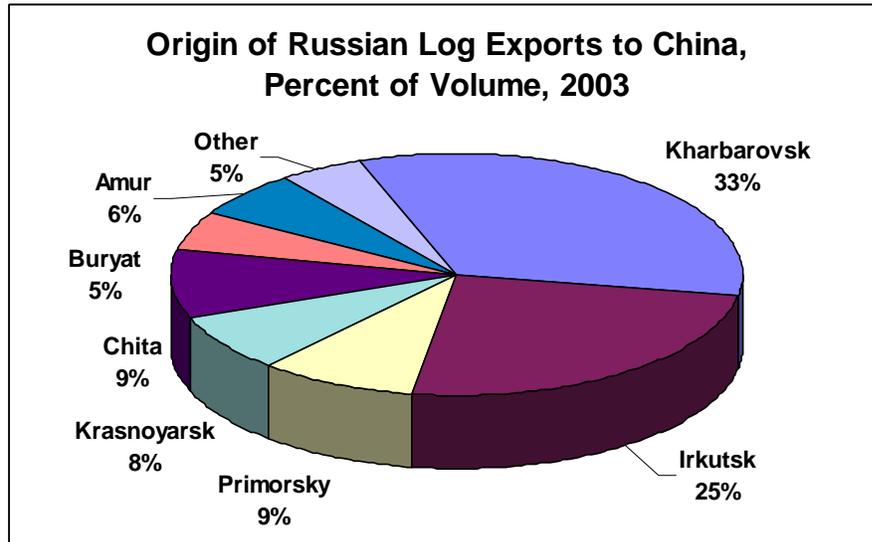
**Figure 30: China's Softwood Log Imports**



Source: USDA Foreign Agricultural Service, ChinaWood, World Trade Atlas

An examination of the M\_INFO database (similar to PIERS data in the U.S.) for Russian exports reveals more detailed information on the exports of logs to China. According to export declarations, Kharbarovsk is the leading source of logs for China, accounting for 33% of the total in 2003. Note that this includes all log shipments which originate in Kharbarovsk, even if the logs are shipped via rail through Primorsky to get to the Chinese border. Irkutsk was the second largest supplier, accounting for 25%, followed by Primorsky and Chita (9% each) and Krasnoyarsk with 8%.

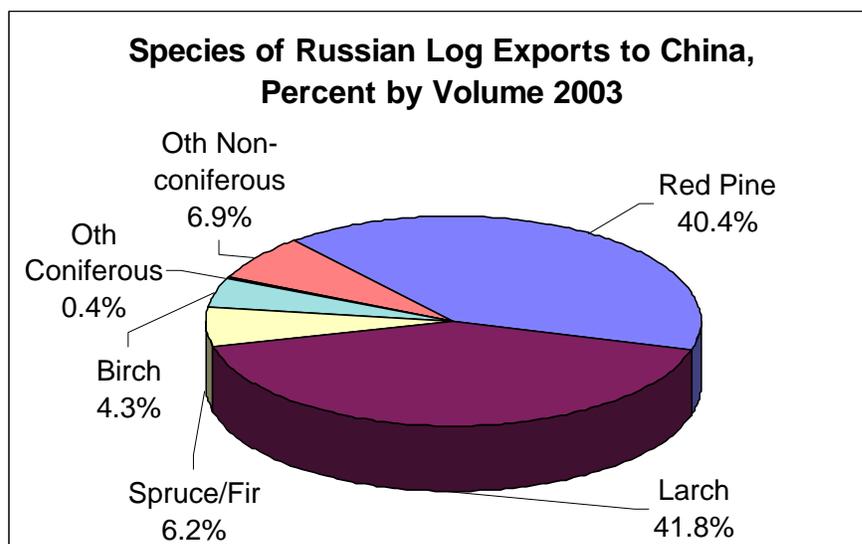
**Figure 31:** Russian Log Exports to China by Province



Source: Russian Customs, via M\_INFO

The majority of Russian log exports to China are coniferous, primarily red pine (*Pinus sylvestris*) and larch (*Larix dahurica*), each with 40-42% of the total volume. Note that larch is coded as “other softwood” and does include some spruce and fir--- however a review of the export declarations shows that most of this volume is indeed larch. Birch is by far the major hardwood species exported to China, accounting for 4.3% of the total volume of all log species exported to China in 2003. Although ash and oak are relatively high value logs exported to China, they represent only 1.6% and 1.4% of the total volume of logs, respectively.

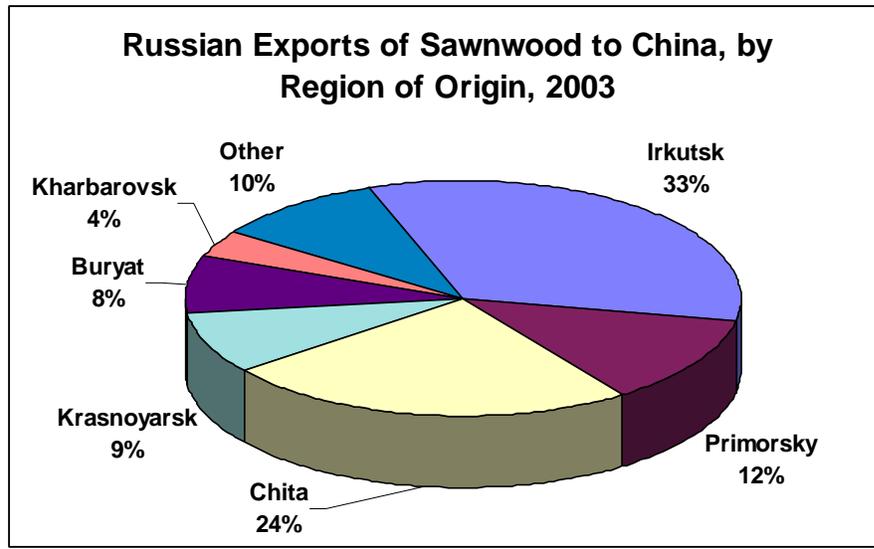
**Figure 32:** Russian Log Exports to China by Species



Source: Russian Customs, via M\_INFO

The total volume of sawnwood exported from Russia to China is small in comparison with the volume of logs, although exports of sawnwood have been increasing rapidly. The total volume of exports of Russian sawnwood to China in 2003 was reportedly 617,000 m<sup>3</sup>, of which roughly 80% was softwood and 20% hardwood. The primary regions of origin for softwood sawnwood exported to China include Irkutsk and Chita, while hardwood sawnwood is primarily shipped from Primorsky.

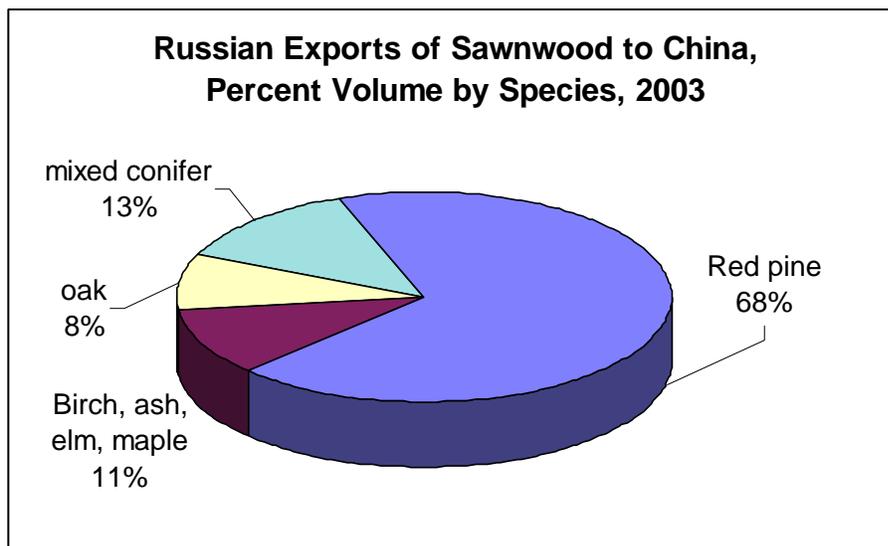
**Figure 33:** Russian Lumber Exports to China by Province



Source: Russian Customs, via M\_INFO

By far the majority of sawnwood exported from Russia to China is red pine (68% in 2003), followed by mixed conifer (mostly larch – about 13%), mixed hardwood (11%) and oak (8%). (See following chart.)

**Figure 34:** Russian Lumber Exports to China by Species



Source: Russian Customs, via M\_INFO

### ***Will Russian Timber Production Increase?***

Even with the potential to expand harvest in Russia, there are a number of factors that will likely act to limit this possibility. For one thing, much of Russia's forest industry is located too far from existing transportation systems to be economically accessible. For example, Nilsson (1999) has estimated that the then (1999) "economic level" of harvest in Russia was 215 million m<sup>3</sup>, including 160 million m<sup>3</sup> of industrial wood.

A closer look at the Russian Far East illustrates the problems with optimistic estimates of Russia's "potential." Total forest area in the Russian Far East is an estimated 278 million hectares. Nilsson (2001) estimates that of this total, 177 million hectares are "non-exploitable," either because of access, fires, poor quality timber, or other problems.<sup>1</sup> This leaves a total commercial forest available for harvest of about 101 million hectares. The official AAC (Annual Allowable Cut) for all forests in the Russian Far East is 62.5 million m<sup>3</sup> of industrial wood, but Nilsson estimates that the true biological potential of the forests is only 42.5 million m<sup>3</sup> on a sustainable basis and with environmental protections. He further reduces this due to economic accessibility, and concludes that under current prices and access realities, an annual harvest of 17.3 million m<sup>3</sup> is sustainable. If one assumes that the current level of illegal logging is approximately 50% of that officially reported, then the current harvest is very close to, or already exceeding, the economically sustainable harvest in the region.

Forest fires have been a major problem in Russia's forest, especially in Siberia and the Russian Far East. According to the Ministry of Emergency Situations in Russia, a total of two million hectares of forest were destroyed by fire in 2003. Most of the fires (488 fires out of a total of 547) were in Siberia and the Russian Far East. Large fires have been a persistent problem in Eastern Russia for at least the last decade, and will impact the long term sustainable harvest in the region.

The "highways" of Eastern Russia are essentially the rail lines and the major rivers. Areas close to these transportation corridors, and relatively close to wood processing centers, have been harvested for many years. The accessible timber thus gets further and further from markets every year, meaning that the transport costs continue to climb, for wood of similar quality to that harvested in the past. In some cases, inferior stands which were bypassed may now be harvested, but the wood quality will not be as high as in the past.

Another factor impacting the probable share of Russian timber going into the export markets is the level of demand in the domestic market. Domestic consumption of wood products in Russia is expected to increase as economic conditions continue to improve. Roundwood exports surged in the mid-late 1990s as domestic demand plunged and log prices subsequently fell. However, as conditions improve, increased domestic demand could force prices higher.

Although the outlook for timber supply in Siberia is better than in the Russian Far East, the demand for this Siberian timber is also significantly greater. In Siberia, the timber harvest is approximately twice as large as in the Russian Far East (at least, according to official statistics), but the production of lumber is eight times as great and may increase rapidly in the future. Russell Taylor and Associates reports that a large number of new, modern sawmills are either being planned for Russia or are currently under construction. These include both projects financed by large

<sup>1</sup> Nilsson, Sten. "Supply Forecasts for Timber from the Russian Far East and Links with the Pacific Rim Market", September 2001, IIASA.

European forest products companies and those developed by Russian companies. A number of these new mills are targeting the high quality red pine<sup>2</sup> found in Siberia (especially in Irkutsk and Krasnoyarsk<sup>3</sup>), which is increasingly being exported in lumber form to Japan, Europe, and the USA. This wood is also popular in China, but prices have been increasing due to competition for the accessible resource. It is quite possible that, even with increased harvest and better utilization in Siberia, it will be difficult to assume any significant increase in wood flow to the Asian markets beyond that occurring in 2003-2004.

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<sup>2</sup> Common names for tree species in Russia and China often cause confusion. “Red pine” is the term most commonly used in Japan to describe the pine logs and lumber imported from Siberia (*Pinus sylvestris*). This species has a very wide distribution. Some use the term “Siberian pine,” which causes confusion because *Pinus sibirica* is a specific 5-needle pine whose harvest is restricted, and should be only a minor component of pine export volumes.

<sup>3</sup> The two largest timber producing regions in Siberia.

### *Poaching in Primorsky*

As an industry consultant, this author has sometimes encountered wildly inaccurate claims made by certain environmental groups regarding the forest industry. Thus when we began to research the issue of illegal logging, and found that most reports were written by various NGOs/environmental groups, we carried a certain degree of skepticism into the project. However, a field investigation in the Russian Far East gave evidence that the problem does indeed exist, at least in the small area visited, to a degree that strongly supports claims made by groups such as WWF.

#### **Roshchinsky Lespromkhoz**

The Roshchinsky Lespromkhoz<sup>1</sup> is a former State-owned enterprise that was founded in 1932. They currently are the leaseholder on a 400,000 hectare (about one million acres) forest block in northwest Primorsky Krai, to the east of the town of Dalnerechensk. This lespromkhoz has the only sawmill of any size in the district. It is part of a group of leaseholders and timber enterprises connected to Terneyles, the largest timber producer and processor in Primorsky. Sumitomo has a partial ownership in the group, and all lumber from the Roshchinsky Lespromkhoz as well as export logs are directed to Japan through the port of Plastun. The technical manager for this company, Mr. Igor Kushpeta, informed this author that his company provides around 60% of the tax revenues generated in this district.

Because of a serious problem with timber poaching, the lespromkhoz recently hired the “Cedar Anti-Poaching Brigade” to patrol their lease area and to try to reduce the problem of timber theft. This group of four people, headed by Anatoly Kabanets, had formerly done similar work as employees of the State Forestry Administration. The group had originally been sponsored by WWF Russia, but had lost its position with the government due to unspecified conflicts. This author spent three days in the forest with the Cedar Group to gain some understanding of how the new control mechanisms in Primorsky are operating. (See discussion of the efforts by Primorsky Administration to reduce illegal logging in the main text on Russia.)

Unlike the western US, where ownerships are often scattered blocks of forest, timber leases in this part of Russia are mostly large, contiguous blocks. On a timber lease such as this, only the leaseholder is given a permit for logging, and most logging is done by company employees. Thus, it is relatively easy to determine who should or should not be logging in a given area. In addition, any logging operation is required to have a copy of the logging permit. Further, the Cedar Group is equipped with a computer and GPS system, computerized maps of the timber lease area, and a register of trucks authorized to haul timber for the leaseholder.

As an introduction, Kabanets drove my translator Anatoly<sup>2</sup> and I through the neighboring town of Novopokrovka, the District center (like a county seat in the US). On some streets, almost every house had a self-loading logging truck or skidder (converted small agricultural tractor) parked in front of the house. Since most logging in the area was supposed to be done

<sup>1</sup> A Leskhoz is the local branch of the State Forest Service, similar to a US Forest Service district but with much more autonomy. A Lespromkhoz is the wood processing company that in Soviet times was aligned with the Leskhoz, but is now a totally private enterprise and unrelated to the Leskhoz.

<sup>2</sup> Anatoly Kotlobay, a Russia consultant, who assisted on our investigation of illegal logging in the region.

by employees of the leaseholder, with company equipment, Kabanets described this as evidence of illegal logging activity. Unemployment in this part of Russia (if not the entire Russian Far East) has been quite high since the break-up of the Soviet system left the economy in ruins. Having some experience with sudden changes in government policy causing massive unemployment in rural forest areas in the US Pacific Northwest, I was somewhat sympathetic for the unemployed loggers and truckers just trying to survive. Certainly any program that seeks to reduce illegal logging in Russia will have to address economic development in these regions, to provide some legal alternatives for local workers.

Kabanets also drove us into the yards of a few small sawmills (we saw about a dozen mills within ten minutes driving time), all of which had Chinese workers in the yard. Kabanets told us that when the government restricted the number of official log storage yards in 2003, the Chinese companies quickly set up small mills. At every mill I observed good quality oak and ash logs in the yard. I was told that since the Lespromkhoz did not sell any logs to these mills, the wood was of “highly suspicious origin”.

After much delay, tire repairs, and endless cigarette smoking, we finally headed into the woods about 2 pm, for what turned out to be an 8-hour ride. Kabanets had caught three trucks (reportedly owned by a Chinese group) the day before in the lease area, with no documents, and he wanted to locate the area of logging. Wet conditions made it relatively easy to follow tracks up a rough road until our Land Rover couldn't make it any further. We hiked up the road, easily located some fresh skid trails, and evidence of unauthorized logging of hardwoods. Kabanets pointed out that in most cases, only the most valuable butt logs were taken out of the woods, with the rest left in the brush.

We explored a few other roads, and randomly stopped a number of cars along the main (unpaved, of course) road. A “road” policeman always accompanies the security team, as only police are authorized to make arrests and impound logs. In addition to illegal logs, the police look for drugs, weapons, etc.--- I was told that after the assassination of the President of Chechnya, such searches had become common practice. Kabanets pointed out some interesting tracks coming out of one main spur road, and made a note to explore further the next day.

The second day we picked up our police escort for the day, Vladimir, and headed out to the main road south of Roshchino. After only five minutes we encountered a log truck owned by the Lespromkhoz (Kabanets' employer). The truck had a full load of hardwood sawlogs, but no special permit with hologram as required.<sup>1</sup> It was Saturday, and the driver said that the state office had been closed the day before so he couldn't get the permit. His boss had ordered him to go get the load, and they could sort out the paperwork on Monday. This was technically illegal, and was officially reported, but no one got too excited, and the issue was resolved later in the day (although the driver and truck were “temporarily arrested”).

<sup>1</sup> Just prior to this field visit, this author interviewed government authorities in Vladivostok that described the various steps which have been taken to control illegal logging. One of the primary control mechanisms which was described as targeting illegal logging of hardwoods was a special new transport permit, with embedded hologram, which is now required of all trucks hauling hardwood logs.

We headed up to the area explored the previous day, and Kabanets pointed out fresh tracks made by “an empty log truck with trailer.” Ten minutes later we came upon a parked log truck pointed in our direction. The truck (with trailer) had a full load of high quality hardwood logs, and was parked with its tires blocked, obviously waiting for someone. The driver had no special permit with hologram, in fact he had no permit or any documents whatsoever. He cheerfully reported that he had loaded the logs “somewhere up the road”, and that “someone” had told him to wait here and the documents would be brought out to him. Kabanets informed us that this was a common technique: the companies involved in this business didn’t want to waste the fake documents produced, so they waited until the trucks actually had a load and then came out to bring the documents before the trucks hit the main roads. The assumption appeared to be that prior to the private security team coming into the area, the local police would never bother to drive up the side roads looking for problems.

Kabanets confirmed our location with his GPS system. We were definitely in the middle of the Roshchinsky Lespromkhoz lease area, and there was no possibility that these logs could have been harvested by someone mistaking the property boundary.

After an hour, a pickup arrived with three people. I was a bit apprehensive when our policeman Vladimir checked the vehicle and the occupants brought out a number of rifles with folding stocks. (As in the US, hunting season here is typically in the Fall, not during the last week-end in May, the time of my visit.) Vladimir informed us that one of the men in the truck was a policeman from Novopokrovka. This policeman congratulated Vladimir on arresting the driver, and said that in fact his boss had heard there was illegal activity in this area and had sent him out to the location to arrest the guilty parties. The fact that this policeman was in an unmarked car, and was not in uniform, seemed a bit suspicious to Vladimir.

A second log truck arrived, also with a full load of high quality hardwood, and no documents. The other “policeman” strongly suggested that Vladimir take the two trucks directly to the district police station in Novopokrovka, where his boss could have the paperwork taken care of. Kabanets thanked him for this advice, but said that he would escort the trucks to the local Leskhoz (state forestry administration, and next door to the Lespromkhoz), as required by law.

After about five hours investigating the site and waiting for the mysterious “someone” to show up with the fake documents, we headed into Roshchino with the log trucks. This required about three hours of driving, which gives a good indication of road conditions in this part of Russia. As we pulled into town, the policeman that we had seen in the woods came driving up beside our vehicle honking and motioning for us to stop. His angry comments in Russian were roughly translated for me as stating that his boss, the head of police for “criminal investigation” in the district, absolutely required that the trucks be brought directly to the police station in Novopokrovka. Kabanets refused, and said they would park them at the Leskhoz office in Roshchino (as required). After the trucks were secured in an area with a Leskhoz guard, the district policeman came by and made one last half-hearted attempt to get the trucks re-routed to his police station. The trucks remained in the Leskhoz yard when we left.

The following morning I had an interview with Mr. Kushpeta, technical manager for the Roshchinsky Lespromkhoz. Kabanets went to the Roshchino police station to pick up our police escort for the day. Mr. Kushpeta told me that in his opinion “100%” of the logs and lumber going into China are illegal. I made a mental note that because of his company’s connections, all of his product goes to Japan so he may not have the most unbiased opinion on the matter. He explained that because of continued timber theft from their lease area, they

agreed to pay the Cedar Group 100,000 rubles per month to patrol the area. Given that their sawmill makes a profit of only 7 million rubles per year, one has to assume that the problem must have been serious to warrant this expense.<sup>1</sup>

After an hour Kabanets came into the room, fuming. It seems that when he went to the local police station, he was informed that “someone” had come in during the night with “documents”, so the local police chief ordered the impounded trucks released. When Kabanets asked what documents could possibly justify someone logging in the middle of the Roshchinsky Lespromkhoz lease area, and asked to see the documents, the police chief reportedly “blew up”, and told Kabanets that he had no right to question his authority. And “by the way, didn’t he have some Americanski with him” and ordered our police escort to check my documents. The somewhat embarrassed policeman made a cursory glance at my passport, while there was much hilarious discussion among the group in Russian, apparently about the prospect of my being arrested.

Mr. Kushpeta told me, “You Americans think you have the land of freedom, but Russia is really more free. Anyone at all can go onto our property, cut our trees and haul them off, and the authorities don’t do a damn thing about it!” Kabanets informed me that he estimated the value of the two truckloads at about US\$7,000 in the local market. Given that policemen reportedly make about US\$200 per month, the temptation to supplement their salary is obvious. His assumption was that in fact the district police had intended to “arrest the trucks”, and impound the illegal logs. After paying off the loggers and truck drivers (estimated at perhaps \$1,000), the two district police would then share the difference once the logs were sold. And of course, once the police sell impounded timber, it then becomes perfectly legal and with documentation regarding origin. There would then be no problem at all in selling the logs to an exporter.

While one may be tempted to despair at the pervasive corruption, including the police involvement in illegal logging, and reportedly also some in the forestry administration, I am more impressed with Kabanets, Mr. Kushpeta, Anatoly, and others who continue to believe that Russian laws should be enforced, regulations should be obeyed, and the forests *should* be managed sustainably to provide employment long-term for the local population.

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<sup>1</sup> Total profit for the Lespromkhoz is higher, including a substantial portion of their AAC exported as unprocessed logs to Japan.

## China

### *Overview/Observations*

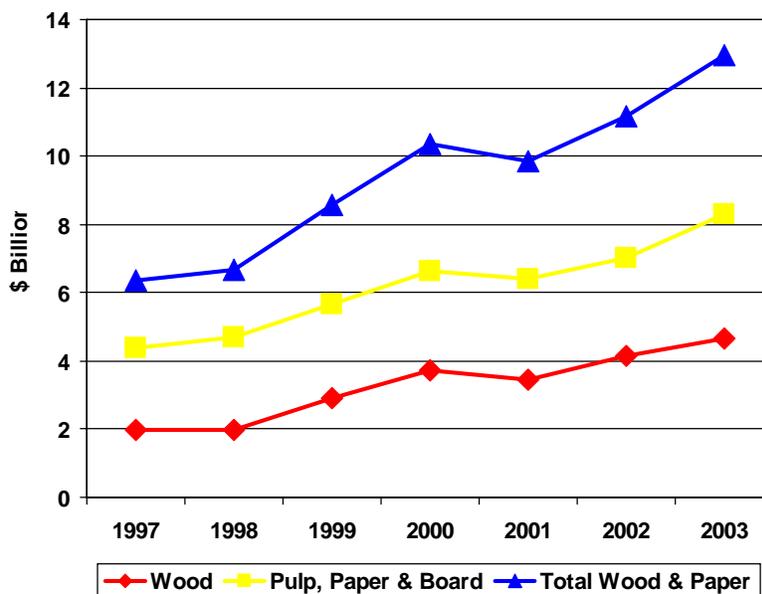
- China is a price sensitive wood market where an exploding demand is fueling wood imports, much from countries without strong environmental or forest management controls.
- Despite a logging ban and other cutting restrictions which have led to a significant decline in Chinese timber harvests, unauthorized timber harvesting continues to be a problem.
- Based on data analysis and field research, we believe that 40% of Russian log imports are suspicious (potentially illegal) because of cutting in excess of permitted volumes, harvesting without authorization or as undocumented/unreported exports. Imported Russian lumber is also suspicious (as manufactured from illegal logs) but to a lesser degree.
- Based on field research in China and Russia, log imports may be underreported by as much as 10 -15%.
- China's sources for hardwood log imports reads like a "Who's Who" of countries with problems with illegal logging; export bans and/or high export taxes on logs in Southeast Asian countries encourages smuggling.
- Reduced supply of Russian softwood would have only an indirect impact on U.S. producers as the Chinese market would likely absorb price increases or increase imports from other softwood suppliers such as New Zealand.
- U.S temperate hardwoods compete with tropical species in only a small share of the Chinese market. Russian hardwood in the Chinese market represents the most direct competition for U.S. producers. The impact of illegal wood in China extends to Chinese exports, for example plywood or wooden furniture, made with illegal tropical hardwoods from Africa and SE Asia.

### *Background/Introduction*

China's wood demand is growing dramatically, both for domestic consumption and for export of manufactured wood products (mostly furniture and articles of wood). Low labor and other manufacturing costs have made China a low cost producer of furniture and other secondary wood products. While domestic consumption accounts for the majority of production and imports, China is a leading exporter of these products. Chinese produced plywood is also now being exported in increasing volume. Trade actions against Chinese bedroom furniture and hardwood plywood have been filed in the United States and Europe, respectively, with countervailing duties imposed for dumping.

China's National Timber Distribution Association estimates that China depends on imports for well over 40% of its consumption (including pulp, paper, and waste paper), on a log equivalent basis.<sup>81</sup> Forest Trends estimates that wood and paper imports totaled 95.1 million m<sup>3</sup> on a roundwood equivalent basis in 2002, rising to 106.7 million m<sup>3</sup> in 2003. Of that amount, 40.2 million m<sup>3</sup> (38%) were imports of timber and wood products.<sup>82</sup> The value of Chinese imports of forest products reached \$12.9 billion in 2003, with wood products imports accounting for \$4.6 billion. China's wood product exports in 2003 totaled \$3.47 billion, leaving a trade deficit in wood products of nearly \$1.2 billion.

**Figure 35:** China's Forest Products Imports, 1997 - 2003



Source: GTIS

In 1998, restrictions on logging in China's natural forests were imposed, greatly increasing demand for imports. China is a major market for U.S. wood products, particularly for hardwoods used domestically in architectural applications and flooring. U.S. hardwoods are also used for furniture, picture frames and other manufactured wood articles exported back to the U.S., and to Europe and other markets.

### **Forest Policy and Legal Framework**

The primary legislation governing forest management and utilization in China is *The Forest Law of the People's Republic of China*, which was adopted in September 1984 and came into force as of January, 1985. The State Council issued a series of supporting administrative

<sup>81</sup> Zhu Guangqian, in China Timber Information magazine, issue 4, 2004, published by the National Timber Distribution Association.

<sup>82</sup> Sun, Xiufang et al. "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." Forest Trends. 2004.

regulations such as *Regulations for Implementation of the Forest Law of the People's Republic of China*, *Regulations on Forest Fire Prevention*, *Regulations on Prevention and Control of Forest Pests and Diseases*, etc., and by September 1994, China had promulgated for forestry 4 laws, 4 administrative regulations, more than 60 sectoral rules and regulations, and over 200 local by-laws and local governmental regulations. These laws and regulations (along with 1998 revisions to the Forest Law) have constituted the basic legal framework for forestry in China.

One of the stipulations of the 1984 Forest Code was that the government should implement a quota on timber harvesting. Beginning in 1987, the Central Government (through the State Forestry Administration or its equivalent) has been setting an annual quota for timber harvest on state-owned forests, and this quota is supposed to be enforced by the state-owned enterprise or local forestry bureaus. A government decree in 1993, promulgated by the Ministry of Forestry, established regulations that clarified the role of the responsible forestry agencies and local forest management agencies in enforcing national and local laws regarding forest management, specifying that these agencies were “responsible for investigating administrative cases of illegal occupation and damage of forest land, illegal utilization of forest land, forbid illegal activities of damaging forest land.”

The 1998 revisions to the Forest Code stipulated, among other points, that the State Council was to authorize “departments in charge of forest administration” to issue certificates, and that “the legitimate rights and interests of owners and users of forests, woods, and forestlands are protected by law. No organization or individual is allowed to encroach on them.”<sup>83</sup> In May 2001 the government passed amendments (Article 342 and Article 410) to the Criminal Law of China, which established “the illegality and stipulated the punishments for illegal logging and other criminal activities involved in deforestation.”<sup>84</sup> As described in numerous reports, logging prior to 2001 was typically well above the quotas established (see following section), but after 1998 the government began trying to more aggressively control the problem. These new amendments were considered necessary to establish the “criminality” of unauthorized logging.

Logging permits for state-owned forests were formerly issued by local forestry bureaus, supposedly in line with the logging quotas approved at the national level. As of January 2001 standardized logging permits issued by the State Forestry Administration were required in some state-owned forests.

### ***Resource Situation***

China reportedly has 158.9 million hectares of forested land, the fifth highest forest area in the world. According to the 5<sup>th</sup> National Survey on Forest Resources (1994-1998), forest area in China increased by 13.7 million hectares over the 4<sup>th</sup> Survey, an average annual increase of 2.7 million hectares. The official report shows that plantation forests increased by 10.2 million

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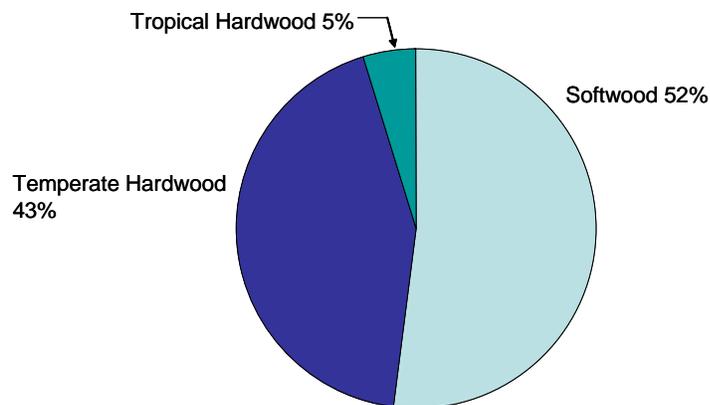
<sup>83</sup> Chinese Academy of Economic Trade and Economic Cooperation, “China: Timber Trade and Protection of Forestry Resources,” August, 2001, Prepared for the 5<sup>th</sup> Meeting of the 2<sup>nd</sup> Phase of CCICED Working Group on Trade and Environment.

<sup>84</sup> USDA Foreign Agricultural Service, GAIN Report #CH1032, “China Solid Wood Products Annual 2001”, July 18, 2001.

hectares, to a total of 46.7 million hectares. Plantation forests now reportedly comprise 29% of China's forest area. However, much of China's forest land is not productive or available for wood fiber production. Productive forest land is likely to be closer to 128 million hectares, of which 7 million hectares might be considered commercially viable plantations.

The largest concentrations of forests are in the Provinces of Heilongjiang, Jilin, and Inner Mongolia in northeast China, and Sichuan and Yunnan in south-central China. These five provinces account for 45% of China's forest area and 60% of the forest stock. Forests in China are relatively evenly distributed between coniferous and non-coniferous forest types, as shown in **Figure 36**.

**Figure 36:** Commercial Forest Area in China, 2003



**Source:** China State Forest Administration; USDA FAS

### **Forest Tenure**

Forests in China are owned either by the State as state-owned forest enterprises (SOE) or by collectives. The SOE are local administrative groups who plan and implement harvesting and reforestation on state-owned forests. By far the largest area of plantations belongs to collectives, while the majority of the mature timber volume in natural forests belongs to SOEs. Over the past decade the collective ownership of forests has undergone a transformation, and now includes village collectives, joint ventures between collectives and farmers, collectives and state forest enterprises, joint ventures with companies, etc. Companies and individuals can lease land to establish plantations, and are encouraged to do so, but the land remains in either collective or state-ownership.

### **Illegal Logging in China**

While most of this country focus relates to China as a market for illegally produced timber, the country also apparently has had severe problems within its own borders. A number of recent reports suggest that illegal logging in China continues to be a significant problem.

- A 1995 survey indicated that some 34 million m<sup>3</sup> had been logged “over quota.”<sup>85</sup>
- In the Ministry of Forestry’s 1997 Annual Report, the agency estimated that in Heilongjiang Province approximately 31% of the timber harvest was produced over-quota, while in Yunnan Province the harvest was 21% over quota. This same report predicted that by 2000 most of the 85 SOEs in Northeast China would cease timber harvesting due to resource depletion.<sup>86</sup>
- Following the massive flooding in 1998 in China, the government banned logging in much of the Yellow River and Yangtze River basins. However, by all accounts the ban was not strictly enforced by many local forestry bureaus, at least initially. For example, in the State Forestry Administration’s 1999 Annual Report, they described their enforcement efforts after the logging bans were imposed in Yunnan, Sichuan, Heilongjiang and Qinghai provinces. Within three months, the administration’s Forest Security Bureau reported it had investigated 26,369 cases of illegal logging involving 28,131 people.<sup>87</sup>
- A 2001 study reported that “major problems” with forest management still included “encroachment.”<sup>88</sup> However, the report stated that under the new Forest Code (of 1998), enforcement of forestry regulations is reportedly improving. “By the end of 1999, there were 1,181 forest public security sub-bureaus, 4543 forest police substations with more than 50,000 forest police, and 4,000 timber inspection stations.” Previous to this improvement, the report revealed that during the Ninth Five-Year Plan, China investigated some 500,000 forest-related cases annually. Many of these cases involved illegal acquisition of forest land for other purposes, and we assume also a number of cases of illegal logging, etc.
- In early 2001, the State Forestry Administration (SFA) announced a 10-year program to combat illegal logging. Reportedly a 96.2 billion yuan (\$11.6 billion) government fund was set up for the campaign covering 17 provinces, autonomous regions and municipalities along the Yellow and Yangtze rivers. The campaign covers areas where uncontrolled logging has led to soil erosion, desertification and flooding.<sup>89</sup> We assume most of this money was to be spent in one of several afforestation programs launched by the Chinese government, with only some of the funds allocated to enforcement and protection.
- Annual reports on China’s Solid Wood Products by the USDA Foreign Agricultural Service regularly have mentioned that illegal logging continues to be a major source

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<sup>85</sup> Chen & Lu, 1999. “Natural Forest Resource Conservation and Sustainable Management in Key Forest Areas”, *Forestry Economics*, No. 2, April 1999.

<sup>86</sup> Ministry of Forestry, 1997. *China Forestry Yearbook 1996*, China Forestry Publishing House, Beijing.

<sup>87</sup> Geoffrey Murray, *Kyodo News*, March 10, 2001,

[http://www.globalhemp.com/News/2001/March/china\\_combats\\_illegal.html](http://www.globalhemp.com/News/2001/March/china_combats_illegal.html)

<sup>88</sup> Chinese Academy of Economic Trade and Economic Cooperation, “China: Timber Trade and Protection of Forestry Resources,” August, 2001

<sup>89</sup> Geoffrey Murray, reference cited

of timber in China. For example, in the 2003 Annual Report<sup>90</sup>, the authors mentioned that from 1994 – 1998, 86 million m<sup>3</sup> were harvested “outside the quota” annually. In the 2002 Annual Report, estimates of “unplanned timber production” ranged from 30 million to 120 million m<sup>3</sup>.<sup>91</sup> We should note that unplanned timber harvests are not necessarily an indication of illegality under the definitions used in this report as most proceed with local government authority.

- According to China’s National Timber Distribution Association, in 2002, 157 million m<sup>3</sup> of wood raw material were produced in China, of which 44.6 million m<sup>3</sup> was produced by “cutting in plan”, another 50-60 million m<sup>3</sup> was “cutting outside of plan,” with the remainder (around 50 million m<sup>3</sup>) produced by “cutting by country peasants.”<sup>92</sup> We interpret this as indicating 30% of the timber harvest was “illegal”, in the sense that it was in excess of quotas approved by the SFA.
- Early in 2004 the SFA reported that the problem of “excessive logging” had been “straightened out,” according to an article in the China Daily News (Feb. 4, 2004). According to the article only two logging units, or 6.5% of the total checked, were found to have exceeded their annual logging quotas of 2002 set by government.<sup>93</sup>
- In contrast, on June 30, 2004, The China Daily News reported that during the first six months of 2004, a total of 5,681 cases of illegal logging were reported in China, up 60% over the same period in 2003. The Deputy Director of the State Forestry Administration reported that illegal logging in China includes mainly “excessive and non-licensed tree cutting, reclamation of woodland for farming and occupation of forest for construction projects.” In 10 cases major fines have been imposed, ranging from US\$60,000 to \$1.2 million. Areas singled out as having particular problems include Heilongjiang, Jilin, Sichuan, Yunnan, and Shaanxi Provinces. The SFA has its own police, and reports it has an “intensive crackdown on forest crime” in progress. The effort has also included firing some local forestry bureau officials, who were said to be involved in printing phony logging permits.<sup>94</sup>

Enforcement of China’s laws governing forest resources and harvesting has become a much more serious issue since the devastating floods of 1998. Following those floods, a national forest protection program was initiated, which, despite the on-going harvest with cutting “over-quota”, has apparently reduced the timber harvest in China. Between 1998 and 2003 the official timber harvest declined by about 40%, including strict logging bans in the upper Yangtze River and upper and middle Yellow River basins. In addition, state-owned forests in the Northeast and

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<sup>90</sup> GAIN Report 3118, August 11, 2003

<sup>91</sup> GAIN Report #CH2026, page 1

<sup>92</sup> Zhu Guangqian, 2003. “The Trend of Wood Supply and Requirement and Suggestion”, National Timber Distribution Association, presentation to 2003 China Wood Export & Import Conference, October 28-30, 2003, Shanghai, China.

<sup>93</sup> “Illegal Logging Checked”, China Daily News, Feb. 4, 2004 [http://www1.chinadaily.com.cn/en/doc/2004-02/04/content\\_302856.htm](http://www1.chinadaily.com.cn/en/doc/2004-02/04/content_302856.htm)

<sup>94</sup> “Fighting Illegal Logging”, China Daily News, June 30, 2004 <http://www1.china.org.cn/english/government/99832.htm>

Inner Mongolia have reduced logging. The State Forestry Bureau in Heilongjiang Province reported to us that their harvest had declined from 8 million m<sup>3</sup> per year in 1998 to 4 million m<sup>3</sup> in 2003, and the Central Government has recently informed them that the harvest must decline further to only 2 million m<sup>3</sup>.

While it is unclear exactly how much the true harvest has declined, the harvest from plantations has become increasingly important. The China National Statistical Bureau reported that in 2001 plantations supplied 31.55 million m<sup>3</sup> of wood, or more than 61% the national harvest. While this percentage figure is likely over-stated, plantation wood accounts for a large and growing component of industrial wood usage in China.

### ***Roundwood Production and Trade***

Chinese roundwood and lumber production is difficult to ascertain, given conflicting official and unofficial estimates. FAO reports that industrial roundwood production in China in 2002 was 93.5 million m<sup>3</sup>, including 59.7 million m<sup>3</sup> of softwood (coniferous) roundwood and 33.8 million m<sup>3</sup> of hardwood (non-coniferous) roundwood. This estimate is likely overstated and may be a better reflection of total log supply than of domestic production. Based on field research, we found that allegations of unreported trade in logs from Russia and countries of Southeast Asia are not without merit. Either because of purposeful under-reporting in export declarations (to avoid taxes) or because of shipment through remote border crossings, we estimate that on the order of 10 – 15% of Chinese log imports are unrecorded. Taking that into consideration, along with reasonable estimates of reported lumber, panels, pulp production and net log trade (legal and unreported), a derived domestic roundwood demand estimate would place Chinese roundwood production in 2002 at approximately 58.1 million m<sup>3</sup> – 20.2 million m<sup>3</sup> of hardwood and 37.9 million m<sup>3</sup> of softwood. This is one-third lower than the FAO production estimate. Roundwood consumption which includes imports is calculated to be 85.5 million m<sup>3</sup>, 64% softwood and 36% hardwood.

**Table 35:** Derived Industrial Roundwood Supply in China, 2002  
(Million m<sup>3</sup>)

	Softwood	Hardwood	Total
Domestic Harvest	37.9	20.2	58.1
Reported Log Imports	15.8	8.6	24.4
<i>Estimated Unreported Log Imports</i>	<i>1.0</i>	<i>2.0</i>	<i>3.0</i>
Total Consumption	54.7	30.8	85.5
% Imports	31%	34%	32%

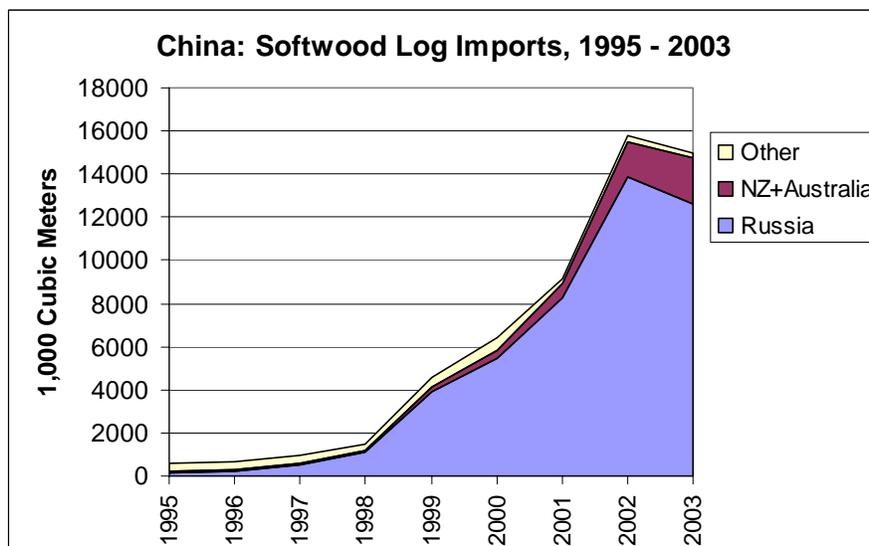
Although representing less than half of consumption, imported wood is by far the most important raw material used in producing wood products for *export* from China. While most wood products are used domestically, plywood exports have surged from less than 200,000 m<sup>3</sup> in 1998 to more than 2.0 million m<sup>3</sup> in 2003. This industry is totally dependent on imported wood for face veneers (e.g., okoume from West Africa, meranti from Southeast Asia, birch from Russia), with domestic woods (poplar and eucalyptus) used almost exclusively for core material.

Likewise, imported wood species are dominant in the companies producing furniture, doors, flooring, and other products for export.

### Softwood Log Imports

China's reported imports of softwood logs surged from less than 1.0 million m<sup>3</sup> in 1997 to a peak of 15.78 million m<sup>3</sup> in 2002. This does not include unreported volume, mostly from Russia, which may be as high as 1.0 million m<sup>3</sup>. In 2003, total imports declined 5.1% to just under 15.0 million m<sup>3</sup>, and have remained almost flat (+0.7%) in the first five months of 2004. Russia accounted for 84% of imports, by volume, in 2003. This includes primarily red pine (*Pinus sylvestris*) from Siberia and larch (*Larix dahurica*) from Siberia and the Russian Far East. Radiata pine from New Zealand (12.8%) and Australia (1.6%) accounted for most of the rest of softwood log imports into China in 2003. Imports from Canada (0.5%) and the USA (0.2%) were hardly noticeable. A small volume of Chinese fir (+0.5% of the total imports) has been imported from Myanmar for several years. There is also a very small flow (0.4%) of softwood logs from North Korea.

**Figure 37:** Chinese Softwood Log Imports



Source: GTIS

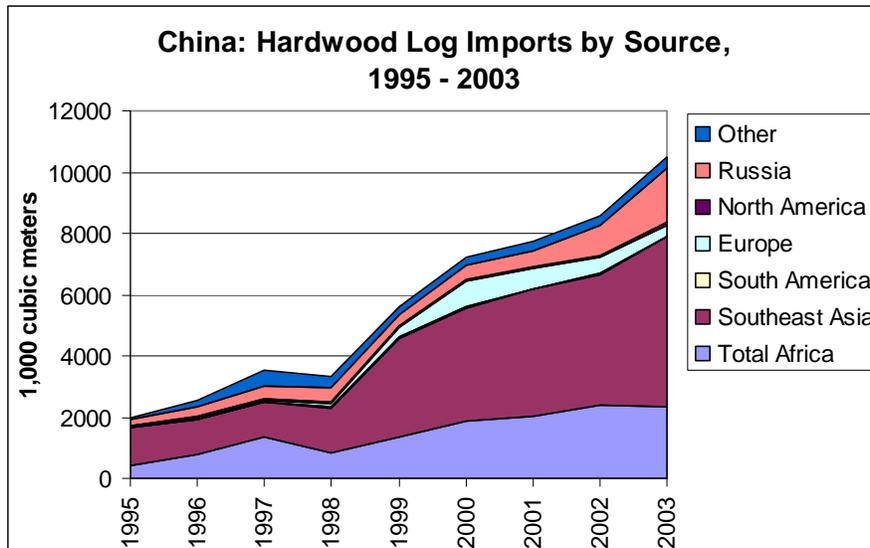
In the first six months of 2004, softwood log imports from Russia increased 12% in volume compared with the first half of 2003, but imports from New Zealand plunged 52%. The increased demand for Russian logs was in response to the decline in availability of New Zealand wood because of a stronger New Zealand dollar and a steep increase in ocean freight costs. Imports from North Korea have increased in the first half of 2004 (+28%), but volume from Australia and Myanmar has been flat. The volume from these three countries still represents a very small share, less than 2%, of China's softwood log imports. The very small volumes from Canada and the U.S. fell further, and for the first time Germany was a larger source of softwood logs for China than the U.S. (18,200 m<sup>3</sup> from Germany vs. 5,000 m<sup>3</sup> from the U.S. in first half 2004).

## Hardwood Log Imports

China's reported imports of hardwood logs have increased, but at a somewhat slower pace than softwood log imports. Total imports increased from 3.5 million m<sup>3</sup> in 1997 to 10.5 million m<sup>3</sup> in 2003. Unlike softwood log imports, which decreased in 2003, hardwood logs have increased every year since 1998. The increase in 2003 was largely driven by expansion in the plywood and furniture industries, both of which were part of a large expansion in exports to world markets. In the first six months of 2004, hardwood log imports declined 3.1% in volume, compared with the same period in 2003.

Hardwood logs have a much more diverse sourcing than softwood logs, with the largest single supplier, Malaysia, supplying less than 28% of the total volume in 2003. Some NGOs have alleged that Malaysian logs are actually sourced from Indonesia and mislabeled to circumvent Indonesia's ban on log exports. Most of China's reported hardwood log imports are from tropical countries, including 52.7% from Southeast Asia and 22.5% from Africa. Allegations of undocumented imports of hardwood logs from Southeast Asia have been reported in the press and perhaps as much as 2.0 million m<sup>3</sup> of unreported hardwood logs are imported into China. Russia is by far the largest supplier of temperate hardwood logs, with 17% of total imports in 2003, consisting of mostly oak, ash, and birch. Europe supplied 3.6% of the total in 2003, mostly beech, while North America (almost all the U.S.) supplied only 0.8% of total hardwood log imports.

**Figure 38: Chinese Hardwood Log Imports**



Source: GTIS

In the first six months of 2004, hardwood log imports from the largest supplier, Malaysia, increased 11.6%. As noted earlier, some of these logs were likely sourced from Indonesia, and represent illegal logs going into China. Imports of Russian hardwood logs also increased in 2004 (+29.6), and reportedly 50% or more of these are from illegal logging. Imports of teak and other hardwood logs from Myanmar also increased sharply in the first six months of 2004 (+32.6%),

and again there is much discussion in news reports about the possible illegality of much of this wood.

Despite the increase in volume from these major suppliers, the trade with other suppliers has been more mixed in 2004. For example, imports of hardwood logs were lower from Papua New Guinea (-10.0%) and Gabon (-27.2%), but this was offset by increases from Congo (+28.9%) and Solomon Islands (+44.7%). In general, it is becoming more difficult for importers to source logs from Africa. Imports were sharply lower from Equatorial Guinea (-51%), Cameroon (-29%), and Central African Republic (-32%). Liberia, which had been the sixth largest source of logs in China in the first six months of 2003, exported nothing to China in 2004, due to international restrictions on exports from that country. Imports of hardwood logs from the U.S. in 2004 have been higher, up 57%, to nearly 70,000 m<sup>3</sup>.

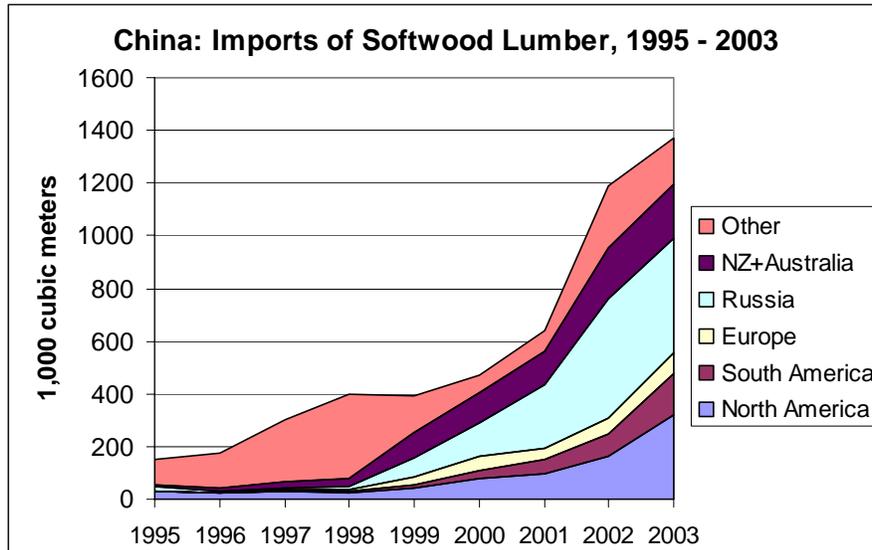
### ***Lumber and Other Imported Wood Products***

Like roundwood, Chinese lumber production estimates vary. Most government and FAO reported figures for 2002 place production at 5.2 million m<sup>3</sup> of softwood lumber and 4.2 million m<sup>3</sup> of hardwood lumber. Much of the lumber is produced from imported logs while lumber imports into China have also increased rapidly. Total lumber imports increased from 1.7 million m<sup>3</sup> in 1998 to over 5.5 million m<sup>3</sup> in 2003. Through the first six months of 2004, imports of lumber were up another 11.9% over the same period in 2004. In 2002, lumber imports represented 21% of total supply for softwoods and 49% for hardwoods.

**Table 36:** China's Sawnwood Supply, 2002  
(million m<sup>3</sup>)

	Softwood	Hardwood	Total
Domestic Production	5.2	4.2	9.4
Imports	1.4	4.1	5.5
Total Consumption	6.6	8.3	14.9
% Imports	21%	49%	37%

Russia is the largest source of softwood lumber imports into China, although its market share in 2003 (32%) was much smaller than it was for softwood logs (84%). Species are primarily red pine, with some larch. North America is the next largest source (23.3%), although Canada accounts for 83% of the North American volume. Radiata pine lumber from New Zealand and Australia is the third largest source for China (14.8% in 2003), with New Zealand accounting for almost all of this volume (96%). South America supplied 11.8% of China's softwood lumber imports in 2003, with the primary suppliers being Chile (radiata pine) and Brazil (SYP). European suppliers only accounted for 5.8% of China's softwood lumber imports in 2003, with Finland by far the largest supplier from that region.

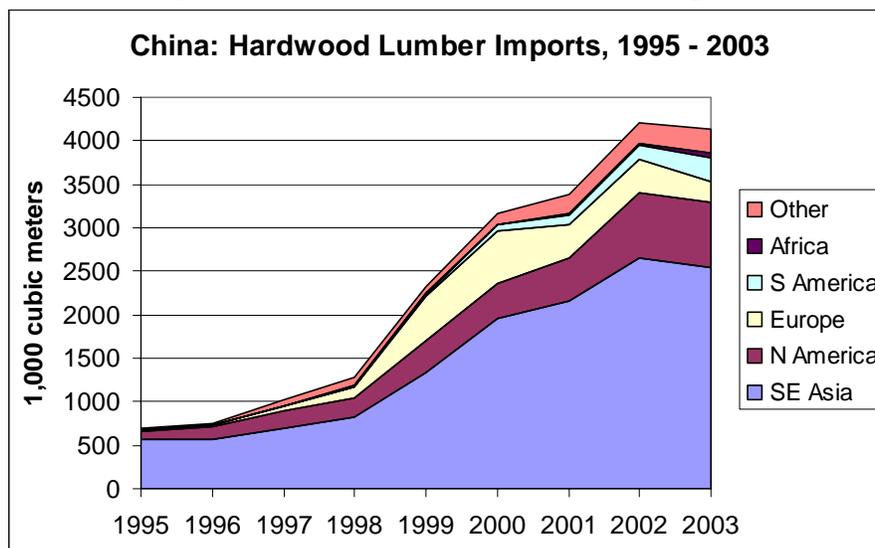
**Figure 39: Chinese Softwood Lumber Imports**

Source: GTIS

In the first six months of 2004, Chinese imports of softwood lumber from Russia increased 32%, compared with the same period in 2003, and that country's share increased to nearly 38%. Imports also increased from Canada (+59%) and the U.S. (+139%) compared with the same period in 2003. The following chart shows that the majority of softwood lumber imported from Canada is either Hem-fir (39%) or S-P-F (24%). Radiata pine imports from New Zealand increased only 4% in first half 2004, but have doubled in volume from Chile. In contrast, imports of Southern Yellow Pine (mostly loblolly pine) from Brazil fell by 44% in first half 2004.

China is the world's largest market for hardwood lumber. Imports have increased from just over 1.0 million m<sup>3</sup> in 1997 to 4.2 million m<sup>3</sup> in 2002, before declining very slightly to 4.1 million m<sup>3</sup> in 2003. In the first six months of 2004, China's imports of hardwood lumber increased 8.3%, compared with the same period in 2003.

Indonesia is the largest single source of hardwood lumber imports in China, accounting for 25% of the volume in 2003. Thailand was the second largest supplier (16%), just ahead of the U.S. (15%). In total, Southeast Asian countries supplied 61.5% of China's hardwood lumber imports in 2003, and North America supplied 17.8%. (The U.S. accounted for 84% of the total North American hardwood lumber imports.) Europe supplied 6.1% of China's hardwood lumber imports, but was eclipsed in 2003 by South America, which accounted for 6.4% of the total. Most of the South American hardwood lumber (90%) was from Brazil.

**Figure 37: Chinese Hardwood Lumber Imports**

Source: GTIS

In the first six months of 2004, imports of hardwood lumber from Indonesia declined 3.8% compared with the first half of 2003, and imports from Malaysia declined 5.7%. However, imports from Thailand increased sharply (+27.8%) while imports from the U.S. also increased (+14.3%). Brazilian imports also increased sharply (+35.3%), and temperate hardwood lumber from Russia, a competitor with the U.S., increased 33.4% compared with the same period in 2003.

### **Wood Flow and “Suspicious” Product**

Based on data analysis and field research, there is sufficient reason to believe that “suspicious” wood fiber enters China either as unreported trade or as having been harvested illegally in the source country. Hardwood and softwood log trades are reportedly conducted to evade export tariffs or quotas and are a reason cited by the State Forestry Administration for discrepancies in trade data. They note that some exporters forge or illegally obtain export documentation prior to shipping logs to China in order to avoid high export duties.<sup>95</sup>

As described in the country profile for Russia, most sources familiar with the log trade indicate that the percentage of logs exported to China which are of suspicious origin is higher than the overall percentage of illegal logging in the country. As sources disagree on the exact volume of logs exported from Russia to China, we have estimated that approximately 40% could be considered illegal due to problems with cutting over permitted volumes, cutting outside the prescribed area, under-declaration of volume and value in exporting, etc. The only other significant source of softwood logs for China is New Zealand, and there is no reason to suspect

<sup>95</sup> Guangcui, Dai. “Study on Discrepancies in Forest Products Trade Statistics.” China National Forestry Economics and Development Research Center, State Forestry Administration. Beijing, China. Prepared for the ITTO. September, 2003.

illegal activity with that volume. For analytical purposes, we have assumed that the overall weighted average of suspicious wood in softwood log imports in China is 35%.

**Table 37: China's Softwood Log Imports 2002**

Source	Imports (000 m <sup>3</sup> )	% Suspicious	Suspicious Volume (000 m <sup>3</sup> )
Russia	13,845	40%	5,538
New Zealand	1,606	0%	0
Australia	75	0%	0
Canada	20	0%	0
Myanmar	56	60%	34
Korea North	51	50%	26
United States	60	0	0
Other	66	0	0
Total	15,780	35%	5,597

China's sources for hardwood log imports reads like a "Who's Who" of countries with problems with illegal logging. Russian hardwood log exports are considered to have a higher percentage of suspicious wood than their softwood log exports to China, because these are much higher value per log and the incentive for cheating is greater (see the Russia profile). Because there is a high export tariff on exported logs from southeast Asian countries, or a prohibition against log exports altogether, and no Chinese import duties on logs, there is an incentive to smuggle logs across the border. For Myanmar in particular, a number of reports point to major problems of this kind, although to what extent material is actually "illegal" given government acquiescence (and even encouragement) is unclear. However, we assume that 60% of Chinese imports from Myanmar are suspicious, an estimate that allows that some of the Myanmar's imports are unreported. The weighted average of suspicious wood in Chinese imports of hardwood logs is 33%.

**Table 38: China's Hardwood Log Imports 2002 (in 1,000 m<sup>3</sup>)**

Source	Imports (000 m <sup>3</sup> )	% Suspicious	Suspicious Volume (000 m <sup>3</sup> )
Malaysia	2121	10%	212
Papua New Guinea	1128	60%	677
W/C Africa	2530	30%	759
Russia	961	50%	481
Myanmar	549	60%	330
EU-15	515	0%	0
Indonesia	248	95%	235
Other	500	30%	150
Total	8553	33%	2844

As a general rule, softwood lumber exported from Russia to China has a lower percentage of suspicious wood than do logs, because it is somewhat easier for Russian officials to inspect companies with sawmills than it is logging companies. Nevertheless, a significant

share of Russian lumber production is from raw material that is likely sourced illegally under current regulations. The other primary sources of softwood lumber such as Canada, New Zealand, Chile, Finland, and the U.S. are considered fully legitimate. According to official trade data (GTIS), a high percentage of the “other” countries exporting softwood lumber to China include Indonesia, Malaysia, Myanmar and Kazakhstan. Given these countries of origin, some portion of this volume is quite likely a misclassification. In aggregate, for analytical purposes, we assume the weighted average of suspicious wood in Chinese imports of softwood lumber to be 17%.

**Table 39: China’s Softwood Lumber Imports 2002**

Source	Imports (000 m <sup>3</sup> )	% Suspicious	Suspicious Volume (000 m <sup>3</sup> )
Russia	457	30%	137
Canada	127	0	0
New Zealand	186	0	0
Chile	49	0	0
Finland	44	0	0
United States	34	0	0
Brazil	25	0	0
Other	267	20%	53
World	1189	17%	198

Indonesia is the largest source of hardwood lumber for China, and the problems with suspicious wood sourcing in that country have been detailed in the Indonesia profile. However, we have little reason to suspect hardwood lumber imports from countries such as the U.S., Germany, and Canada. For Thailand, we assume that much of this lumber is rubberwood, so assign a relatively low percentage of suspicious wood. The weighted average of suspicious wood in Chinese imports of hardwood lumber is 28%.

**Table 40: China’s Hardwood Lumber Imports 2002**

Source	Imports (000 m <sup>3</sup> )	% Suspicious	Suspicious Volume (000 m <sup>3</sup> )
Indonesia	1,316	65%	855
Thailand	591	10%	59
United States	593	0%	0
Malaysia	474	10%	47
Brazil	132	5%	7
Myanmar	183	60%	110
Russia	95	50%	47
Germany	156	0%	0
Canada	154	0%	0
Other	513	10%	51
Total	4,207	28%	1,176

### *Efforts to Address Illegal Logging Issue*

The Government of China has acknowledged that illegal logging is a problem, has been a participant in the Asian FLEG and Asian Forest Partnership meetings, and has discussed bilateral cooperation with Indonesia and the U.K. for combating illegal logging.<sup>96</sup> In 2002, China and Indonesia entered into a Memorandum of Understanding intended to foster cooperation in:

- Identification of illegally harvested forest products and illegal trade;
- Support for “the involvement of Civil Society, especially in the monitoring of implementation of compliance verification”;
- Joint development of systems for the collection and exchange of data on the timber trade, and related forest laws and regulations;
- Joint development of collaboration between enforcement agencies;
- Enhancement of economic cooperation in the forest sector;
- Criteria for sustainable forest development and certification.

In May, 2004 the Governments of China and the United Kingdom issued a joint statement that included the following reference to the problem of illegal logging:

*The two sides reaffirm their wish to strengthen exchanges on environmental issues including climate change, sustainable management of natural resources, and measures to address forest law enforcement(including illegal logging), conservation of water resources, improving air quality and pollution control, and to learn from each other on environment-related legislation, supervision and personnel training.<sup>97</sup>*

In our interviews with importers and wood producers in China, a number of companies acknowledged that there may be some problems regarding the legality of some of the wood imported. This included companies that have mills processing logs in both Russia and Africa. Typically, however, the response took several forms. First, some of the Chinese companies agreed that there was a problem with some sources, but that *their* sources from the country in question had assured these Chinese buyers that *their* wood was perfectly legal. Other companies brushed off the implication, and assured us that the other countries were very strict and there were no problems. If their suppliers said the wood was legal, and the authorities in the supplying countries gave permission to export, how were the importers to know there were any problems?

Finally, the most common theme among Chinese companies was that, even if there were problems, the customers simply didn't seem to care. This included their customers both in China and abroad. If the foreign countries permitted the trade, and if the customers didn't care, the Chinese companies did not understand the problem. Indeed, when it comes to the whole concept of certification, sustainable forestry, etc., most Chinese producers seem to have only a dim understanding of the issues. In China, there are exactly two very small forest properties that have been certified, and only 66 companies have chain-of-custody from FSC for producing products (all for export, of course).

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<sup>96</sup> <http://mofrinet.cbn.net.id/INFORMASI/FLEGT/CINA/moui-cina.htm>

<sup>97</sup> <http://www.number-10.gov.uk/output/Page5779.asp>

One company in China that is well aware of the issue, and concerned about addressing it, is IKEA. The Swedish company has hundreds of suppliers in China, and has had foresters based there for several years to try and identify the sourcing areas for Russian wood coming to these mills. Last year the company opened an office in Russia in the city of Irkutsk (given IKEA's preference for pine and birch furniture, this area is of greater interest to the company than the Russian Far East). The Irkutsk office, which opened January 2003 and has 5 people based there, works to confirm the legality of wood going to Chinese furniture mills. In some cases they have had to cut off suppliers, when it became obvious that there were problems with the information being given IKEA. In addition, the company has cooperated with WWF to sponsor an "anti-poaching brigade" in Evreiskaya Autonomous Oblast, which borders China. This group inspects logging units and logging trucks in the region, helping the authorities to identify illegal logging activity.

### ***Implications for U.S. Exporters***

#### **Softwoods**

The major impact on U.S. exporters comes from Russian softwood logs and to a lesser extent lumber. Estimates of illegal logging in Russia range from 20-30%, but we assume that the share of illegal material in logs for export to China is higher, perhaps 35-40%. A great deal of the timber imported into China from Myanmar is thought to be of suspicious origin, but the volume is so small that its impact on the market is negligible in comparison with the Russian wood. The volume of suspicious Russian softwood in China has several implications for U.S. producers:

- A large share of the Russian wood is used in furniture construction in China. The logs are from old growth forests, the wood is fine-grained, and it is difficult to see that U.S. softwoods would have much opportunity in this market segment.
- Some Russian softwood is used for general construction lumber, sold rough, usually not kiln-dried, for low prices. Elimination of illegal Russian wood could possibly open some opportunities for other softwood, but in a very low end market.
- Some Russian wood is used in producing laminated lumber for Japan. However the volumes are quite small, and this product is basically a replacement for European product in Japan.
- Russian larch is used in some plywood production in China, especially in some concrete form panels. A reduction in larch usage could open up some opportunities, most likely for radiata pine substitution.
- One possibility if Russian softwood log exports to China were greatly restricted could be an increased demand for imports of softwood logs, not lumber, from the U.S. and Canada.

## Hardwoods

Suspicious hardwood logs and lumber enter China from mostly tropical countries (West Africa, Myanmar, Indonesia, Malaysia, etc.), but also from Russia, which is an important supplier of temperate hardwood lumber. Impacts on the U.S. in the China market include:

- Russia exports primarily logs to China, with less than 10% of hardwood exports being in lumber form. A substantial portion of these logs are oak and ash, which compete directly with U.S. hardwoods in the Chinese furniture industry. Russian birch is also used in plywood production. This trade represents one of the most direct examples of competition between illegal wood supplies and U.S. exports of wood products.
- Tropical hardwoods present a less direct competition to U.S. exporters. A large portion of this wood is used in China to produce plywood, including plywood for export to other countries such as the U.S.. For the most part, U.S. hardwoods would not be seen as a good substitute for okoume or meranti in plywood production. In furniture production, reduced supplies of tropical hardwood could result in increased demand for U.S. hardwoods, although much of the demand for species is related to the end-use markets (e.g., oak for furniture sold to the U.S. market). The same could be said of the flooring market in China, although again there is competition between U.S. hardwoods and tropical species in some segments.

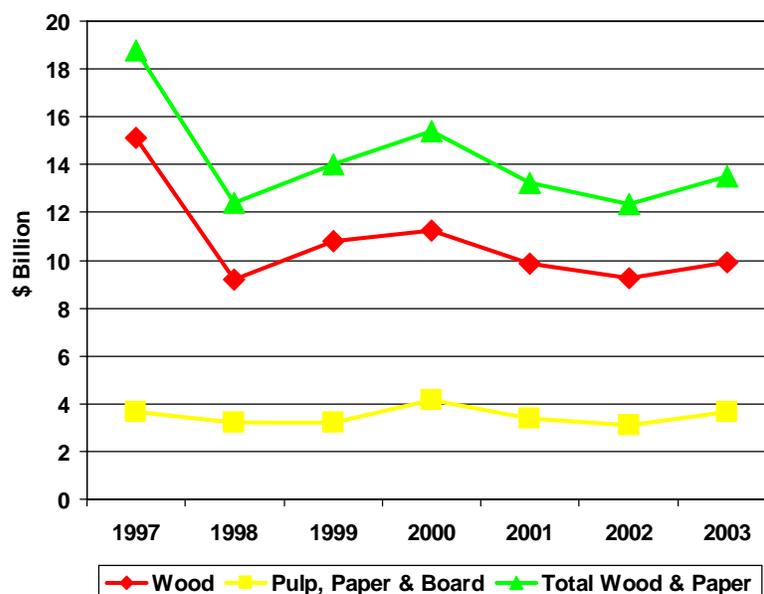
## Japan

### *Overview/Observations*

- Japan imports a significant volume of roundwood, lumber and plywood from countries where illegal forest activity is alleged.
- We estimate that 15% of softwood roundwood imports could be considered of suspicious origin, mostly from Russia, Japan's largest supplier of softwood logs. As much as 20% of Japan's hardwood roundwood imports are of suspicious (potentially illegal) origin. For hardwood lumber and plywood imports, the share is much higher – over 30% according to our analysis.
- The Government of Japan has been an active participant in meetings and initiatives related to illegal logging issues, although the Japanese industry has not generally participated. The view is that illegal forest activity is a national issue, and not relevant in legitimate international trade.
- Major Japanese companies are investing in Russian and Chinese mills. Sourcing for those facilities is likely to be more carefully monitored than for locally operated enterprises.

### *Background/Introduction*

Japan is a large forest products importer and consumer, a major market for U.S. wood product exports, and an active participant in international forums dealing with issues of illegal logging. With \$9.2 billion of imports in 2002, Japan is the world's second largest importer of wood products, behind the United States. It is also the second largest importer of tropical wood products and wood products produced in Asia. Only China imports more timber and wood products. Japan is a country with well-developed political institutions and tight controls over trade and domestic forest policy. Forest production and trade statistics are detailed and reliable. About 64% of Japan's land area is forested with a high proportion of its forest land in private ownership (58%). Because most of Japan's forests are located on steep terrain and in areas not easily suitable for commercial use, domestic production accounts for no more than 30% of the country's total consumption.

**Figure 41:** Japan's Forest Products Imports, 1997 - 2003

### ***Forest Policy and Legal Framework***

Japan has a well-defined legal and institutional structure for forest planning and management that covers both public and private lands. At the core of the institutional framework are three national laws: the Forest Law, Forests and Forestry Basic Law and the Law of Administration and Management of the National Forest. These forest laws are not new, but they have undergone periodic (and recent) revisions to recognize changing values and objectives for sustainable forest management. The Forest Law provides for a multi-tiered planning system at the municipal, regional and the national government levels. Under this statute, all forests are zoned in one of three categories: “forests for water and soil conservation;” “forests for cyclic use; and “forests for the people.” The latter category is essentially a protected designation of forest preserves for parks and recreation, with specific areas designated for various dedicated uses. Private lands are regulated by regional and municipal authorities. As much as 35% of privately owned forests (8.93 million hectares) are restricted from being used for production purposes. National forests comprise 7.2 million hectares and are managed under Administration and Management of the National Forest law. Other laws relating to revitalization and development of mountain villages and under-populated areas also have forest components. Under the Forest Law, written notification is required for most harvesting activities. The administrative process is used to compile statistics on forest production.

Japan's statistical collection procedures for both trade and domestic production of forest products are sophisticated and result in highly accurate data. Forest resources are surveyed every five years through a system of fixed monitoring plots. The Ministry of Finance has the responsibility for collecting trade statistics. Controls over customs and import/export

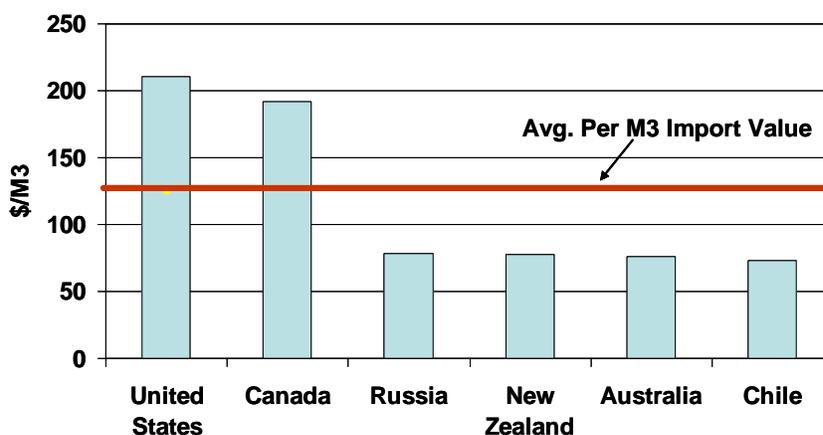
documentation are rigorous. And forest resources are surveyed every five years through a system of fixed monitoring plots.

### ***Roundwood Production and Trade***

Japan imports large quantities of wood products from countries where allegations of illegal harvesting are prevalent, including Russia, Indonesia and Malaysia. Imports have also been increasing from China that, in turn, is a major importer of wood products from those same countries. NGO reports suggest that anywhere from 20% to “the majority” of Japanese imports are from illegal sources. However, none of the estimates are well-documented.

Russia is the largest supplier of softwood logs to the Japanese market, followed by the U.S. and New Zealand. Larch, red pine and white spruce are imported from Far East Russia and generally compete with radiata pine from New Zealand and Chile. Imports from the U.S. and Canada are of higher value species such as Douglas-fir and hemlock. Importers work through agents who obtain logs from various suppliers in Russia. The origin of the logs is not generally known by the Japanese importers, although many are beginning to be asked that question. Controls on logging concessions in eastern Russia are known to be lax. While estimates are difficult to formulate, based on our research, we conclude that approximately 25% of Russian softwood log exports have a high probability of having been harvested without legally mandated permits. These harvests are from areas either without officially authorized concessions or are in excess of permitted levels. The following chart shows the average unit value of softwood log imports in Japan as reported by Japanese Customs. The average value of imports of U.S. softwood logs was nearly three times higher than that of Russian logs in 2003.

**Figure 42:** Average Softwood Log per Unit Import Values, 2003



Source: GTIS

Malaysia is the main supplier of hardwood logs into Japan, followed by Papua New Guinea and Russia (temperate species). Other South Sea countries, such as the Solomon Islands, and central African countries are also significant sources for hardwood logs. The main imported species from Southeast Asia are meranti and keruing, but a species of particular concern is ramin. Indonesia has a harvesting ban on ramin and has listed it on CITES Appendix III. Ramin

harvesting and processing remains legal in Malaysia. The Indonesian government has confirmed allegations by NGOs that ramin is shipped from Indonesia to Malaysia and then sold as of Malaysian origin. Some reports also suggest that other species harvested from protected areas in Indonesia are shipped covertly from Indonesia. Ramin is not classified separately in Japan's HTS system, but is grouped along with several other species in HTS 4403.49.190. In 2002, as much as one-third of Japan's imports of hardwood logs from Malaysia were included in this category. Not all of this material was ramin, but some proportion of that volume was likely ramin, and some of that was likely sourced illegally in Indonesia. Our analytical assumption is that 20% of hardwood logs imported into Japan could be considered of suspicious origin.

### ***Wood Products Trade***

Indonesia and Malaysia are also the main suppliers of hardwood lumber and hardwood plywood into Japan. Together they account for 55% and 93%, respectively, of Japan's imports of these products. Because of the high level of illegal logging in Indonesia, and its importance as a supplier to Japan, we estimate that 32% of Japan's hardwood sawnwood imports and 38% of Japan's hardwood plywood imports are from suspicious sources.

Imported plywood accounts for about 65% of Japanese consumption, with the balance produced domestically, primarily from imported logs. However, Japan's plywood industry has shifted away from hardwood to softwood. About 35% of plywood available in the Japanese market is domestically produced, about half from softwood logs. The principal species used for softwood plywood is Russian larch, supplemented by a small volume of radiata pine from New Zealand. As shown **Figure 42**, Russian logs are less than half the cost of softwood logs imported from Canada or the U.S..

Softwood sawnwood imports in Japan are primarily from Canada and the EU. Hence, we estimate that only a very small percentage of Japan's softwood sawnwood imports are from illegal sources, primarily as part of the volume imported from Russia. In total, we estimate that only 4% of Japan's softwood sawnwood imports and 10% of softwood plywood imports (mostly from China) are from illegal sources.

In 2003, Japan issued "sick house" regulations limiting volatile chemical emissions from, among other products, manufactured plywood and panels. To comply with the emission limits, manufacturers have had to alter the types of resins used in these products and have the products tested prior to their being approved under the Japanese Agricultural or Industrial Standard (JAS or JIS). As a result, a significant (and probably temporary) reduction occurred in plywood imports in 2003 while domestic production increased. Producers in Indonesia, Malaysia and China will likely gain the necessary JAS approvals in upcoming months and higher levels of shipments into Japan will resume. The other effect of these regulations seems to be increased joint venture activity in both Russia and China, although the reasons for Japanese investments extend to raw material supply, lower labor costs and expanding markets in China. Concerns over illegal logging may also be behind investments in Russia, as joint ventures with Japanese management tend to be more rigorous about sourcing legitimate wood supplies.

### ***Japanese Illegal Logging Initiatives***

In June, 2003, the governments of Japan and Indonesia issued a “***Joint Announcement on the Cooperation in Combating Illegal Logging and the Trade in Illegally Logged Timber and Wood Products.***” While not an agreement or Memorandum of Understanding in a formal sense, the announcement and accompanying action plan commit the two governments to cooperate on a number of specific initiatives. Among these are: a mechanism to verify and track legally harvested timber, developing a process for monitoring and implementing the verification system, exchanging information on timber trade and institutional and legal systems, sponsoring studies on measures to thwart distribution and export of illegally harvested timber, and building capacity to improve sustainable forest management.

Japan was also instrumental in launching the ***Asia Forest Partnership (AFP)***, a multi-lateral informational exchange on forest developments in the region. The AFP has met three times, most recently in November, 2003. The AFP has had the participation of environmental NGOs, most notably the Japan office of The Nature Conservancy, but not industry. The Partnership has focused on three areas for cooperation: (1) measures to combat illegal logging; (2) prevention of forest fires; and (3) rehabilitation and reforestation of degraded lands. The group has endorsed the development of standards to track and verify legality of timber and chain of custody tracking systems. The countries have agreed to cooperate as well on informational exchanges regarding customs processes, training resources and satellite technology. The GOJ has committed \$100,000 to the work of the AFP specifically towards work for a verification system. This is in addition to \$150,000 that Japan contributed through the ITTO. The AFP secretariat is CIFRO in Indonesia.

### ***Implications for U.S. Exporters***

#### ***Softwoods***

While softwood log exporters from the U.S. have long competed with Russian suppliers, U.S. exporters also compete in the Japanese market for plywood and engineered wood products. For example, as mentioned earlier in this section, the Japanese plywood industry has shifted to using approximately 50% softwood logs in recent years, mostly larch logs from Russia. To the extent that illegal activity reduces the cost of these larch logs for the plywood industry, this adversely impacts U.S. softwood plywood exporters. In addition, Indonesian plywood produced with illegal logs may compete with U.S. softwood plywood exports in the concrete forming market in Japan. In the Japanese market, softwood and tropical hardwood products often compete head-to-head in structural applications. Both softwood and hardwood lumber and plywood products are able to obtain JAS (Japan Agricultural Standards) certification for construction use.

Russian wood is also influencing the engineered wood market in Japan indirectly. At least six companies in China have been JAS certified to produce laminated lumber for the Japanese market. All of these companies use imported Russian softwood, primarily red pine from Siberia. Again, to the extent that illegal activity lowers the cost of this Russian wood, there could be an adverse impact on U.S. wood exporters in Japan.

### *Hardwoods*

The greatest impact on U.S. hardwood exporters in the Japan market is likely to be for hardwood lumber. U.S. exporters compete directly with oak and ash imports from Russia, as well as Russian hardwoods which have been processed into finished flooring, doors, furniture, and other manufactured products in China. According to our wood flow diagram analysis, as much as 32% of Japan's hardwood sawnwood imports are from illegal sources, implying a significant opportunity for U.S. exporters if this illegal activity was curtailed. In contrast, U.S. hardwood plywood does not have much of a foothold in Japan and probably could not develop much of a market, given other potential suppliers, even with a big reduction in Indonesian illegal logging activity.

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## European Union

### *Overview/Observations*

- Some NGO reports allege illegal logging occurs within the newly acceded European Union countries including Estonia and Latvia. The governments of the countries take issue with high estimates of illegal activity and note that many are based on documentation of relatively minor administrative violations.
- Based on our wood flow analysis, perhaps 1% of the EU-15 softwood log supply (production plus imports), but as much as 7% of the region's hardwood log supply could be suspicious. We also assume that as much as 25% of EU hardwood plywood imports are suspicious, mainly because Indonesia is a dominant supplier.
- The European Commission has recently enacted a program to encourage a licensing system for imported timber and sawnwood products. The EU would enter into partnership agreements with countries willing to create a verifiable export license program that ensures legality of products entering the EU market. These agreements would apply only to external EU trade.
- The European program will likely have implications for other countries trading with Europe.
- Several European countries have developed (or are in the process of developing) procurement policies that will require, or at a minimum provide guidelines for, proof of legality for timber product purchases. In every case, certification is favored as the preferred mechanism of ensuring legality.

### *Background/Introduction*

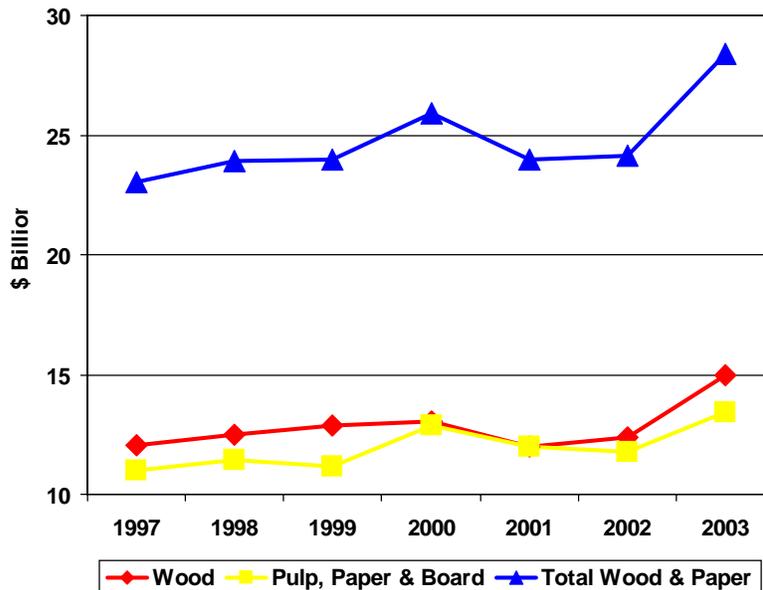
The European Union (EU) expanded to 25 member countries on May 1, 2004 and now encompasses a trading block of over 450 million people. About 40%, or 160 million hectares, of the expanded EU is classified as forest and other woodland. With the accession of several countries that have significant wood resources and wood products manufacturing capacity, the expanded EU represents about 20% of global wood products production and consumption. With the expanded membership, intra-regional trade dominates product flows. Nevertheless, the EU region is a net importer of both softwood and hardwood logs, and several European countries are significant importers of other wood products from outside of the region. As net external trade data for the expanded EU community are not yet compiled, data presented in this report are analyzed separately for the 15 countries comprising the EU and the 10 acceded countries prior to the expansion.

Wood imports (HTS Chap. 44) into the EU-15 from outside of the trading block totaled approximately \$12.4 billion 2002, or 22% of the world total (not including intra-EU trade). Countries acceding to the EU in 2004 supplied about 30% of EU-15 imports in 2002. Countries

of west/central Africa supplied 10% of total EU imports, Russia contributed 10% and the United States accounted for a little over 8%. In 2003, EU imports increased by 20%, to nearly \$15 billion. Most of this increase originated in countries acceding to the EU in 2004, but Chinese and Russian imports also increased significantly. Chinese imports into the EU in 2003 totaled \$810 million, a 34% increase compared to 2002.

Several European countries have been singled out by environmental NGOs for importing high volumes of suspicious wood products. The estimates vary widely, and are characterized in different ways, but generally range from 4% of all imports to 40% of tropical wood imports, depending on the country. As an example, in one of many circular references, EIA cites Friends of the Earth estimates that in 1999, Italy imported about 500,000 m<sup>3</sup> of illegal tropical timber with an import value of €150 million.<sup>98</sup>

**Figure 43:** EU-15 Forest Products Imports, 1997 – 2003  
(EU External Trade Only)



Source: GTIS

### **Forest Policy and Legal Framework**

Because of differences in forest ownership, cultural and social history, vested local or regional political authority, and a variety of other factors, national policies among EU members are not uniform. However, with the possible exceptions of Greece and Malta, all have significant wood producing sectors. As in the United States, private forest ownership dominates, although many of the newly acceded countries are still wrestling with privatization issues. Since the mid 1990s, most countries have revisited, revised or, in some cases, dramatically changed regulations that might apply to forest management. Many of these changes have sought to bring national

<sup>98</sup> Matthew, Ed. "European League Table of Imports of Illegal Tropical Timber." Friends of the Earth, August 2001; "Framed: Italy's dirty trade in stolen timber." EIA/Telepak, 2003.

goals or policies in line with international agreements or encourage improvements in sustainable forest management. In parts of central and eastern Europe, privatization of forestland, forest industry or both has altered the dynamics of timber production and processing. For example, over half of the forest ownership in Latvia has transitioned from state to private ownership, as has all of its forest manufacturing enterprises.<sup>99</sup>

One of the principal roles of the European Commission and Parliament is to harmonize policies and standards among EU countries, particularly with respect to commerce and trade. Of the 23 Directorates General of the European Commission, several have established broad objectives or are involved in regulatory matters that include aspects of forest management and trade. Four Directorates General -- Development, Environment, Enterprise and Trade -- have been the most active in developing policies related to illegal logging issues.

### ***Resource Situation***

Several important timber-producing countries joined the EU in May, 2004, increasing total forest area to about 20% of the world total. A little over half (54%) of the European resource is comprised of predominantly softwood (conifer) species, about 30% is predominantly hardwood, and the balance is of mixed forest types. The expanded EU-25 represents about 20% of global industrial roundwood production. Sweden and Finland are the largest timber-producing countries, followed by Germany, France and Poland. About 5.5 million hectares of short/medium rotation plantations -- 70% softwood and 30% hardwood -- have been established, mostly in France, the U.K., Ireland, Spain and Portugal. Harvest from these planted forests accounts for less than 10% of the region's annual production.

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<sup>99</sup> See UN Economic Commission for Europe. "Forest Policies and Institutions in Europe 1998 – 2000." ECE/TIM/SP/19.

**Table 41: EU Forest Resources and Industrial Roundwood Production**

	Total Land (000 ha)	Forest Area (000 ha)	% Forest	% Predominantly Softwood	% Predominantly Hardwood	Mixed	FAO Industrial Production (000 m <sup>3</sup> )	% of EU-25
Austria	8,387	3,924	46.8%	68.0%	12.2%	19.8%	11,809	3.8%
Belgium	3,053	672	22.0%	42.3%	49.8%	7.9%	3,950	1.3%
Denmark	4,309	538	12.5%	37.8%	25.0%	37.2%	789	0.3%
Finland	33,814	22,768	67.3%	80.4%	7.7%	11.9%	48,529	15.7%
France	54,919	16,989	30.9%	27.2%	63.8%	9.0%	33,500	10.8%
Germany	35,702	10,740	30.1%	56.4%	25.3%	18.3%	37,755	12.2%
Greece	13,196	6,513	49.4%	42.5%	57.5%	0.0%	498	0.2%
Ireland	7,029	591	8.4%	83.9%	14.4%	1.7%	2,454	0.8%
Italy	30,132	10,842	36.0%	21.2%	71.7%	7.1%	3,222	1.0%
Luxembourg	259	89	34.4%	36.0%	62.0%	2.0%	135	0.0%
Netherlands	3,735	339	9.1%	42.2%	43.1%	14.7%	703	0.2%
Portugal	9,204	3,467	37.7%	26.9%	60.0%	13.1%	8,142	2.6%
Spain	50,596	25,984	51.4%	43.5%	37.9%	18.6%	13,850	4.5%
Sweden	45,218	30,259	66.9%	78.7%	5.9%	15.4%	61,600	19.9%
United Kingdom	24,410	2,489	10.2%	60.8%	32.4%	6.8%	7,142	2.3%
EU-15	32,3963	136,204	42.0%	57.0%	29.8%	13.2%	234,080	75.7%
Cyprus	925	280	30.3%	99.1%	0.9%	0.0%	10	0.0%
Czech. Rep.	7,887	2,630	33.3%	31.2%	13.2%	55.6%	13,534	4.4%
Estonia	4,523	2,162	47.8%	39.1%	20.6%	40.3%	8,570	2.8%
Hungary	9,303	1,811	19.5%	11.4%	78.2%	10.4%	3,438	1.1%
Latvia	6,459	2,995	46.4%	39.1%	18.5%	42.4%	12,268	4.0%
Lithuania	6,530	2,050	31.4%	46.2%	34.3%	19.5%	4,860	1.6%
Malta	32	1	1.1%	0.0%	0.0%	100.0%	0	0.0%
Poland	31,268	8,942	28.6%	66.6%	15.4%	18.0%	25,040	8.1%
Slovakia	4,903	2,031	41.4%	30.8%	47.6%	21.6%	5,506	1.8%
Slovenia	2,027	1,166	57.5%	29.9%	37.6%	32.5%	2,003	0.6%
EU+10	73,857	24,067	32.6%	46.3%	26.1%	27.6%	75,231	24.3%
EU 25	397,820	160,271	40.3%	54.1%	30.5%	15.5%	309,310	100.0%

***Illegal Logging in Europe***

NGOs have largely directed their concerns about illegal forest activity **within Europe** at European countries with economies in transition, mainly Latvia and Estonia. Both are now members of the European Union. According to some web-based reports, half or more of timber harvested in Estonia and Latvia is illegal, although little or no supporting evidence accompanies

the allegations.<sup>100</sup> The official government estimates are no more than 2 to 3%. The failures to conform to felling licenses or not filing information about changes in legal possession are two examples of regulatory infractions that occur.<sup>101</sup> The Latvian State Forest Service has recorded thousands of infractions since 1999.<sup>102</sup> To the extent that these problems exist, they can be mostly attributed to insufficient government resources for technical assistance and regulatory enforcement. The situation is likely to improve over time as these countries increasingly harmonize with the rest of Europe.

In terms of imports from **outside of Europe**, NGO attention has primarily focused on tropical timber alleged to have been illegally harvested and, to a lesser extent, on imports from Russia. Violations of CITES are also claimed in a number of NGO reports. For example, EIA/Telepak alleged that the Italian CITES management authority is not ensuring compliance with CITES and not adequately informing companies involved in trade of the CITES requirements.<sup>103</sup> Greenpeace also claims to have exposed the illegal importing of Afrormosia (a CITES-listed species) into Belgium from Cameroon.<sup>104</sup>

### ***Roundwood Production and Trade***

The EU is a major importer of softwood and hardwood logs, primarily as pulpwood for the paper industry in the Nordic countries. In 2003, the EU-15 imported approximately 18 million m<sup>3</sup> of softwood logs and 17 million m<sup>3</sup> of hardwood logs. About half (49%) of softwood log imports to the EU-15 were from Russia and most of the rest came from countries that are now part of the expanded EU, including Latvia and the Czech Republic. The same is also true to a large extent for hardwood logs. Russia accounted for 43% of hardwood log imports in 2003. ITTO producer countries collectively accounted for 13%, with west/central African countries supplying the lion's share of these predominantly tropical hardwood imports. Europe has historically had close trading relationships with west/central Africa. While Europe imports some tropical hardwood logs from South America, most are plantation-grown Eucalyptus pulpwood logs from Brazil.

Although European influence in African forestry operations has been historically dominant, Asian investment has significantly increased over the past decade. Since 2001, China has displaced Europe as the main importer of African timber. European imports from Africa have declined from 3.5 million m<sup>3</sup> in 1997 to 2.0 million m<sup>3</sup> in 2003. China imports from West/Central African countries now exceed 2.5 million m<sup>3</sup>. These data show an obvious shift in demand for African timber away from Europe toward Asia, and particularly China. In total, global imports of African hardwood logs appear to have declined by 10 – 15% since 2000, at least in value terms, to approximately \$1 billion in 2003.

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<sup>100</sup> Toyne, Paul et al. "The Timber Footprint of the G8 and China: Making the Case for Green Procurement by Government, WWF International, 2002.

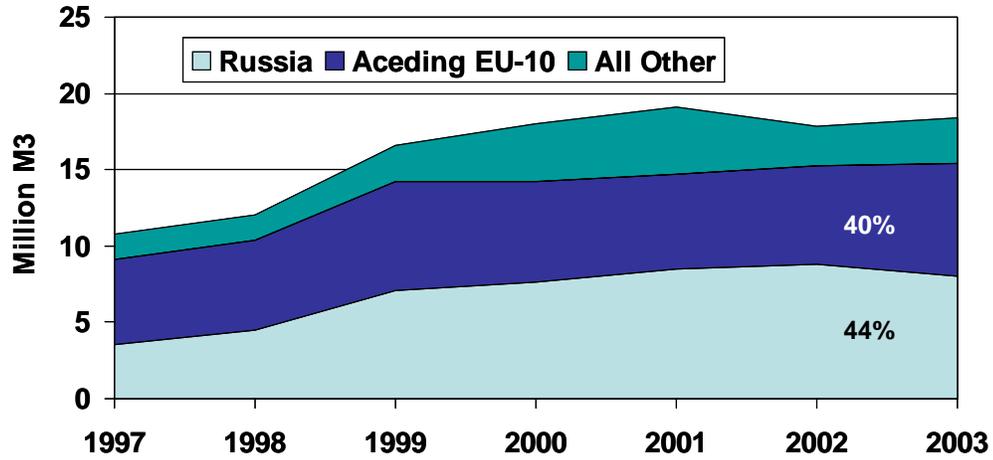
<sup>101</sup> Loze & Kokons. Logging and Trade of Acquired Timber: Legal Regulation, Procedures and Ways to Evade Them." WWF Latvia. 2002.

<sup>102</sup> Bystrom, Marie and Lloyd, Sarah. "Responsible Trade in the Shadow of Illegal Logging: Swedish Import of Latvian Timber and Wood Products." WWF International, 2002.

<sup>103</sup> EIA/Telepak. "Framed: Italy's dirty trade in stolen timber." 2003.

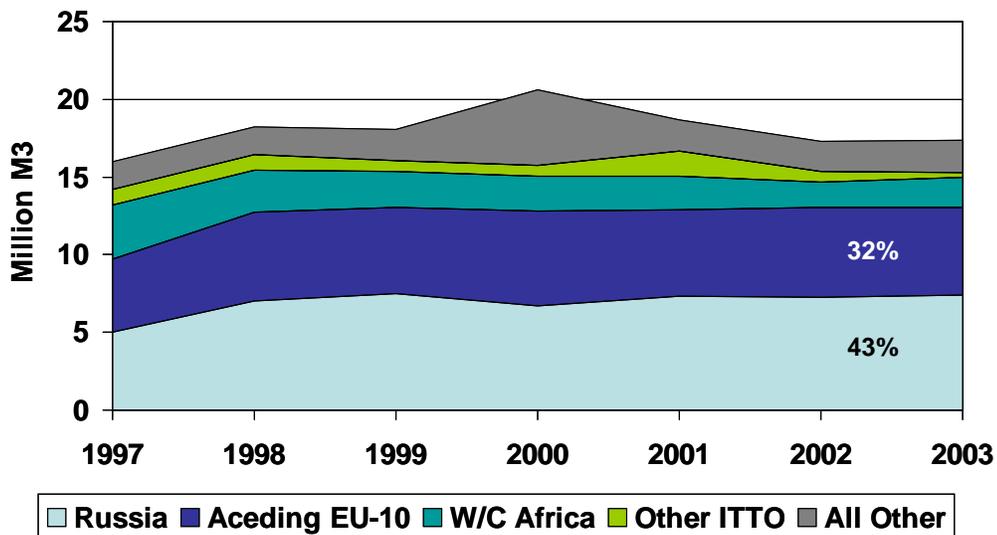
<sup>104</sup> Cotton, Catherine et al. "Against the Law: The G8 and the Illegal Timber Trade." Greenpeace. April, 2000.

**Figure 44:** EU Softwood Log Imports  
(External Trade)



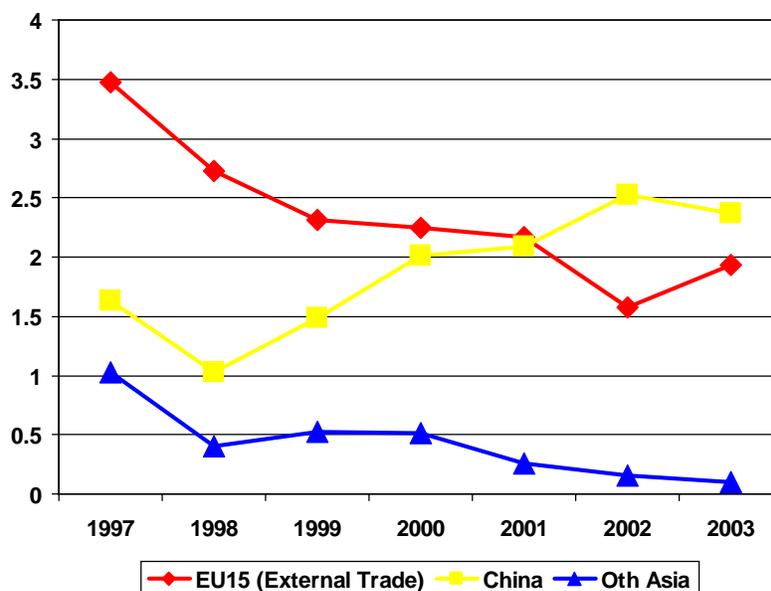
Source: GTIS

**Figure 45:** EU Hardwood Log Imports  
(External Trade)



Source: GTIS

**Figure 46:** Hardwood Log Imports From West/Central Africa  
(million m<sup>3</sup>)



Note: Other Asia includes: Japan, Malaysia, Hong Kong, Taiwan, and South Korea

Source: GTIS

### ***Lumber and Other Imported Wood Products***

Prior to May 1, 2004, the acceding 10 European countries were the main sources of softwood lumber imports into the EU-15. In 2003, they accounted for 66% of the volume and 44% of the total value of softwood lumber reported as imported into the EU-15. Russia is the other major supplier, accounting for 26% of 2003 softwood lumber imports by value and 12% by volume. Canada and the U.S. were the next largest sources, but together they represent less than 3% of the EU's softwood lumber imports (by volume).

The hardwood lumber picture is a little different, with the West/Central African region and the United States each accounting for 22% of the EU's hardwood lumber imports on a value basis. The acceding countries produce and supply a significant share of the EU's hardwood lumber also and in 2003 they accounted for 12% of its total imports by value. Other significant sources of hardwood imports are Malaysia (14%), Canada (7%) and Brazil (6%).

With major softwood plywood producers within its membership, the EU-15 countries rely on imports for just 4% of total consumption, and even less now with the acceding countries having joined. In 2003, the EU-15 imported a total of approximately 2.0 million m<sup>3</sup> of softwood plywood. The largest source of softwood plywood imports into the EU was Brazil, followed by Russia.

In contrast to softwood plywood, hardwood plywood imports represents more than twice as much as the EU's internal production. Some 3.0 million m<sup>3</sup> of hardwood plywood were

imported in 2003. Indonesia and Russia are the two largest external suppliers of hardwood plywood, followed by Brazil and China.

### ***Implications for U.S. Exporters***

#### ***Softwoods***

With the accession of 10 central and eastern European countries this year, the EU has become largely self-sufficient in softwood production, although Russia continues to be an important supplier (particularly for pulpwood). Control of illegal logging would seem to present few direct additional opportunities for U.S. softwood exporters in Europe. There seems to be sufficient capacity within the EU, and from major, reputable companies producing lumber in Eastern Europe/Russia, to fill any “gap” that might be created by elimination of illegal logging. For plywood, Brazil is the dominant source of imported softwood plywood in Europe, but this Brazilian product is all produced from plantation timber, much of it FSC certified. Thus, elimination of illegal logging in Brazil would have no impact on this trade.

#### ***Hardwoods***

On the other hand, elimination of illegal logging in West/Central Africa could open some opportunities for U.S. exporters of hardwood sawnwood. The U.S. and West/Central Africa combined currently account for about 22% of Europe’s hardwood sawnwood imports, but American temperate species compete in a relatively small share of the hardwood lumber market, perhaps 15% - 20%. The U.S. could benefit less directly, as it could displace some of the large flow of suspicious African wood to China that result in exports of finished products to the EU. U.S. exporters of hardwood veneer could also benefit from efforts to curtail illegal logging to the extent that temperate species are substituted in hardwood plywood manufacture.

### ***Illegal Logging Initiatives in Europe***

In Europe, activities related to illegal logging are being driven by the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT). The Action Plan was issued by the European Commission (EC) in May, 2003 as a follow-up to the 2002 World Summit on Sustainable Development (WSSD), a Ministerial Conference held in Asia in 2001, and several workshops and meetings held in Europe. The EU Action Plan outlines several initiatives designed to restrict illegal logging and related trade with the EU. Chief among these are:

- developing a plan to enter into voluntary bilateral agreements between the EU and partner countries to build monitoring and enforcement capacity and develop systems for tracking legal timber;
- developing a third-party verified export licensing system to issue export permits for assuring legality on every shipment to the EU;
- prohibiting the entry of imports from partner countries that do not have a permit;
- encouraging national government procurement policies that require proof of legality for wood products; and
- exploring options to restrict the importation of illegal timber products.

The measures outlined in the Action Plan have thus far addressed only unprocessed logs and sawntimber. In addition, the plan calls for private sector initiatives (such as corporate responsibility policies), targeted development assistance, and financing and investment safeguards (including applying money-laundering laws to timber trade). A regulation to formally implement the EU Action Plan was enacted in July, 2004.

Some of the European countries have been more active and supportive of the EC initiative than others. For example, the U.K. is among the most active in terms of developing procurement policies and supporting the EC's work on the FLEGT program. The U.K. procurement policy requires certification or an equivalent tracking program to ensure legality of timber products. The U.K. government is creating a "Central Point of Expertise" on timber trade to provide guidance and advice to government agencies seeking to procure wood products. The CPET will provide information on certification programs and almost certainly will be in a position to issue guidance or opinions that will affect purchasing. The CPET is charged with reviewing definitions of "legal" and "sustainable" and will be assessing five certification schemes to determine if they fulfill the requirements of the U.K. procurement policy.

The Netherlands and Denmark have also initiated actions for specifying timber procurement requirements related to legality and/or sustainability. A mandatory "green" light system for indicating whether wood products are sustainably sourced is working its way through the Dutch legislature. The bill would establish a separate labeling system with rigorous criteria for chain-of-custody, legality and sustainability. Denmark adopted a voluntary timber procurement policy directed at tropical timber products to "make it easier for public and semi-public institutions to ensure that the tropical timber they purchase is produced in a legal and sustainable manner." The Danish policy articulates a preference for FSC certification as an acceptable measure of both legality and sustainability. Germany's timber procurement policy also favors FSC certification as the preferred mechanism for determining legality, but allows other the use of other unspecified certificates. However, the government has not published criteria for assessing whether a certificate can be considered "reliable." As of Jan. 2004, the government was developing a broader procurement policy covering tropical wood and non-tropical wood. In a similar approach as in the U.K. with its CPET, the German policy will establish criteria to evaluate certification systems using FSC as a benchmark.<sup>105</sup> As a general rule, the Nordic and southern European countries have been moving more slowly with respect to procurement policies. France is in the process of developing guidelines for tropical wood procurement. Reports from Spain suggest that public agencies are using the European FLEGT Action Plan as justification for requiring FSC certification for government purchasing.

For their part, the European trade groups are taking steps to accommodate government procurement policies and consumer concerns. Among the developments:

- The Timber Trade Federation (TTF) in the U.K. has strengthened its Environmental Timber Purchasing Policy to conform to the U.K. government's procurement guidelines. As part of its policy, it is proposing that members conduct a risk assessment of suppliers

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<sup>105</sup> Garforht, Mike. "To Buy or not to buy: Timber procurement policies in the EU." FERN, January 2004.

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that must show progress toward proof of legal sourcing and sustainability. Ultimately all TTF members are committed to certification and timber tracking systems. In conjunction with the Tropical Forest Trust (TFT), TTF conducted a study of 16 Indonesian plywood mills that found inadequate proof of legal sourcing. On the basis of TTF/TFT study, TTF has joined with other trade groups in seeking European Commission funds for a tropical supply chain management project in Cameroon, Gabon, Indonesia and Malaysia.

- In 2003, four U.K. plywood importers stopped importing Indonesian product because of concerns about legal timber sourcing. The Indonesian BRIK export permitting program is not viewed as credible in the U.K. The result was a decline of 100,000 m<sup>3</sup> of tropical wood imports. Importers shifted purchasing mainly to Brazil, and some to Malaysia. In addition, TTF reported that some firms substituted softwood plywood and OSB for tropical hardwood plywood.
- The Confederation of European Paper Industries (CEPI) is also developing code of conduct that its association members can adopt. CEPI is also working jointly with CEI Bois (the European woodworking association) to develop common accounting rules for chain of custody tracking that could be used regardless of the selected certification scheme. Eventually, they would hope to develop an ISO standard on chain of custody tracking rules. PEFC is looking at harmonizing the various chain-of-custody standards as well. Presumably, these common approaches will establish acceptable documentation for ensuring legality.
- The major forest products companies in Sweden and Finland have indicated that they have sophisticated tracking systems in place that resolves any legality issues with imports from Russia.
- The Spanish Timber Importers' Association (AEIM) is considering strengthening its Code of Conduct, which already addresses legality of tropical timber, to include the use of a standard contract form requiring suppliers to provide an assurance of legality.
- Le Commerce de Bois (LCB), the French timber trade association is preparing a "corporate and social responsibility" guide and has elevated timber procurement to a priority issue.
- A study by the U.K. Overseas Development Institute (ODI) recently examined the potential role of independent forest monitoring (IFM) in reducing illegal forest activity. Some countries have contracted with NGOs or consulting groups to monitor forest operations for compliance with laws and regulations.
- As part of the European FLEGT process, efforts are underway to examine money-laundering laws as a vehicle for cracking down on illegal logging.
- Earlier this year, WWF conducted a "Government Barometer" survey to rate actions and commitments by European governments in addressing illegal logging. For their positions on an assortment of related policies, the survey rated 12 EU governments on the strength

of their commitments. The survey ranked the U.K. highest, meaning the most proactive, followed by Denmark and Germany. Italy and Portugal ranked lowest.

**Table 42:** WWF Criteria to Assess Government Commitment to Action on Illegal Logging and Survey Results

1. Position on the development of a voluntary licensing scheme on timber
2. Position on an EU legislation that would outlaw the import and marketing of illegal wood
3. Position on an EU initiative to stop illegal logging in EU access and candidate countries
4. Level of collaboration across Government departments on the FLEGT action plan
5. Commitment to ensure public procurement of legal and sustainable wood products
6. Implementation of commitments on public procurement of legal and sustainable wood products
7. Participation in partnerships on combating illegal logging and related trade
8. Effect of participation in partnerships on combating illegal logging and related trade
9. Level of priority for projects in wood-producing developing countries to reduce illegal logging

<b>Criteria:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>Total</b>
Country:										
UK	2	1	0	2	2	1	2	0	2	<b>12</b>
Denmark	2	1	2	2	1	0	0	0	1	<b>9</b>
Germany	2	0	1	1	1	0	1	0	1	<b>7</b>
Sweden	1	2	2	1	0	0	0	0	1	<b>7</b>
Austria	1	0	1	2	1	0	0	0	1	<b>6</b>
Finland	0	1	1	2	0	0	0	0	2	<b>6</b>
France	2	0	0	1	2	0	0	0	1	<b>6</b>
Greece	2	2	1	0	1	0	0	0	0	<b>6</b>
Netherlands	2	1	0	2	0	0	0	0	1	<b>6</b>
Spain	2	1	2	1	0	0	0	0	0	<b>6</b>
Italy	0	2	2	1	0	0	0	0	0	<b>5</b>
Portugal	1	2	2	0	0	0	0	0	0	<b>5</b>
<b>Total</b>	<b>17</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>8</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>10</b>	<b>81</b>

*Source:* WWF as reported by Rupert Oliver

*Note:* Government efforts with regard to these nine criteria were scored from zero to two, allowing WWF to calculate a total score for all countries as well for all issues.

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*APPENDIX*

Figure A – 1: Brazil Softwood Fiber Wood Flow

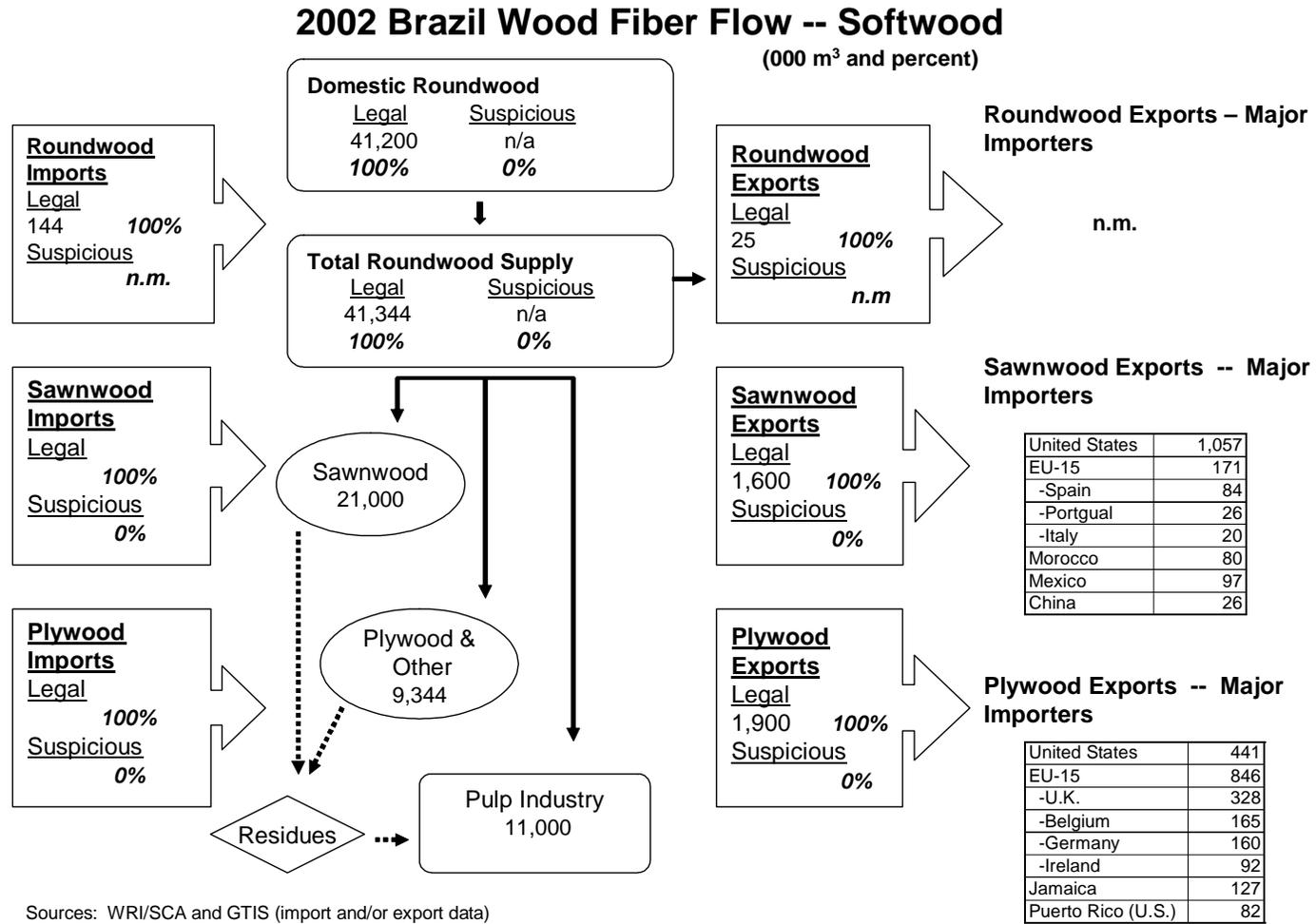
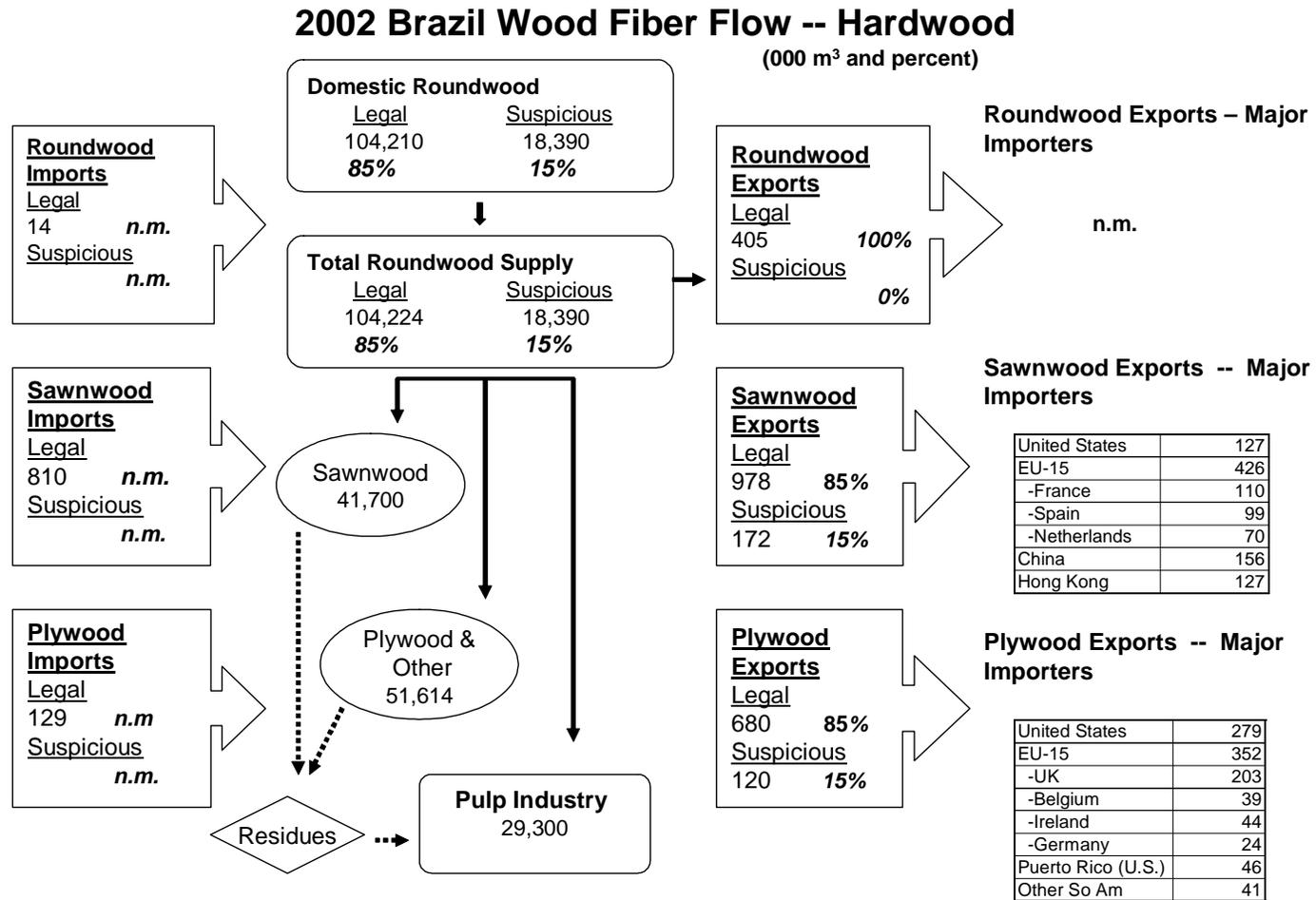
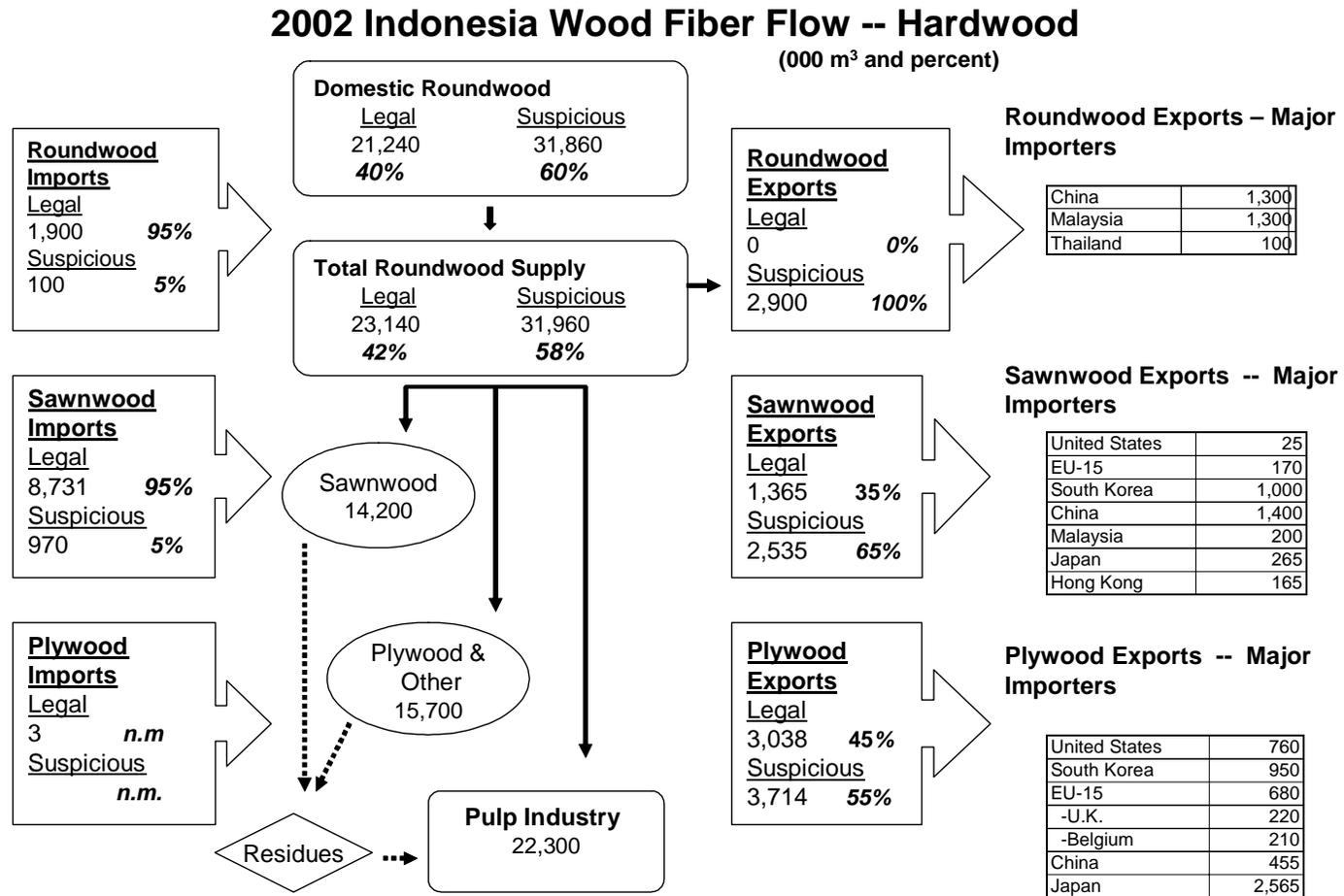


Figure A – 2: Brazil Hardwood Fiber Wood Flow



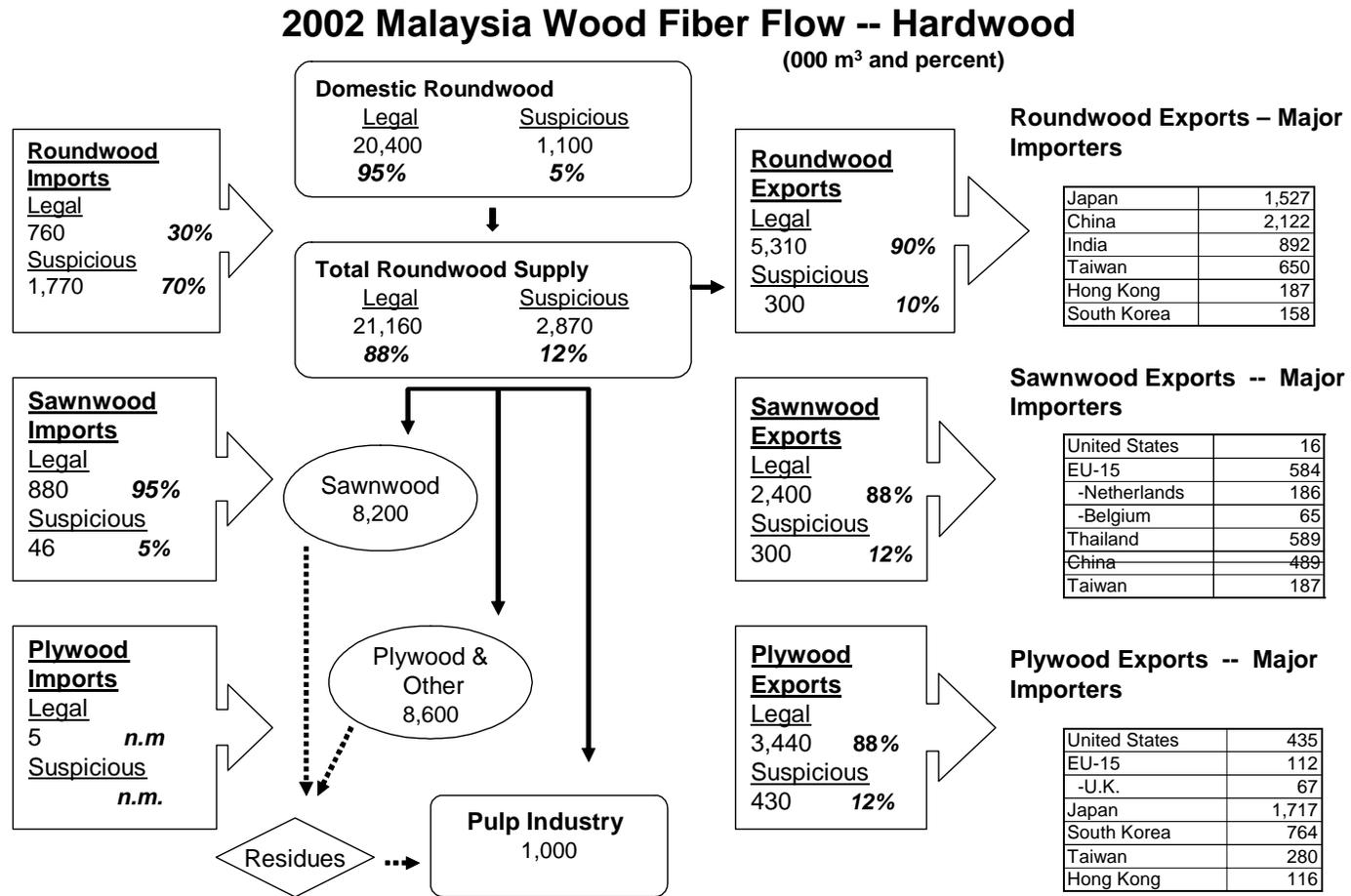
Sources: WRI/SCA and GTIS (import and/or export data)  
 n.m. = not meaningful or diminimis

Figure A – 3: Indonesia Hardwood Fiber Wood Flow



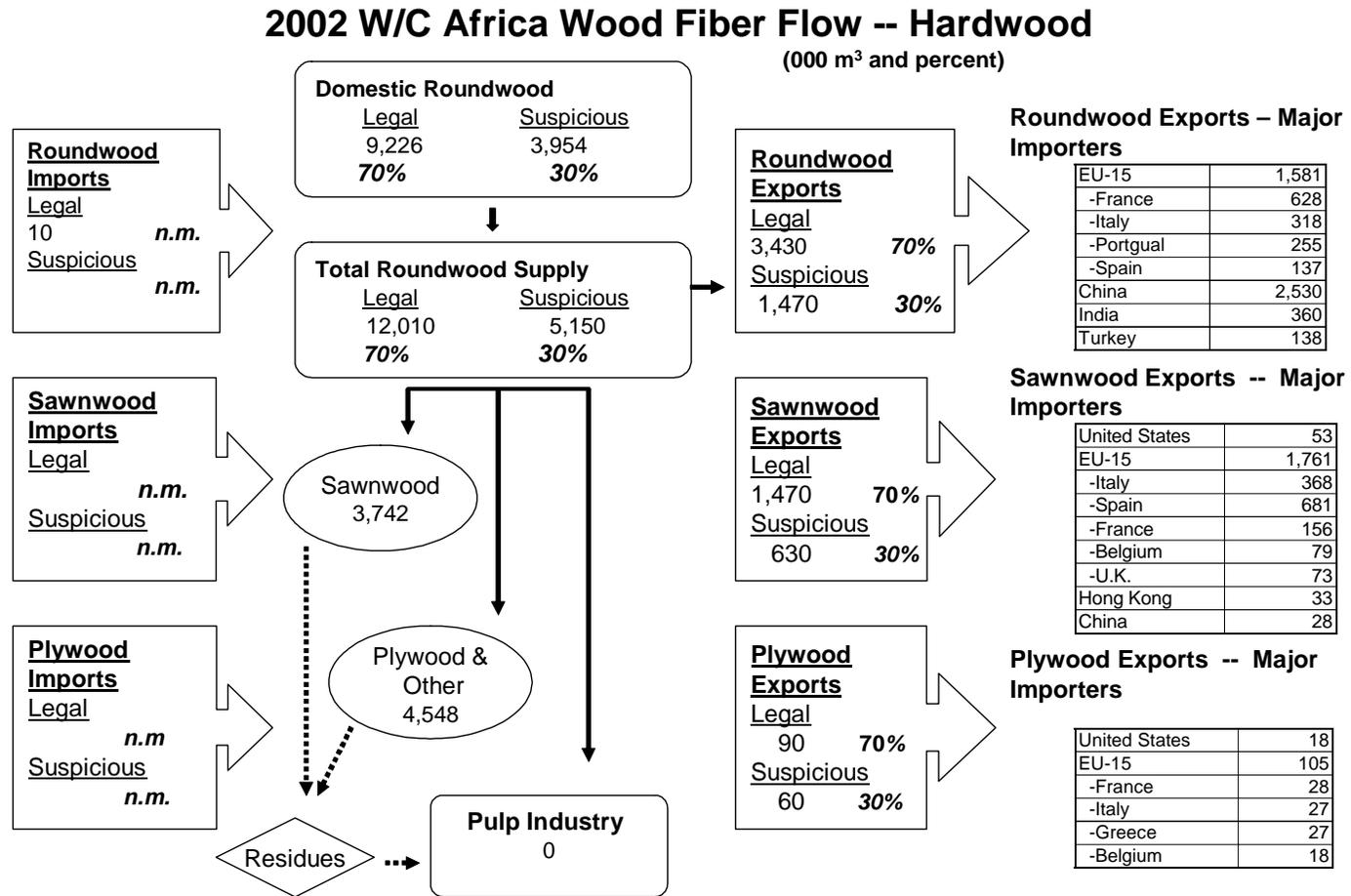
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 n.m. = not meaningful or diminimis

**Figure A – 4: Malaysia Hardwood Fiber Wood Flow**



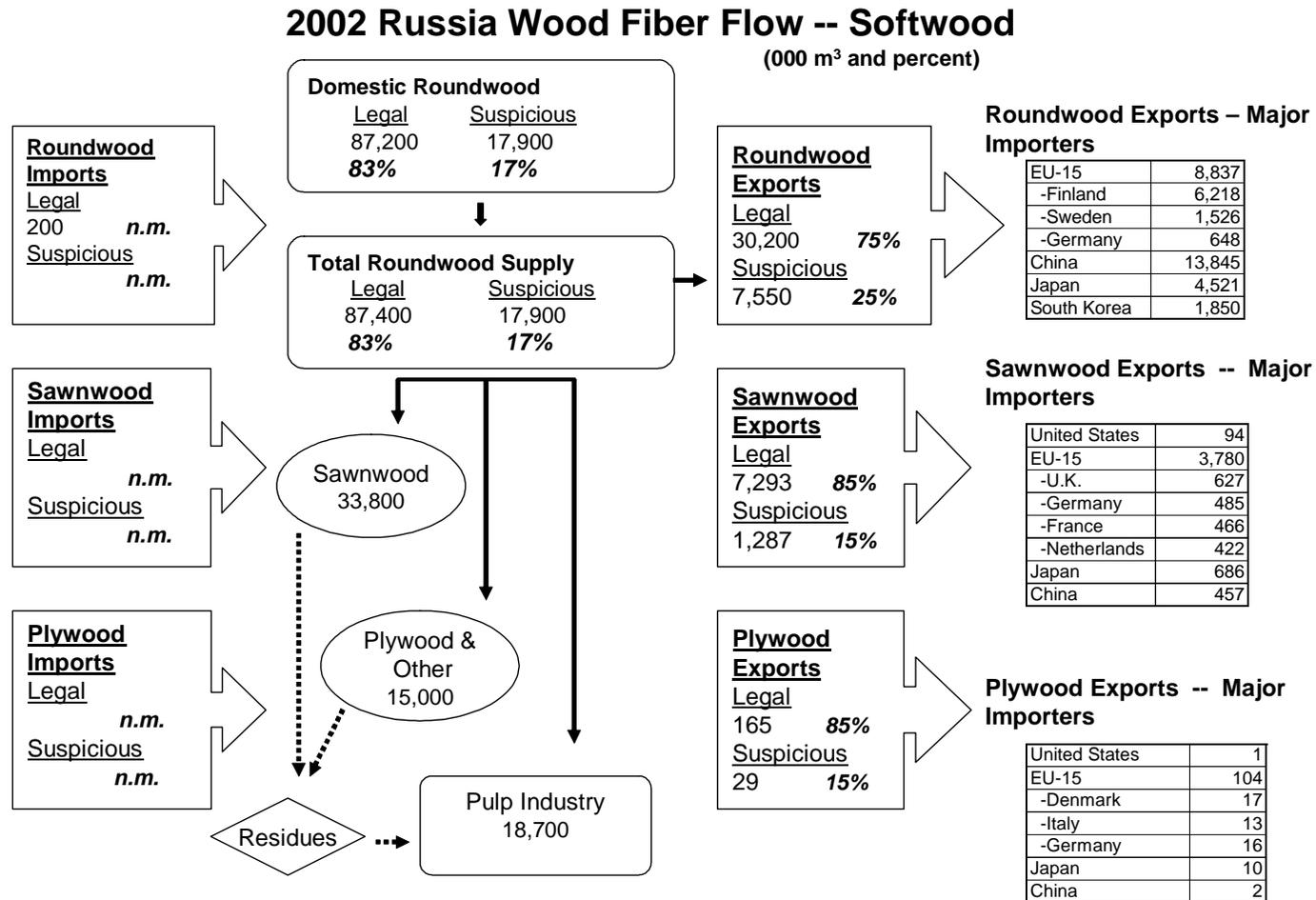
Sources: WRI/SCA and GTIS (import and/or export data)  
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Figure A – 5: W/C Africa Hardwood Fiber Wood Flow



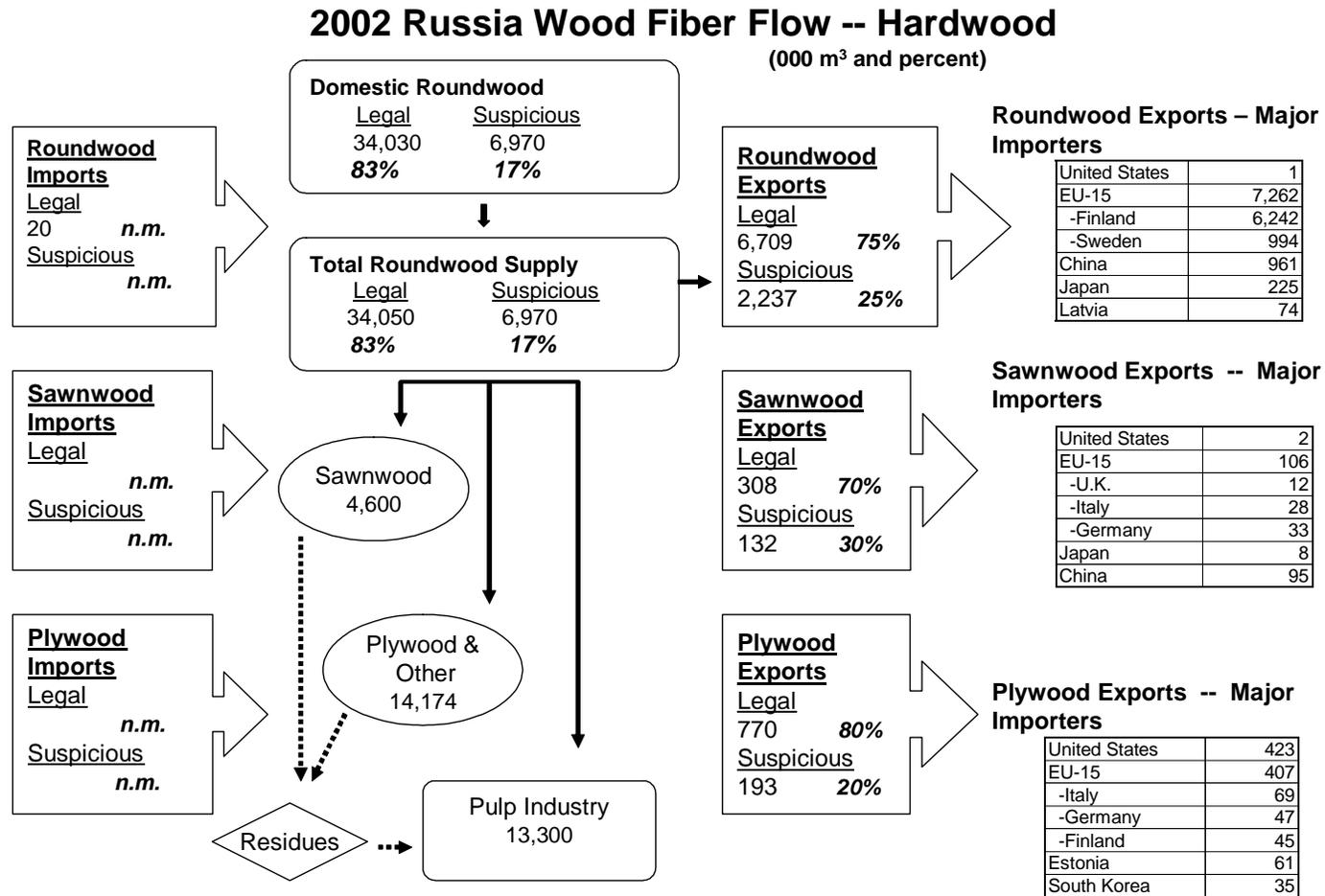
Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis

Figure A – 6: Russia Softwood Fiber Wood Flow



Sources: WRI/SCA and GTIS (import and/or export data)  
 n.m. = not meaningful or diminimis

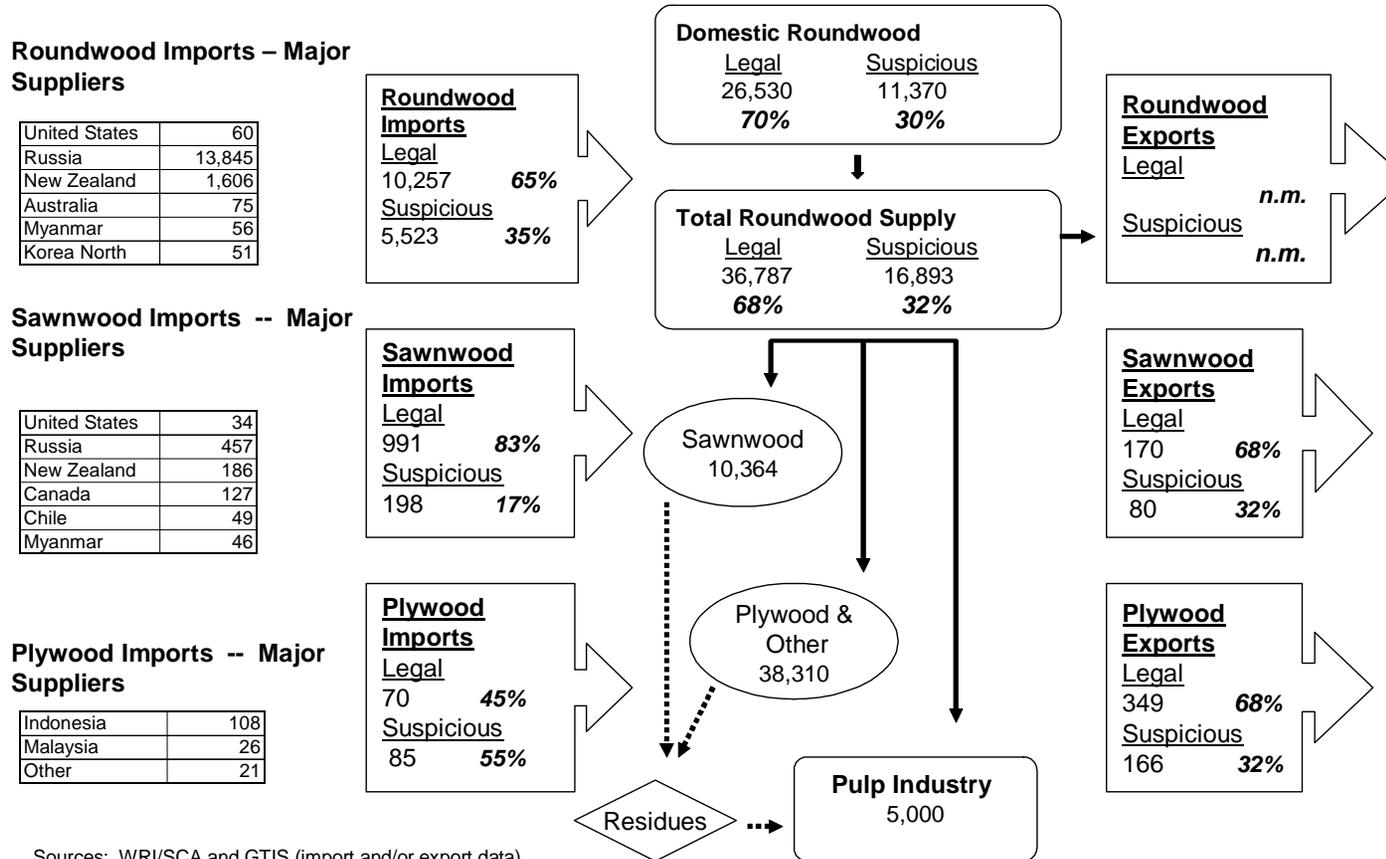
Figure A – 7: Russia Hardwood Fiber Wood Flow



Sources: WRI/SCA and GTIS (import and/or export data)  
 n.m. = not meaningful or diminimis

Figure A – 8: China Softwood Fiber Wood Flow

**China 2002 Wood Fiber Flow -- Softwood**  
(000 m<sup>3</sup> and percent)



Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis

Figure A – 9: China Hardwood Fiber Wood Flow

**China 2002 Wood Fiber Flow -- Hardwood**  
(000 m<sup>3</sup> and percent)

**Roundwood Imports – Major Suppliers (m3)**

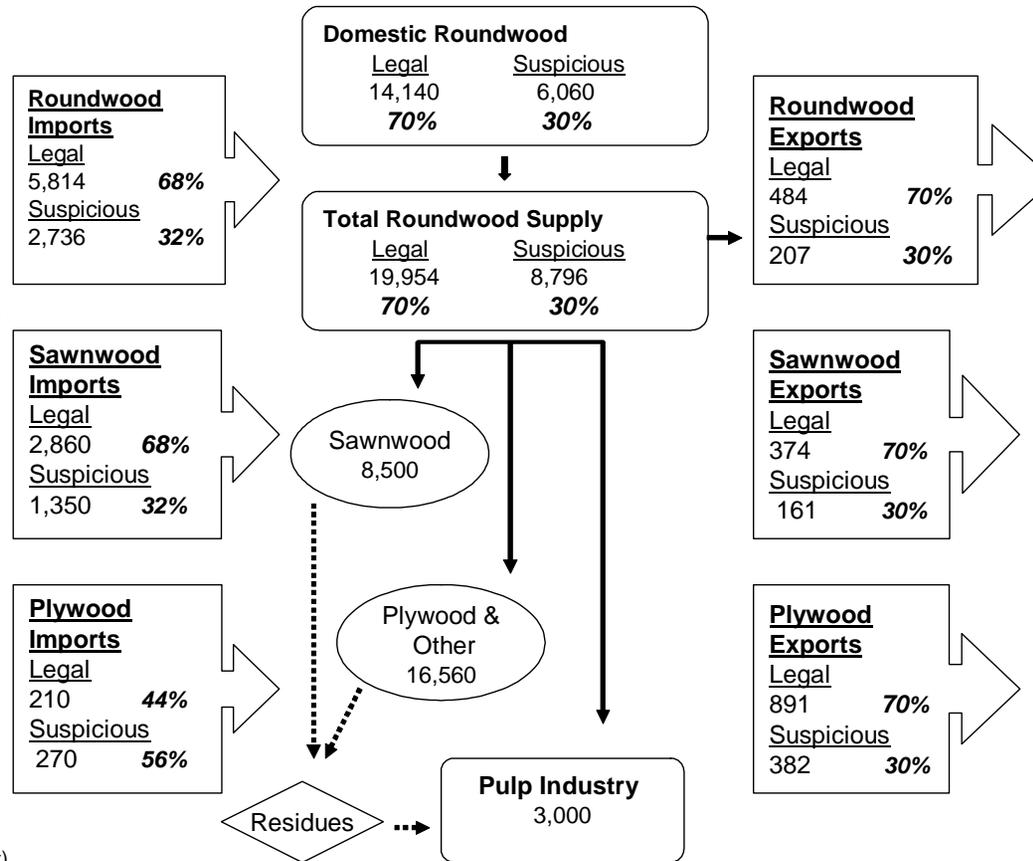
W/C Africa	2,530
Malaysia	2,121
Indonesia	1,300
Papua New Guinea	1,128
Russia	961
Myanmar	549
EU15	515

**Sawnwood Imports -- Major Suppliers (m3)**

United States	593
EU-15	275
-Germany	156
W/C Africa	28
Indonesia	1,316
Thailand	591
Malaysia	474
Myanmar	183
Brazil	132

**Plywood Imports -- Major Suppliers (m3)**

Indonesia	234
Malaysia	44
South Korea	12



Sources: WRI/SCA and GTIS (import)  
n.m. = not meaningful or diminimis

Figure A – 10: Japan Softwood Fiber Wood Flow

### 2002 Japan Wood Fiber Flow -- Softwood

(000 m<sup>3</sup> and percent)

**Roundwood Imports – Major Suppliers (m3)**

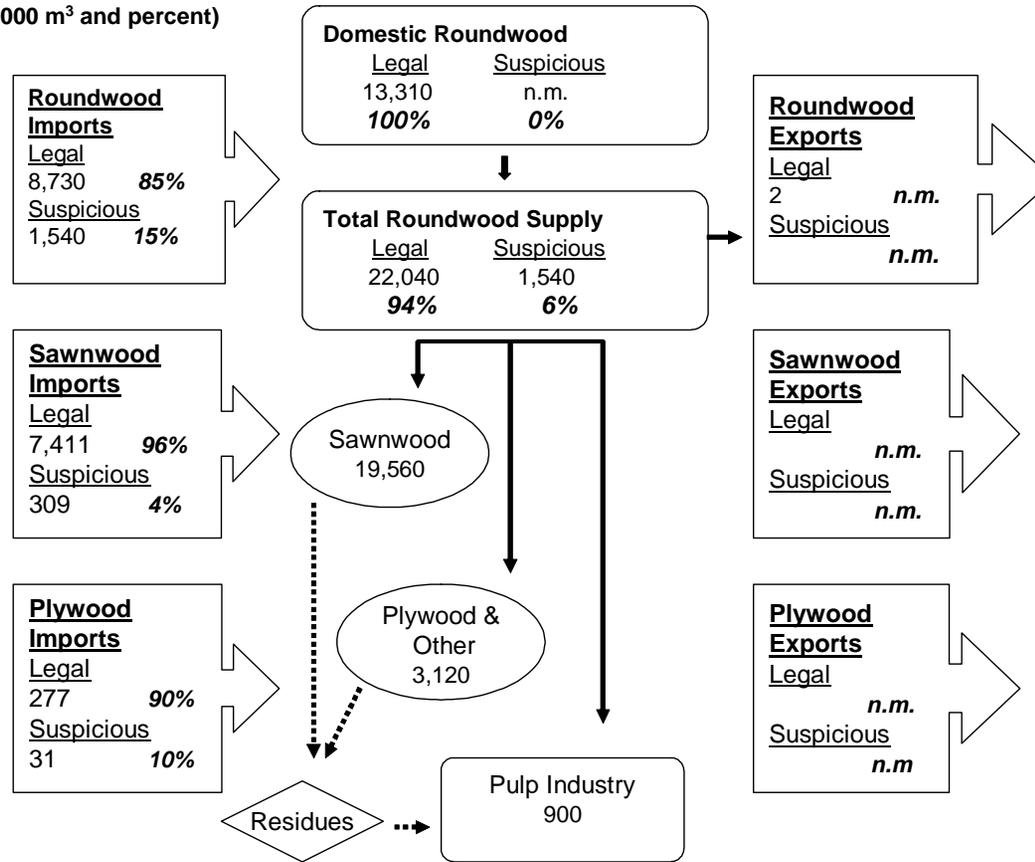
United States	2,744
Canada	1,117
Russia	4,521
New Zealand	1,468
Australia	124
Chile	122

**Sawnwood Imports -- Major Suppliers (m3)**

EU-15	2,236
-Finland	880
-Sweden	795
-Austria	475
Russia	686
Canada	3,496
United States	274
Chile	388
China	101
New Zealand	219

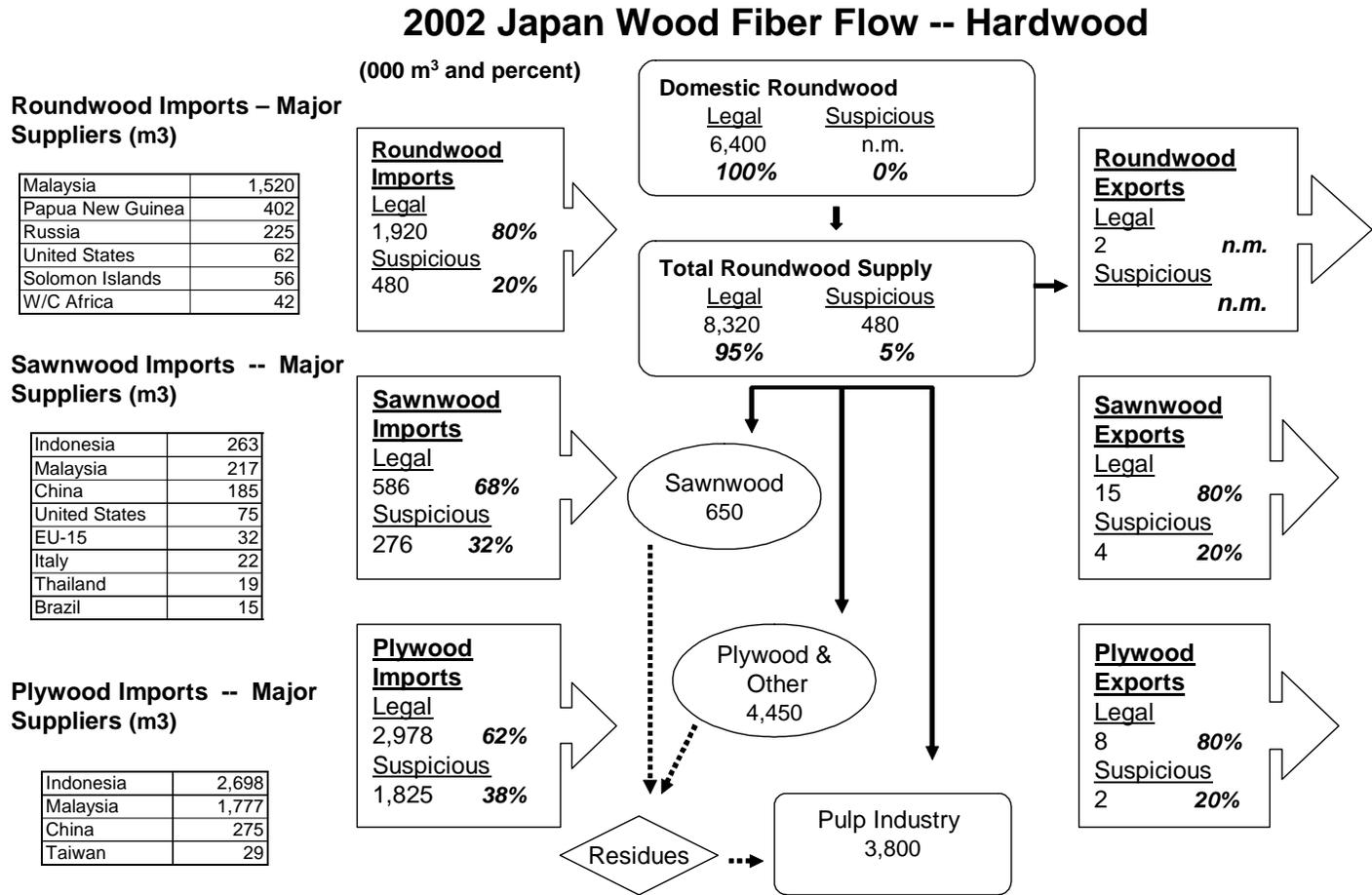
**Plywood Imports -- Major Suppliers (m3)**

Canada	101
New Zealand	69
China	49
Chile	15
Russia	10
EU-15	6
United States	2



Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis

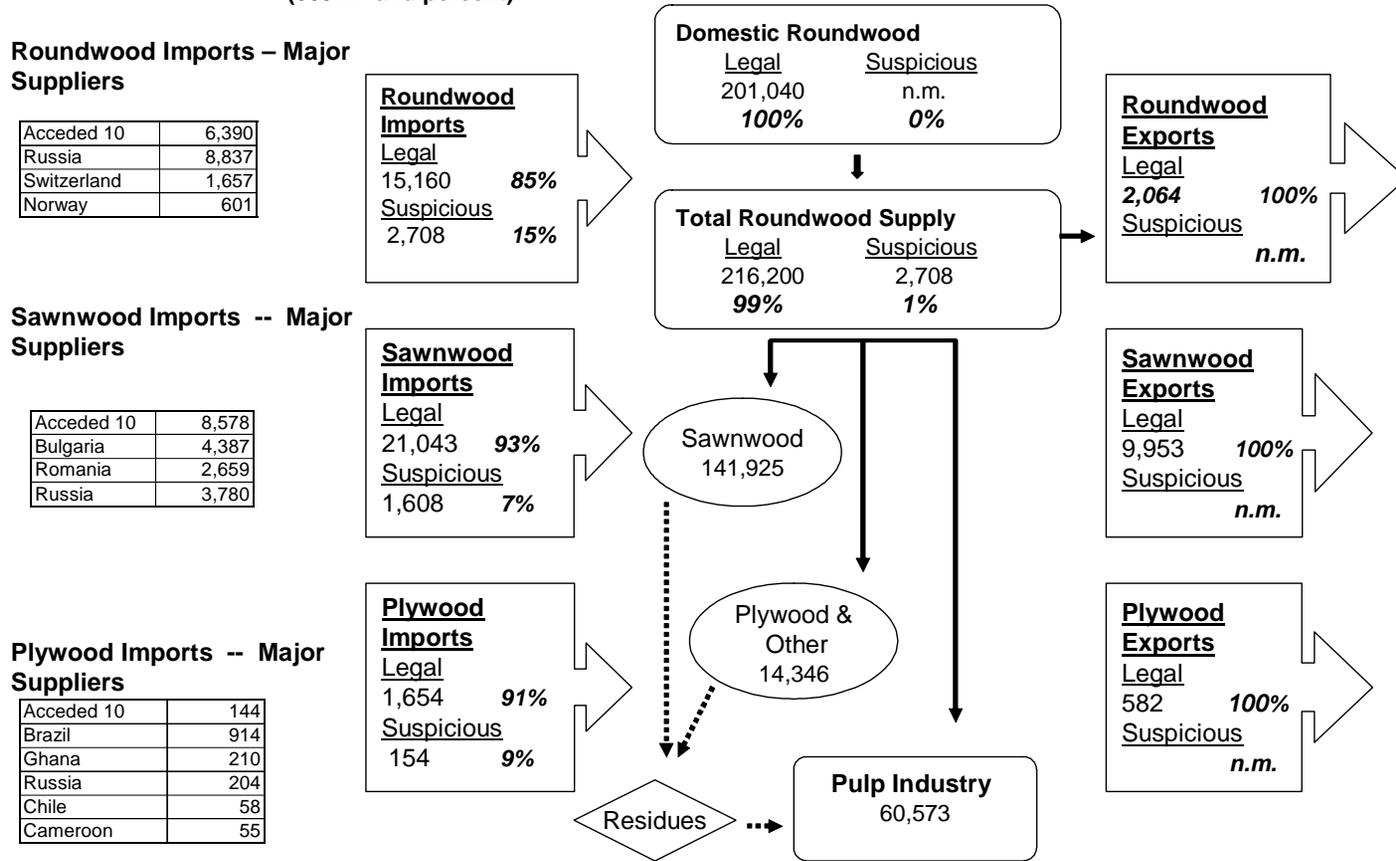
Figure A – 11: Japan Hardwood Fiber Wood Flow



Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis

Figure A – 12: EU-15 Softwood Fiber Wood Flow

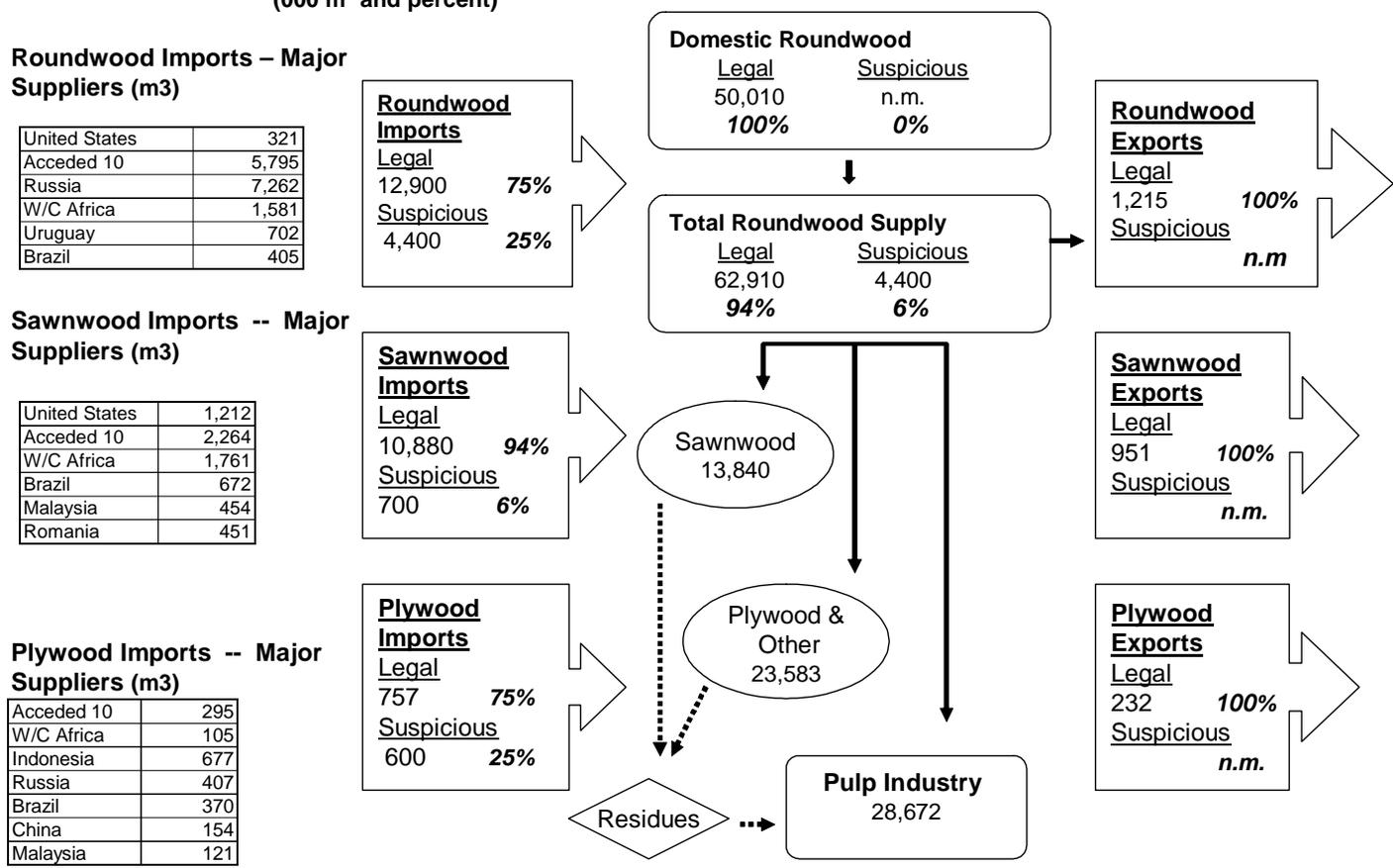
**European Union 2002 Wood Fiber Flow -- Softwood**  
(000 m<sup>3</sup> and percent)



Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis

Figure A – 13: EU-15 Hardwood Fiber Wood Flow

**European Union 2002 Wood Fiber Flow -- Hardwood**  
(000 m<sup>3</sup> and percent)



Sources: WRI/SCA and GTIS (import and/or export data)  
n.m. = not meaningful or diminimis