



**INTERNATIONAL TROPICAL TIMBER ORGANIZATION
(ITTO)**

**ANNUAL REVIEW AND ASSESSMENT OF
THE WORLD TROPICAL TIMBER SITUATION
1990 - 1991**



ITTO

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Summary

The nominal value of exports of primary timber products from ITTO producer member countries fell by 8.5 percent in 1990 (the last calendar year for which comprehensive statistics are available) to \$7.32 billion. This decline was due to major reductions in sawnwood exports from ITTO producers and to declining demand in Europe and North America caused by a combination of poor economic growth and growing consumer concern with the environmental aspects of the tropical timber trade. Asian demand for tropical timber products remained relatively strong in 1990 - 1991. Declines in Japanese and Korean demand for logs were offset by increased imports by producing countries in the region, particularly India, Malaysia and Thailand. The proportion of plywood in total export value continued to grow in 1990, while the proportion attributable to logs continued to shrink correspondingly, to just over 22 percent of total export value in 1990.

Environmental issues remained at the forefront of popular concern regarding tropical forest development during 1991. The FAO released preliminary estimates of annual deforestation rates for the latter half of the last decade, and projections for the early 1990's. These estimates indicate that the annual rate of clearing of the world's forest area increased almost twofold between 1980 and 1990, to 17 million ha, confirming fears that the rate of tropical deforestation has grown substantially. Country level estimates of forest area for tropical regions should be available through the FAO's 1990 Forest Resource Assessment project by the end of 1992.

Forest fires in Indonesia and flash floods in the Philippines had major impacts on their forest sectors, as well as causing global ramifications. Proposals for eco-labels to inform consumers of the environmental impact of products gained momentum in many consumer countries, with obvious implications for tropical timber. Several trade and environmental NGO's continued or stepped up efforts to implement tropical timber labelling schemes in 1991. Coordination of such schemes is urgently required if a consumer backlash due to confusion and loss of faith in the reliability of the labelling schemes is to be avoided.

Production of tropical hardwood saw and veneer logs in ITTO producing countries totaled over 128 million m³ in 1990, a 4 percent decrease from revised 1989 levels. The proportion of log production being utilized domestically increased in all ITTO producing regions except Latin America (which utilizes almost 100 percent of its log production domestically), reflecting increasing populations, growing economies and the desire to export value-added products. Sawnwood production totaled almost 39.3 million m³ in 1990, down 7.6 percent from revised 1989 levels. 1991 sawnwood production is expected to fall further (although not as much as in 1990) as the imposition of export quotas and/or taxes by many producing countries take their toll on export mills. Tropical hardwood veneer production totaled slightly under 1.6 million m³ in 1990, a 2.4 percent decrease from 1989 levels. Plywood production rose by 7.5 percent in 1990, to 13 million m³. This increase in plywood production corresponds closely with the fall in sawnwood production in member countries, particularly Indonesia.

ITTO producers exported 25.3 million m³ of logs in 1990, with Malaysia providing 80 percent of this amount. This figure, a slight decrease from 1989 levels, will likely continue to decline in 1991 and following years due to the combined pressures of domestic demand, value-added policies and environmental concern. Sawnwood exports fell to 7.2

million m³ in 1990, down from 9.7 million m³ the previous year. This decrease was almost entirely due to the large decrease in Indonesian exports, which fell by 79 percent from the volume shipped in 1989. Sawnwood exports are expected to continue to fall (at a decreasing rate) in 1991/92. Malaysia remains the largest sawnwood exporter, accounting for 68 percent of the total volume of ITTO exports in 1990. Veneer exports, also led by Malaysia, increased by 13 percent over the 1989 level to just over 0.66 million m³. Plywood exports from ITTO producing nations increased slightly over 1989 levels, to 9.7 million m³. This increase was due to continuing expansion in Indonesian exports which constituted 85 percent of the ITTO total in 1990.

Tropical hardwood log imports by ITTO consumers fell 6.5 percent to 18.6 million m³ in 1990. If imports by producing members are taken into account, however, total 1990 tropical log imports remain virtually identical to quantities imported by all members in 1989. This illustrates the changing nature of the trade and one of the issues which ITTO must begin to address - the growing consumption of tropical timber in producing countries. Japan maintained its position as the dominant importer, accounting for over 61 percent of all consumer country log imports. Japanese demand for tropical logs softened by 8 percent in 1990, with similar decreases forecast for 1991 and 1992. Despite this, Japan will easily continue its dominant role in the tropical log trade for the foreseeable future. Japan's imports of 1.4 million m³ of tropical sawn hardwood in 1990 fell by almost 23 percent from 1989 levels but still constituted 24 percent of total ITTO consumer imports of 5.8 million m³ (18 percent of total ITTO imports of 7.8 million m³). The drop in Japanese sawnwood imports allowed Thailand to become ITTO's top importer of tropical sawnwood (1.5 million m³), again illustrating the changing nature of trade in some producing countries. Sawnwood is the only product in which total ITTO imports (i.e. producers' plus consumers' imports) fell by a significant amount in 1990. The drop in total imports of over 1 million m³ is primarily attributable to restrictions on exports from producing countries, although decreased demand in Western Europe also played a role. Veneer import statistics are not as reliable as those for other primary products, but Japan appears to have taken over the position of the dominant tropical hardwood veneer importer in 1990, absorbing an estimated 117 000 m³ (27 percent of all consumer imports and 25 percent of total ITTO imports). Tropical plywood importers also continue to be led by Japan, which absorbed 2.8 million m³ in 1990. Japan's imports fell in all of these categories except veneer in 1990.

Relatively detailed coverage of trade flows is included in the Review for the first time. Although the quality of data provided is variable, the direction of trade tables included here give a clear indication of the most important trade flows and also point out discrepancies between export and import statistics.

Prices for primary tropical hardwood products appear to have firmed somewhat during 1990 for Asian producers, while falling slightly for African exporters and remaining more or less constant for the Latin American region. Average nominal prices for logs, sawnwood and plywood (Asian exporters only) have, in general, firmed for all regions in 1990/1991, with fluctuations due to exchange rate variation, large consumer stockpiles and general economic conditions. Real prices have, however, decreased in many instances.

Many other relevant developments took place in ITTO producer and consumer nations throughout the period under review. A summary of these is provided in the Country Notes which conclude the report, and (in the case of consumers) in the section titled Market Developments.

Introduction

Overview

The 1990/91 period was difficult for the tropical forest products sector in both producing and consuming countries. Restrictions to the export of unprocessed and semi-processed forest products continued to be imposed and strengthened in many producer countries, while consumer concern for the environment in major consuming countries became more widespread. Several major consuming countries experienced recessions of varying degrees of severity during the period, further weakening overall commodity demand. These factors combined to produce an 8.5 percent drop in the nominal value of exports of tropical logs, sawnwood, veneer and plywood by ITTO producer members, from \$8 billion in 1989 to \$7.3 billion in 1990. This drop in export value follows a rise of more than 15 percent between 1988 and 1989. Plywood and veneer exports made up almost 46 percent of this total value, while the proportion attributable to logs shrank to a new low of 22 percent. This continues the trend to value-adding which was a focus of the 1990 Review.

Both of the fluctuations referred to above were primarily due to changes in Indonesia, with increased plywood exports in 1989 contributing to a large increase in total export value. In 1990 a prohibitive tax on sawnwood exports was imposed, reducing exports substantially (see Markets and Trade). This decrease should be offset in coming years as the logs previously devoted to sawnwood production are redirected to export plywood mills or other high value uses. However, many traditional markets for tropical timber experienced declining demand in 1990. This trend is likely to continue as both environmental pressure and competition from substitute materials are likely to intensify. Preliminary figures for 1991 show that significant drops in the quantity of logs and sawnwood exported occurred, with only slight rises in exports of plywood and veneer. Preliminary import figures for ITTO consumers in 1991 show decline in all four product categories.

ITTO member countries continued to account for a majority of the global trade and production of tropical forest products in 1990, as indicated by Tables 1 and 2. The proportions given in Table 2 assume that global tropical timber figures can be estimated by total figures for developing countries as reported by FAO and reproduced in Table 1. ITTO's 88 percent share of global tropical timber export volume increases to over 95 percent when developing country re-exporters (such as Taiwan and Singapore) are removed from this assumed total. ITTO's share of global production and imports of tropical timbers is somewhat lower than its share of exports, but still a clear majority. Production proportions (except that for logs) and all import proportions increase in the same manner as the export proportion when developing country re-exporters are not considered in global totals.

Several factors combined to affect tropical forests and the trade in products therefrom in 1990 - 1991. Proposals to include several commercially important tropical timber species in Appendices I or II of the Convention on International Trade in Endangered Species (CITES) caused concern through the trade. Extensive fires in Kalimantan and Sumatra destroyed large areas of Indonesia's forests and resulted in calls for greater international assistance. Increasing calls for eco-labels in Europe and North America led some trade organizations and NGO's to form alliances to promote timber imports from sustainably managed sources. The continuing changes and diversification of Eastern European markets and the break-up of the former U.S.S.R. created problems and opportunities

Table 1. World and ITTO Timber Statistics, 1990 ('000 m³)

Product	World ¹			ITTO ²										
	Production	Imports	Exports	Production			Imports			Exports				
				Producers	Consumers	Total	Producers	Consumers	Total	Producers	Consumers	Total		
Saw and veneer logs	979765	66708	66779											
-non-coniferous	272550	31277	31925											
-non-coniferous, developing	170140	12089	26724	128344	0	128344	3809	18627	22436	25320	120	25440		
Sawnwood	485946	94618	88406											
-non-coniferous	121621	17237	13986											
-non-coniferous, developing	70368	5590	8564	39310	3500	42810	1922	5876	7798	7229	275	7504		
Veneer	4869	2441	2058											
-developing	1700	258	729	1594	65	1659	40	426	466	673	40	713		
Plywood	49707	14311	16245											
-developing	17225	5039	11836	13027	6000	19027	114	6805	6919	9701	140	9841		

Notes: 1) Data from FAO Agrostat - developing country totals are closest approximation to global tropical timber totals.

- 1) Data from FAO Agrostat - developing country totals are closest approximation to global tropical timber volume.
- 2) Data from ITTO Forecasting and Statistical Enquiry - includes only tropical wood. Production and export figures for consumers are based on responses to Enquiry where possible and on estimates from direction of trade tables and/or other sources where not.

for the import and export of all goods, timber products included. The prospect of a "double-dip" recession in the U.S.A. and the continuing restriction of log exports from its Pacific North West public forests contributed to ongoing uncertainty amongst timber traders in major Pacific Rim markets. Internationally, the diminishing prospects for a successful conclusion to the GATT's Uruguay Round of trade talks caused further uncertainty in both importing and exporting countries. Many of these countries began or continued the process of forming regional trade blocs to ensure and enhance access to important local markets and/or supplies. These factors and many others combined to make 1991 a year of rapid change (with accompanying uncertainty) in all sectors of the global economy, including tropical timber. This Review attempts to summarize some of the issues relating to and links between the economic, environmental and political dimensions of tropical forests in ITTO member countries.

Table 2. ITTO's Share of Global Tropical Timber Production and Trade (%)

Product	Production ¹	Exports	Imports ²
Logs	75	95	84
Sawn	56	85	91
Veneer	94	92	64
Plywood	76	82	59
Weighted Average ³	71	88	78

Notes: 1) Global tropical timber production and exports are assumed equivalent to total tropical timber production and exports from developing countries as reported by FAO (non-coniferous logs and sawnwood, all veneer and plywood). Only ITTO producer country statistics (Table 1) are used in these comparisons.

2) No disaggregation of global tropical imports is possible using FAO data. This column is based on comparisons with total exports from developing countries of veneer, plywood, and non-coniferous logs and sawnwood (this assumes that global imports of tropical timber are approximately equal to total developing country exports of tropical timber). ITTO total import statistics (Table 1) are used in these comparisons.

3) Individual proportions weighted by roundwood equivalent volumes of ITTO statistics from Table 1 were used to derive weighted averages.

Scope and Structure

The remainder of the Review is divided into four sections. Relevant resource and environmental issues are discussed first, with the following two sections summarizing production and domestic consumption statistics, and trade and market developments respectively. The latter section includes a relatively detailed coverage of trade flows for the first time, utilizing data from the revised Forecasting and Statistical Enquiry. The final section of the Review provides brief notes of relevant trends and developments in ITTO producing countries not covered elsewhere. Unfortunately, updated information on secondary and tertiary processing of forest products in ITTO producing regions was not received in time for inclusion in this edition of the Review. It is hoped that this section, introduced for the first time in the 1990 Review, will feature in future editions.

Unless otherwise noted, all value units are in nominal U.S. dollars, while volumes refer to cubic meters. "Forest products," unless otherwise defined, refer only to those specified in the ITTA (1983) - tropical hardwood saw and veneer logs, sawnwood, veneer and plywood. Statistics have been derived from responses to the ITTO Forecasting and

Statistical Enquiry wherever possible. Most countries (17 of 22 producers and 20 of 25 consumers) provided at least partial responses to the Enquiry in time for inclusion in the Review, although an unfortunately large proportion of these responses contained significant and obvious errors in one or more categories. Many of these responses were not received until March, making adequate verification of the data and timely completion of the Review all but impossible. A complete listing of member country responses to the Enquiry is contained in the document "Results of the 1991 Forecasting and Statistical Enquiry" {ITTC (XII)/4}.

A range of supplementary sources were consulted to check members' responses to the Enquiry, to fill in incomplete responses and to provide data for non-responding countries. These supplementary sources are listed in the Appendices and in the References following the Country Notes. Where necessary, data was converted (weight - volume, area - volume, roundwood equivalents, etc.) using the appropriate factors as published by the FAO and FAO/ECE. Although many countries reported preliminary figures for 1991 in the ITTO Forecasting and Statistical Enquiry, several did not. All statistics presented therefore refer to 1990, unless stated otherwise. The general coverage of the Review extends to the end of 1991, however, and estimates for the period under review are provided wherever possible.

Despite the best efforts of the Secretariat to ensure data consistency and accuracy, it should be noted that considerable discrepancies exist between available data sources in many categories, for both producing and consuming countries. The final statistics compiled for presentation here are the result of careful analysis and synthesis of the available data sources by the Secretariat, and of consultations with member countries and other agencies. This analysis resulted in several modifications and amendments to statistics for 1988 and 1989 reported in previous editions of the Review. All member countries (especially those which did not respond to the Enquiry) are requested to carefully check the figures reported here and report any corrections to the Secretariat immediately. All data used in the compilation of the Review are compiled in Appendices 1 - 3; countries who did not respond to the Enquiry by April 1 1992 are identified in the footnotes of the Appendices.

The assistance of those countries which responded to the 1991 ITTO Forecasting and Statistical Enquiry is gratefully acknowledged, as is the support of the FAO Forestry Department, the ECE Timber Committee Secretariat, the Japan Lumber Importers' Association, the Japan Plywood Manufacturer's Association and the International Trade Center in providing relevant primary and supplementary data for the Review.

Resources and the Environment

The 1991 Forecasting and Statistical Enquiry requested, for the first time, producing countries to provide detailed statistics on forest areas and roundwood removals. Such information will be essential to ITTO's efforts to monitor progress towards Target 2000. Tables 3 and 4 summarize the results of the Enquiry; although the level of response varied greatly from country to country, a useful overview can be gained by examining these two tables.

Table 3 shows that the bulk of forest resources in those countries responding remains under primary forest cover. A significant area of plantations has been established in many countries, with several producing countries in all three regions reporting increasing rates of reforestation. Timber harvests from these plantations (mainly of fast growing species, but with growing areas of high-valued timbers such as teak) are still low as most are not yet of harvestable age. The area of forest under sustainable management for timber production (based on the ITTO Guidelines for natural and man-made tropical forests) was also solicited, but responses were incomplete or inconsistent with established definitions and/or criteria. As such figures can serve as a first approximation of members' perceived progress in achieving Target 2000, efforts will be made to improve members' responses to this part of the Enquiry. Table 4 provides details of roundwood removals by category of harvest (conversion or forest management) and by type of forest. Responses to this section of the Enquiry were especially poor. Only countries providing data have been included in Table 4. Efforts will also be made to improve country responses in this area for the 1992 Review.

An analysis of Tables 3 and 4 can also give some indication of the intensity of harvesting. Some of the African countries have obviously made errors in reporting removals, areas harvested or both. Some countries (e.g. Côte d'Ivoire and Brazil) apparently reported production of fuelwood and pulpwood. These factors make an overall analysis of harvesting intensity difficult as production of fuelwood especially is not included in reported harvest areas. In Malaysia and Papua New Guinea the reported levels of harvest and area lead to average extraction figures of 29 m³/ha and 16.5 m³/ha respectively. The full details of country responses to these aspects of the Enquiry are contained in document ITTC (XII)/4.

Aggregate results of the ongoing FAO Forest Resource Assessment were reported to the World Forestry Congress in September 1991. The results were as reported in the 1990 Annual Review, showing a large apparent increase in tropical deforestation since the last global assessment. The FAO estimated that current annual deforestation is 16.8 million ha, about 70 percent of which takes place in the dense rainforests of Asia, Latin America and Africa. Country level statistics are now available for temperate countries in the ECE. Disaggregated tropical and developing country statistics should be available by the end of 1992.

Sixteen proposals to include or delete tropical timber species from the Appendices of the Convention on International Trade in Endangered Species (CITES) were proposed in 1991, for consideration at the Eighth Meeting of CITES in Kyoto in March 1992. The proposals were for the inclusion of Brazilian rosewood (*Dalbergia nigra*) in the most restrictive Appendix I and for the inclusion of ramin (*Gonstylus bancanus*), lignum vitae (*Guaiacum officinale*), merbau (*Intsia* spp.), afrormosia (*Pericopsis elata*), quebracho (*Schinopsis* spp.) and true mahoganies (*Swietenia* spp.) in Appendix II. Eight Central American tree species were

Table 3. Forest, Harvest and Reforestation Areas, 1990 ('000 ha)

Country	Area by Status of Forest Cover			Total	Area by Management Status		Annual Area	
	Primary	Secondary	Plantation		Protection	Production	Harvested	Reforested
Africa								
Cameroon	21963.9		36.1	22000.0	1603.5	1861.2	0.2	36.1
Congo	20000.0		46.0	20046.0	1314.0	13000.0		46.0
Côte d'Ivoire	400.0	6600.0	80.0	7080.0	1950.0	5130.0	5.0	2.4
<i>Gabon</i>				<i>19905.0</i>				
<i>Ghana</i>				<i>1321.0</i>				
Liberia	2500.0	2300.0		4800.0		4800.0		
Togo	140.0		23.0	163.0	789.3	23.0	5.5	
Zaire				<i>80120.0</i>				
Africa Total	45003.9	8900.0	185.1	155435.0	5656.8	24814.2	10.7	84.5
Asia/Pacific								
<i>India</i>				<i>38358.0</i>				
<i>Indonesia</i>				<i>73535.0</i>				
Malaysia	18167.0	3336.0	50.3	21553.3	1226.0	14111.1	1369.9	66.5
Papua New Guinea	10000.0	5000.0	41.3	15041.3		4400.0	85.0	
Philippines	984.0	3456.0	483.0	4923.0	43.0	179.0		192.0
Thailand				14481.0	6442.0			722.0
Asia/Pacific Total	29151.0	11792.0	574.6	167891.6	7711.0	18690.1	1454.9	980.5
Latin America/Caribbean								
Bolivia	48607.0			48607.0	8131.0	20517.0	200.0	1.0
<i>Brazil</i>				<i>300630.0</i>				
Columbia				49416.1	6149.5	471.6		18.5
Ecuador	11095.0	523.0	78.0	11696.0	2865.0	6000.0		79.0
<i>Honduras</i>				<i>1484.0</i>	0.7			
Panama	3030.0			3030.0	1528.0	1502.0	70.0	0.2
Peru	71743.0	1257.0	254.0	73254.0	5753.0	67501.0	250.0	9.2
<i>Trinidad & Tobago</i>				<i>148.0</i>				
Latin America Total	134475.0	1780.0	332.0	488265.1	24427.2	95991.6	520.0	107.9
Grand Total	208629.9	22472.0	1091.7	811591.7	37795.0	139496.0	1985.6	1172.9

Note: Figures in italics are taken from FAO Forest Resources Assessment (1980) -- these countries did not provide data.

Table 4. Industrial Roundwood Removals, 1990 ('000 m³)

Country	Removals from		Removals from		Total Removals
	Forest Conversion Activities	Forest Management	Primary	Secondary Plantations	
Africa					
Congo		739.0	833.0	477.0	1310.0
Côte d'Ivoire				11800.0	11800.0
Liberia			1350.0		1350.0
Asia/Pacific					
Malaysia	19681.2	20408.5	40099.7		40099.7
Papua New Guinea			1450.0		1450.0
Philippines		2570.0			2570.0
Thailand			881.0		881.0
Latin America/Caribbean					
Bolivia	80.0		251.0		251.0
Brazil			43100.0	196000.0	337300.0
Colombia				840.0	1041.6
Ecuador			3985.0	1993.0	6056.0
Honduras				750.0	750.0
Panama	156.0		156.0		156.0
Peru			847.0	100.0	1079.0
Total	19917.2	23717.5	92952.7	211483.0	406094.3

to be considered for delisting. The outcome of the CITES meeting will be discussed in the 1992 Review.

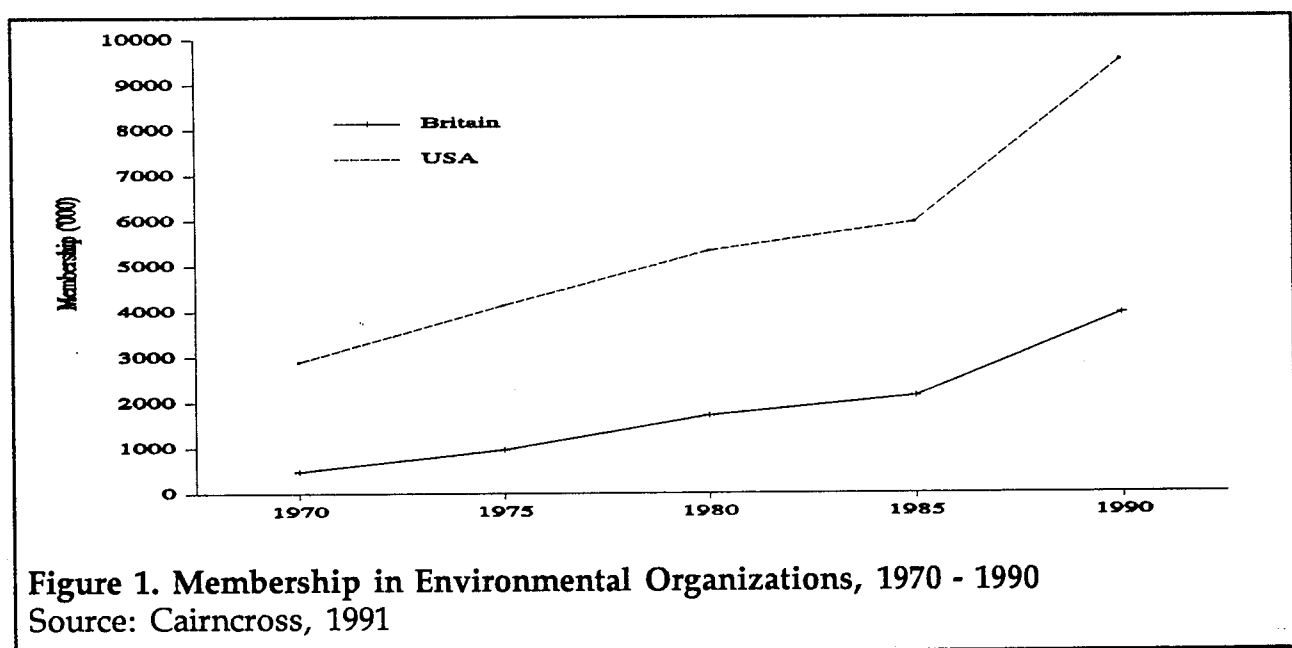
The UNCED process gathered substantial momentum in 1991, with the conference itself scheduled for June 1992. The U.N. Conference on Environment and Development (popularly known as the "Earth Summit") will be the largest summit conference ever, with most countries planning to be represented by their head of state. The UNCED Preparatory Committee has established Working Groups to address in detail the principal issues on the agenda of the conference. One such Working Group deals with protection of the atmosphere, land resources and conservation of biological diversity. ITTO has been represented in all of the meetings of this Working Group. Another deals with ocean and freshwater resources, and the management of wastes. Outputs from the conference are likely to be an "Earth Charter", an agenda for action by countries ("Agenda 21") and, possibly, several conventions for environmental protection. At the second Preparatory Committee meeting in April 1991, it was decided to work toward the development of a non-legally binding authoritative statement of principles on the development and conservation of forests. Much work remains for the Preparatory Committee, including the difficult task of costing and proposing financing sources for the many initiatives being proposed.

Several environmental catastrophes occurred in 1991. In Indonesia, fires destroyed more than 100 000 ha of rainforest in the last 4 months of the year. The fires were largely the result of drought and slash and burn agriculture in Kalimantan and Sumatra, although the availability of dry fuel in logged over areas probably played a role in their rapid spread. In some areas of Kalimantan, coal deposits caught fire, making fire fighting even more difficult. A fire in Kalimantan in 1982-83 was the biggest ever, costing the Indonesian government up to \$17 billion in lost revenues, infrastructure and suppression costs. International assistance was offered to Indonesia to help battle the current blaze, including an ITTO Activity scheduled to send a group of experts to Indonesia in early 1992 to propose methods for the protection of tropical forests from fire.

The Philippines suffered several natural catastrophes in 1991, including the eruption of Mt. Pinatubo and tropical storm Thelma. The latter caused more than 7000 deaths in central Leyte, most of which were caused by massive landslips. Many reports arose that illegal logging was to blame for the disaster, prompting the government and its Environment Department to strengthen efforts to implement a proposed logging ban (see Country Notes). A similar situation was reported with respect to Thailand in the 1990 Review; the Thai logging ban which was announced following the 1988 storms is still in place. A subsequent independent inspection of the Thai landslips showed that almost all of them occurred on land cleared for agriculture, pasture or for the planting of new tree crops. The landslips were not associated with forests, logged or unlogged. Similar evidence is available from other regions which have suffered severe landslips. It appears that the best way to prevent future disasters in the Philippines and elsewhere is to implement effective land use planning. This implies that a much wider (and more effective) range of plans and/or regulatory mechanisms will be required than simple logging bans.

Several countries, municipalities and organizations continued to propose bans or boycotts on non-sustainably produced timber in 1991, principally from tropical sources but occasionally also directed at temperate supplies. The Netherlands adopted an official policy prohibiting the import of non-sustainably produced tropical timber after 1995. Governments became increasingly aware of the rising wave of environmental concern in their countries. Figure 1 shows the rapid growth in membership of environmental

organizations in the USA and UK over the past two decades, clearly indicating the growth in environmental concern. Many governments have proposed eco-labelling schemes to provide information to environmentally conscious consumers. Schemes have been introduced in Japan, Germany, Canada, Sweden, Norway, Finland, Iceland, Austria, France and Portugal, all voluntary and all (except Germany's) introduced in the past two years. The European Community hopes to have an EC wide scheme in place by the end of 1992. Difficulties have arisen in finding objective, quantifiable standards on which to assess products' environmental impacts, but the schemes have in general proved popular. Several tropical timber labelling schemes have been proposed and at least partially implemented in consuming countries. Confusion is rife, however, with one major chain in Britain refusing to display labels on any timber product due to their inability to verify the claims of such labels. It is clear that a lack of coordination on this issue will cause harm to the trade and to producers. Some trade associations are cooperating with environmental organizations to pursue the common goals of promoting better tropical forest management (e.g. U.K. Timber Trade Federation and the WWF) through coordinated efforts and activities. A broader international coordination of these initiatives will be required as Target 2000 approaches.



Production and Domestic Consumption

This section provides statistics on production of primary forest products in ITTO producer countries, and the apparent domestic consumption in these countries. Data on production has been derived from ITTO Forecasting and Statistical Enquiry returns supplemented by FAO Agrostat and other available data sources (see References). Apparent domestic consumption (production plus imports minus exports) statistics may include changes in stock levels in producing countries (which are not reported or reported incorrectly by almost all countries responding to the ITTO Enquiry) and should therefore be interpreted with caution.

The 1991 Forecasting and Statistical Enquiry sought for the first time information from producer members on industrial structure, capacity of production and employment levels in each country's forest sector. Quality of responses varied as usual, with some countries providing detailed information and others responding that such information is not collected or otherwise unavailable. A summary of country responses and regional totals is presented in Table 5. As not all countries provided data, regional totals are based on estimates and may not be reliable. Nonetheless, it is clear from Table 5 that up to 6 million people are employed in logging and primary processing of tropical forest products in ITTO's producing member countries. Almost 90 percent of these are employed in the forest industries of Asia, showing the major role that forests play in the socio-economic development of these countries.

Logs

The production of tropical hardwood logs in ITTO member countries totaled 128 344 000 m³ in 1990, over 75 percent of global tropical hardwood log production and 47 percent of the world's total non-coniferous log production. Total log production in 1990 decreased by 4 percent from 1989 levels, as shown in Table 6. The top 5 ITTO producers in 1990 were Malaysia (39 100 000 m³), Indonesia (27 500 000 m³), Brazil (22 900 000 m³), India (18 350 000 m³) and Côte d'Ivoire (2 811 000 m³) which together accounted for 87 percent of total production by ITTO members. The regional breakdown of this production is given in Table 6 and shown graphically (together with apparent domestic consumption) in Figure 2; the Asian region produced over 70 percent of ITTO member's tropical hardwood logs in 1990, with an increase in Malaysian production offset by decreases in Indonesia, Papua New Guinea, the Philippines and Thailand. Asian production is predicted to drop significantly in 1991 due to reduced export opportunities in Indonesia and Malaysia (see Country Notes) and more rigid enforcement of harvesting regulations throughout the region. The 4.8 million m³ decrease in log production in Latin America is due almost entirely to the decrease reported by Brazil; recent export quotas on mahogany and virola may be partially responsible for this, although the magnitude of the decrease (and the lack of any clarification) casts doubt on the reliability of this figure. African log production increased substantially, reflecting increases in all countries but Togo. Production levels (as well as imports, exports and domestic requirements) for all countries and products are summarized in Appendix 1.

Table 5. Industrial Structure, Capacity and Employment, 1990

Country	Logging Companies		Sawmills		Veneer mills		Ply mills		Total Employment
	Number	Employees	Number	Capacity (m3) Employees	Number	Capacity (m3) Employees	Number	Capacity (m3) Employees	
Africa									
Cameroon	119		59	1650000	2	95000	4	160000	8817
Congo	38	5711	22	178200	4	87000	1	10000	6039
Côte d'Ivoire	571		68	2000000	18	600000	6		13690
Ghana	230	16000	100	465000	13	80000	9	52000	76000
Liberia	36		28				4		
Togo			5	20000	30				30
Africa Total	994	21711	282	4313200	242	862000	24	222000	104576
Asia/Pacific									
<i>India</i>									
Indonesia		52000	22000		267		400 * 1/		3800000
Malaysia		71637	2708	500000			113 * 1/	610200 * 2/	1162200
Papua New Guinea	34	1550	1052	64735			65 * 1/	24082 * 2/	160454
Philippines	96	19184	30	1350	1		1	180 * 2/	11000
Thailand			152	1704250	15	138250	45	1666750	60559
Asia/Pacific Total	130	144371	658 * 3/	5500000	15	289000	23	166000	24494
			26600	7204250	298	427250	647	1832750	5218707
Latin America/Caribbean									
Bolivia			217	10000	7		2		130
Brazil		265000	4200	105000	150		350 * 4/	30000	406000
Colombia			137	1135400	8	12900	7	86790	5873
Ecuador	80	800	435	2200	6		8	3400	6520
Honduras	304	8864	81	547			2	16	15566
Panama	16	1373	44	194000			3	24000	5598
Peru	1112	74600	456	892	7	55	7	105	85190
Latin America Total	1512	350637	5570	1340839	178	12955	379	110911	524877
Grand Total	2636	516719	32452	12858289	513	1302205	1050	2165661	5848160

Notes:

* 1 / including Veneer mills.

* 2 / including Employees for Veneer mills.

* 3 / including 176 para - rubber wood sawmills

* 4 / including integrated mills (Veneer + Plywood).

Figures in italics are from AsiaPacific Forest Industries: Directory and Yearbook 1991 - these countries did not provide data.

Table 6. Saw/Veneer Log Production by Region, 1988 - 1990 (m³)

Region	1988	1989	1990
Africa	9 135 353	8 892 000	10 858 000
Asia-Pacific	91 385 000	92 142 000	89 393 000
Latin America/ Caribbean	30 216 300	32 880 800	28 093 000
Totals	130 736 653	133 914 800	128 344 000

Sources: ITTO Enquiry, FAO Agrostat

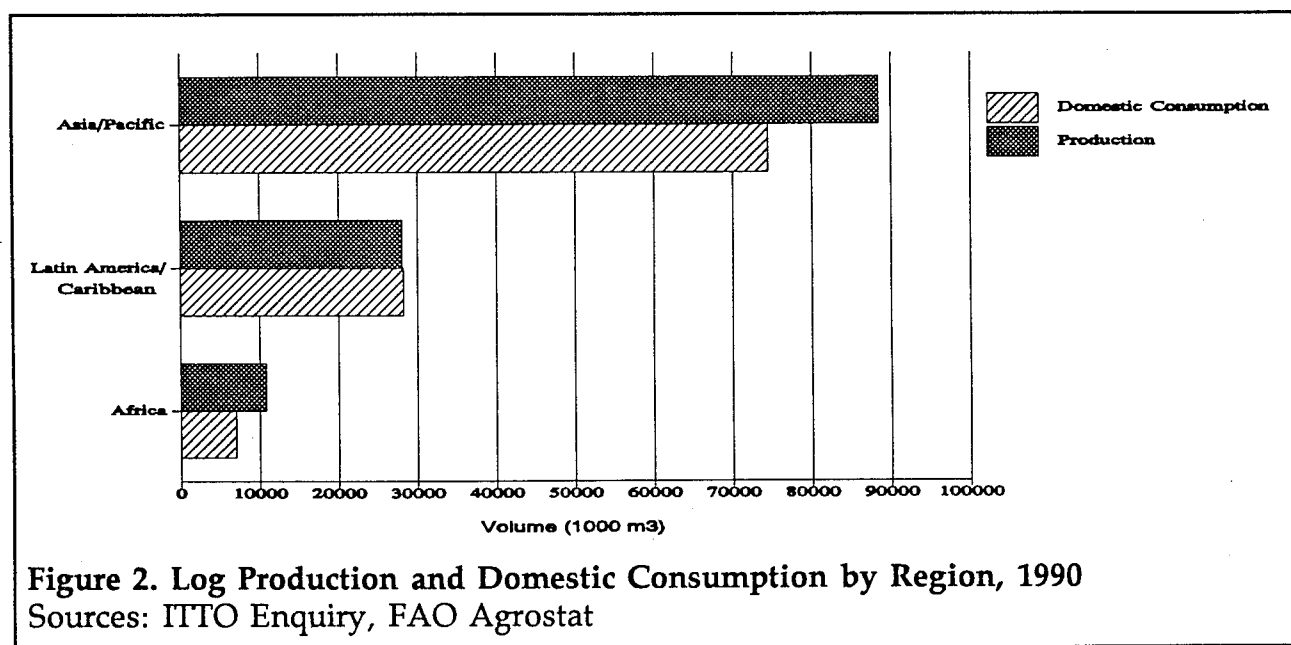


Figure 2 shows the domestic consumption of logs for each region, as compared to total production levels. Asia-Pacific producers processed 76 percent of their hardwood log production domestically, while African producers consumed 63 percent of their log production locally. The Latin American region is currently a net importer of tropical logs, albeit by a small margin. As reported in last year's Review, it is expected that continued emphasis on value-adding, coupled with significant economic and population growth, will result in increases in domestic log consumption in both Africa and Asia in the near future. The figures in Appendix 1 show that apparent domestic consumption increased in Africa but decreased slightly in Asia in 1990. Although the data for 1991 production is not complete, it appears that log production decreased further in all regions last year, perhaps to as low as 125 000 000 m³ (based on the data available in Appendix 1). Such a decrease will obviously moderate growth in domestic log consumption despite any corresponding drops in export volumes.

Sawnwood

Production of sawnwood in ITTO producing countries totaled 39 310 000 m³ in 1990, 56 percent of total hardwood sawnwood produced by developing countries globally. This figure represents a decrease of 7.6 percent over the previous year's production, as shown in Table 7. The top 5 ITTO producers in 1990 were India (8 800 000 m³), Indonesia (8 632 000 m³), Malaysia (8 400 000 m³), Brazil (7 000 000 m³), and Ecuador (1 258 000 m³)

which together accounted for 87 percent of total production by ITTO members. The regional breakdown of this production is shown graphically in Figure 3; the Asian region clearly dominates sawnwood production, with almost 28 million m³ produced in 1990. Much of the total decrease in sawnwood production in 1990 was due to decreases reported in Indonesia and Brazil (see Appendix 1), both of which introduced new taxes and/or quotas on sawnwood exports in 1990 (as reported last year).

Consuming countries produced approximately 4 000 000 m³ of tropical sawnwood from imported logs (Table 1). Taken together, ITTO members accounted for 36 percent of global non-coniferous sawnwood production. Major consuming country producers of sawnwood are Japan, Republic of Korea, France, Italy and China. Note that statistics for China given in Appendix 2 do not include those for the province of Taiwan; nor do they include any wood products entering China via joint ventures and/or destined for re-export. It is likely that the figures understate actual imports to a certain degree. Official statistics for production of tropical wood products from imported logs are scarce, if they exist at all. The five countries named above would, however, account for at least 80 percent of "ex-tropical" production.

Table 7. Sawnwood Production by Region, 1988 - 1990 (m³)

Region	1988	1989	1990
Africa	2 226 000	2 223 000	2 025 000
Asia-Pacific	27 715 000	29 155 000	27 966 000
Latin America/ Caribbean	10 498 000	11 171 000	9 319 000
Totals	40 439 000	42 549 000	39 310 000

Sources: ITTO Enquiry, FAO Agrostat

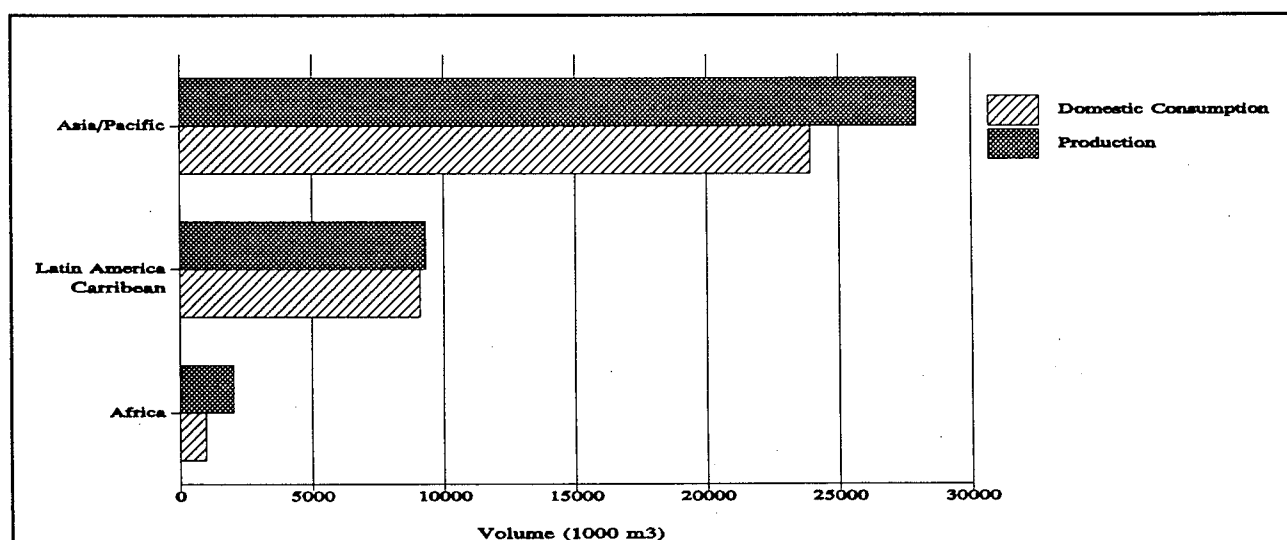


Figure 3. Sawnwood Production and Domestic Consumption by Region, 1990

Sources: ITTO Enquiry, FAO Agrostat

Figure 3 illustrates the domestic consumption of sawnwood for each region, as compared to total production levels. Asia-Pacific producers utilized 86 percent of their hardwood sawnwood production domestically, compared to 77 percent a year earlier. Clearly the export taxes are having the desired effect of keeping more of the sawn raw material in the country of origin for further processing. African producers consumed only 48 percent of their sawnwood production locally, as compared to 62 percent in 1989. This change is largely due to the low production figures (and stable export figures) reported by Liberia, with the Liberian correspondent noting that forestry production had come to a virtual standstill in his country over the past two years due the internal strife and civil war underway. The Latin American region consumed 97 percent of its current sawnwood production domestically. As can be seen from Appendix 1, apparent domestic demand for sawnwood grew in Asia in 1990, but fell in Africa and Latin America. This is not surprising given the relatively higher economic growth rate which most Asian members enjoy. Sawnwood production has likely fallen further in 1991, possibly by 500 000 m³ or more, as the full effects of export bans, taxes and quotas are imposed on the trade.

Veneer

Production of veneer in ITTO producing countries totaled 1 594 000 m³ in 1990, 94 percent of total veneer produced in developing countries globally, and 33 percent of global veneer production. These production figures do not include veneer used in domestic plywood production and therefore represent only the production of veneer intended to be traded as such. Veneer production decreased by 2 percent from the 1989 level, as shown in Table 8. The regional breakdown of this production is shown graphically in Figure 4; the Asian region produced 723 000 m³ of veneer for trade in 1990, Latin America produced 495 000 m³ (a 25 percent drop, largely attributable to a sharp drop in reported Brazilian production) while Africa produced 376 000 m³. The top 5 ITTO producers in 1990 were Malaysia (480 000 m³), Brazil (457 000 m³), Cote d'Ivoire (206 000 m³), Thailand (146 000 m³) and the Philippines (49 000 m³). This group together accounted for 84 percent of total production by ITTO members. The decrease in veneer production in 1990 was due almost entirely to the 183 000 m³ decrease reported by Brazil, although this was offset somewhat by increased production in some African and Asian countries (Appendix 1). A large veneer mill in Malaysia began operations in 1990 contributing to the increase in Asian veneer production in 1990-91.

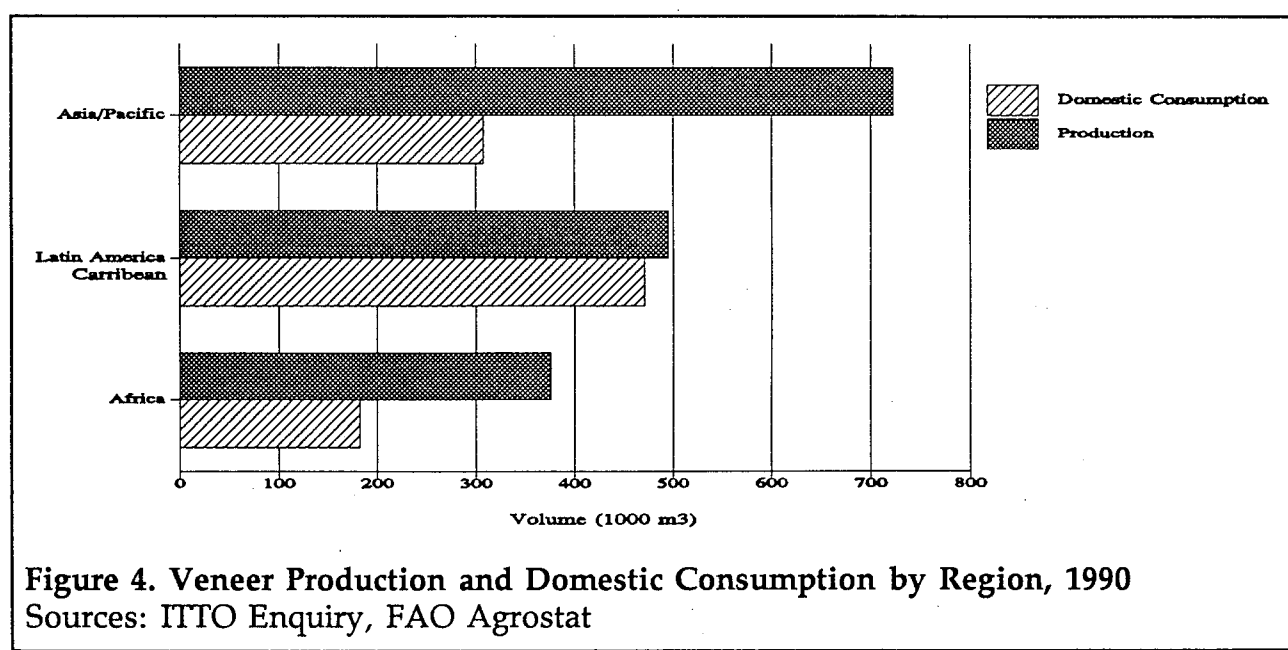
ITTO consuming countries produced about 65 000 m³ of veneer from imported logs in 1990. This production occurred primarily in the EC, with about two-thirds of this amount re-exported, principally to other EC countries. Taken together, ITTO's share of global veneer production is 34 percent.

Table 8. Veneer Production by Region, 1988 - 1990 (m³)

Region	1988	1989	1990
Africa	339 000	335 000	376 000
Asia-Pacific	576 000	638 000	723 000
Latin America/ Caribbean	540 000	661 000	495 000
Totals	1 455 000	1 634 000	1 594 000

Sources: ITTO Enquiry, FAO Agrostat

Figure 4 illustrates the domestic consumption of veneer for each region, as compared to total production levels. Barring errors in country statistics, some veneer must be traded domestically as such, as many countries (and all regions) have positive apparent domestic consumption figures (see Appendix 1). On average, Asia-Pacific producers traded 43 percent of their hardwood veneer production domestically, while African producers claimed that 48 percent of their veneer production was locally traded. The Latin American region, as for sawnwood, consumed almost all current production domestically. As can be seen from Appendix 1, domestic demand for veneer has dropped in all regions except Africa in 1990. Research should be undertaken to ensure that countries are reporting veneer production correctly, to ascertain that double counting of veneer used for domestic plywood production is not occurring.



Plywood

Production of plywood in ITTO producing countries totaled 13 027 000 m³ in 1990, 76 percent of tropical plywood production in all developing countries. Asian and European consumers produced about 7 000 000 m³ of tropical plywood from imported logs and veneer. Total ITTO member production represents 24 percent of total global plywood production. Plywood production by ITTO producers increased by 7.5 percent over the 1989 level, as shown in Table 9. The regional breakdown of this production is shown graphically in Figure 5; the Asian region clearly dominates global tropical plywood production with an output of 11 313 000 m³ in 1990, up 7 percent from 1989 levels and continuing steady growth. Latin America produced 1 472 200 m³ (up 3 percent from 1989) while African production fell almost 13 percent to 242 000 m³. Preliminary data for 1991 suggest that plywood imports will continue to grow in 1991 and 1992. The top 5 ITTO producers in 1990 were Indonesia (9 250 000 m³), Brazil (1 200 000 m³), Malaysia (1 135 000 m³), the Philippines (397 000 m³) and India (360 000 m³) which together accounted for 95 percent of total production by ITTO producers. The increase in plywood production in 1990 was due almost entirely to increases reported in Indonesia (see Appendix 1).

Production of tropical plywood in Japan, Korea and other log importing countries continues to decline, although precise figures are not available. Increasing restrictions on log exports by producing countries and growing environmental concern has prompted

many such countries to begin searching for alternative raw materials. In Japan, where the plywood industry is undergoing restructuring, an announcement was made in early 1991 that producers would cut log imports from Malaysia in favor of conifers from North America, New Zealand and the U.S.S.R. Plywood manufacturers have begun to increase the volume of coniferous wood in plywood to between 25 percent and 30 percent from the current level of about 5 percent, allowing a reduction in tropical log imports of over 20 percent. This trend will continue, as log importers search for more reliable and less controversial supplies.

Table 9. Plywood Production by Region, 1988 - 1990 (m³)

Region	1988	1989	1990
Africa	280 000	278 000	242 000
Asia-Pacific	9 763 000	10 405 000	11 313 000
Latin America/ Caribbean	1 205 000	1 432 000	1 472 000
Totals	11 248 000	12 115 000	13 027 000

Sources: ITTO Enquiry, FAO Agrostat

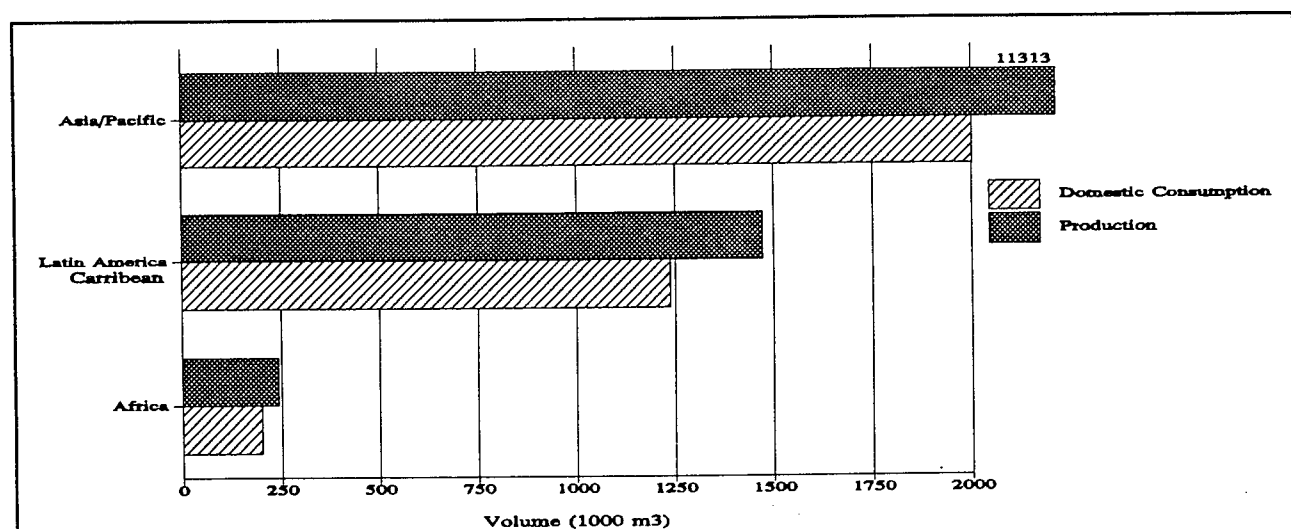


Figure 5. Plywood Production and Domestic Consumption by Region, 1990
Source: ITTO Enquiry, FAO Agrostat

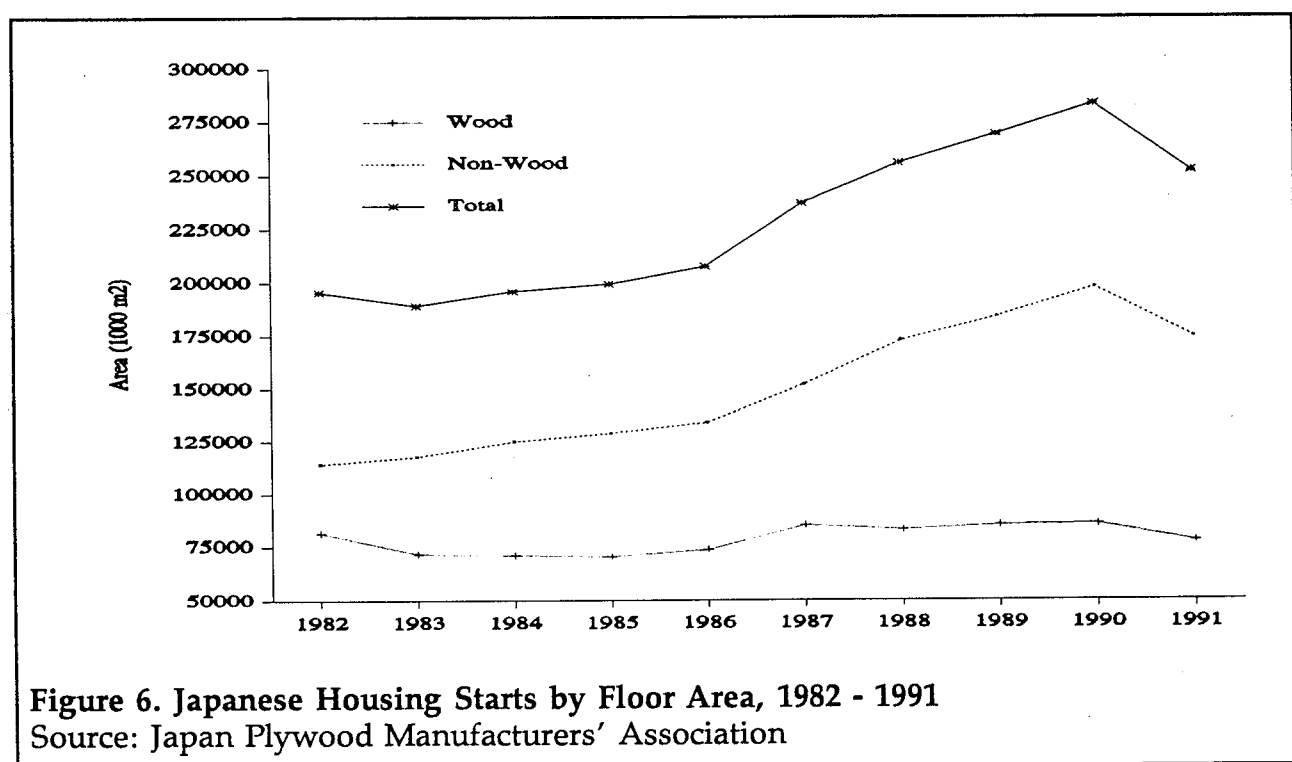
Figure 5 illustrates the domestic consumption of plywood for each region, as compared to total production levels. On average, Asia-Pacific producers consumed 18 percent of their hardwood plywood production domestically. The Latin American region, as for other products, consumed much (84 percent) of its current production domestically, as did the African region (83 percent). As can be seen from Appendix 1, domestic demand for plywood has grown in Asia and Latin America in 1990, and remained relatively stable in Africa. Again, such increases are primarily due to growing populations and economies.

Market Developments and Trade

This chapter focuses on developments in the markets for and trade of tropical forest products. The first section presents a brief overview of relevant market developments in 1990-91, followed by sections on the export, import and prices of each of the four primary products. Trade statistics have been derived principally from the ITTO Forecasting Enquiry, supplemented by the ITTO/FAO Monthly Bulletin, the ECE/FAO Timber database and other sources where available. Price statistics for logs and sawnwood have been collated from the ITTO/ITC Market News Service (MNS) using data prepared for 1990 in last year's Review. Average 1990 price levels are also presented for these products and for veneer and plywood (prices of which are not currently available from the MNS database) based on various sources.

Market Developments

The economic performance of most major markets for tropical timber declined by varying degrees during the 1990-91 period, as compared to the previous year. Housing starts are a good leading indicator of economic activity and are a major determinant of timber demand. Although Japan reported the highest level of housing starts in 17 years in 1990 (over 1.7 million units and nearly 300 million m² floor area), a combination of higher interest rates, spiraling land prices, and a gradual economic downturn caused starts in the latter half of the year to drop below 1989 levels. Government moves to curtail land speculation and to implement overall land reforms appear to be working and should lead to increased housing demand in the medium term. Wooden house starts were relatively stagnant in 1990 and have dropped in 1991, although not so precipitously as non-wooden construction. Figure 6 shows the trend in Japanese housing starts over the past decade, emphasizing the downturn in 1991. This downturn is likely to continue in 1992.

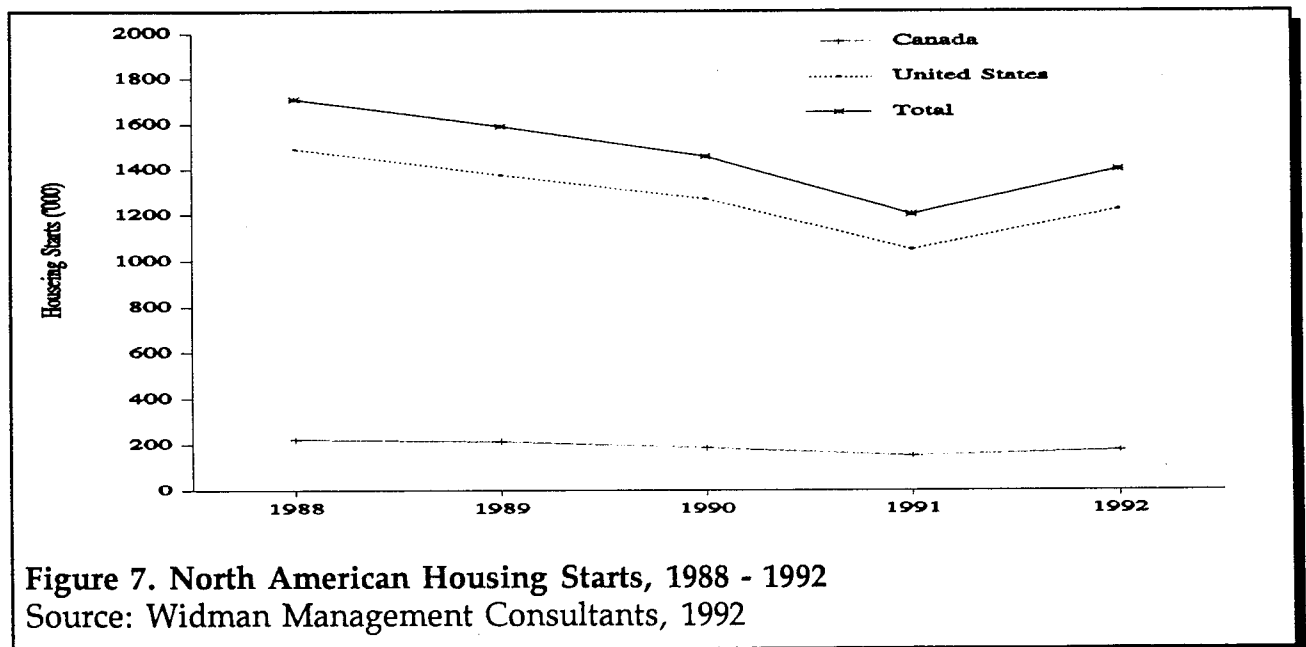


Japan has also taken several steps to limit its consumption of tropical timber products, including voluntary import reductions and softwood substitution. Another potentially

important development involves a study underway by the Ministry of Construction on seeking alternatives to plywood formwork and methods to utilize this commodity (which makes up a large proportion of Japan's tropical plywood imports) more efficiently.

Western European economies staged a relatively strong performance in 1990-91, led by Germany whose economy grew by 4 percent in 1990. Fears of inflation arising from German monetary union appear to have been unfounded. German housing starts have increased steadily over the past five years, with the most rapid increase in 1991 despite an impending economic slowdown. The impact of European integration in 1992 will likely have a positive effect on western European economies, although it is doubtful that this will translate into increased demand for tropical timbers due to increasingly stringent environmental policies.

In North America, expansion in both Canada and the U.S. moderated in 1990, with both countries experiencing recessions in 1990. Both countries experienced growth in GDP of less than 2 percent in 1990 - 91. The U.S. recorded its lowest level of housing starts in 8 years in 1991, at 1.05 million units. Canada's housing starts also slumped in 1991. Figure 7 shows the decline in North American housing starts from 1988, and the increase forecasted for 1992 as the economies continue to move out of recession. Production and consumption of forest products were generally down from 1989 levels in 1990 throughout the region. Western Canadian forest management was subjected to close scrutiny by a number of European delegations in 1991. Environmental groups in Europe have decried clearcutting as practiced in British Columbia as unsustainable and have called for a boycott of Canadian timber products. European imports of Canadian forest products are worth about \$4 billion annually.



The U.S. export ban affecting exports of unprocessed timber from western federal forests continued to be enforced in 1991. The move particularly affected Japan, whose imports of unprocessed timber from the U.S. are exceeded only by those from Malaysia. The ban is designed to ease concerns of domestic manufacturers following earlier government announcements of logging bans on huge tracts of these forests to protect the northern spotted owl. The U.S. (and its previous log customers) will need to find alternative sources to compensate for the planned harvest reductions of between 6 and 8 million m³ per year by 1995.

Trade

The direction of trade tables contained in Appendix 3 have been derived from responses to the 1991 Forecasting and Statistical Enquiry. This is the first year that such detailed information has been requested in the Enquiry. Most countries provided information on volumes traded, but value figures were not so readily given. Only volume figures are included here. Many countries made errors or omissions in providing this data, particularly importers who reported all wood imports (not just tropical) and re-exporters who failed to report exports of tropical timbers. Nonetheless, the tables provide a good indication of the major trade flows and of some of the problems in monitoring them. Cells in the tables of Appendix 3 consist of exporters' reports (in italics) and importers' reports (standard typeface). Boxed cells indicate trade flows for which data was reported by both exporter and importer. The discrepancies which are illustrated by many of these boxed cells are a cause for serious concern, casting doubt on the reliability of tropical timber trade statistics. There are a number of reasons why these discrepancies occur. Carelessness or inadequate training of reporting officials or correspondents is often a prime reason; this can only be cured with better training and supervision, particularly in the application of customs classification systems. Problems with consistency in conversion factors and exchange rates used can explain some discrepancies. Definitions of the reporting period may differ from exporter to importer, or shipments sent at the end of one period may not arrive until the following. Imports destined for re-export may not be correctly recorded. In some countries, governments have allowed traders to report shipment values less than transaction values ("check prices") to promote exports. Finally, smuggling and transfer pricing to avoid tariffs and quotas or otherwise increase profits have been documented for some tropical forest products and countries (e.g. Barnett, 1989). It is clear that if ITTO is to fulfil its mandate to monitor the trade in tropical timbers that major improvements in several of these areas will need to be achieved. The following discussion on exports uses exporters reports (unless otherwise qualified); that on imports uses importers reports.

Exports

The \$7.32 billion of exports reported by ITTO producers in 1990 amount to just over 25 percent of total global exports of saw/veneer logs, sawnwood, veneer and plywood. Although world trade in forest products continues to be dominated by industrialized countries, forest products exports continue to play a leading role in the economic development of many ITTO producing countries. Exports of forest products from some countries (e.g. Brazil, Indonesia and Malaysia) have, over the past decade, increased much faster than those of the industrialized countries.

Logs

The composition of exports from the ITTO producing regions is shown in Table 10. As noted in the Introduction, the contribution of logs to total exports has been steadily dropping. Only Africa continues to export a higher volume equivalent of logs than processed products (expressed in roundwood equivalent using standard conversion factors). The Asia-Pacific region leads the way in replacing log exports with the export of processed products, spurred by Indonesian plywood exports. Asian log exports are expected to drop to less than 23 percent of total log production in 1991, with a corresponding increase in processed exports. The situation in Africa will change more gradually due to more pronounced economic and political problems.

Figure 8 shows the top ten ITTO tropical log exporters in 1990, in order of export volume. Total ITTO exports of 25.3 million m³ (see Appendix 1) comprised 95 percent of global tropical hardwood log exports and 80 percent of non-coniferous log exports worldwide.

Malaysia continues to dominate the trade in tropical logs, with the 20.3 million m³ exported in 1990 constituting 80 percent of ITTO member exports. Malaysia's log trade decreased in volume by 3.6 percent over 1989 levels. Sarawak produced 78 percent of the total log volume exported by Malaysia (15.8 million m³ - up 5 percent from 1989 levels), while Sabah contributed 22 percent (4.5 million m³ - down 25 percent from 1989).

Table 10. Composition of Exports by Region, 1989 - 1990 ('000 m³ rwe)

Region	Log Production		Log Exports		Processed Exports		Total Exports	
	1989	1990	1989	1990	1989	1990	1989	1990
Africa	8892	10858	3223	3840	2134	2494	5357	6334
Asia-Pacific	92142	92293	22474	21479	36827	32511	59301	53990
Latin America/ Caribbean	32881	28093	1	1	1735	1749	1736	1750
Total	133915	131244	25698	25320	40696	36754	66394	62074

Sources: ITTO Enquiry, FAO Agroatat, FAO Monthly Bulletin

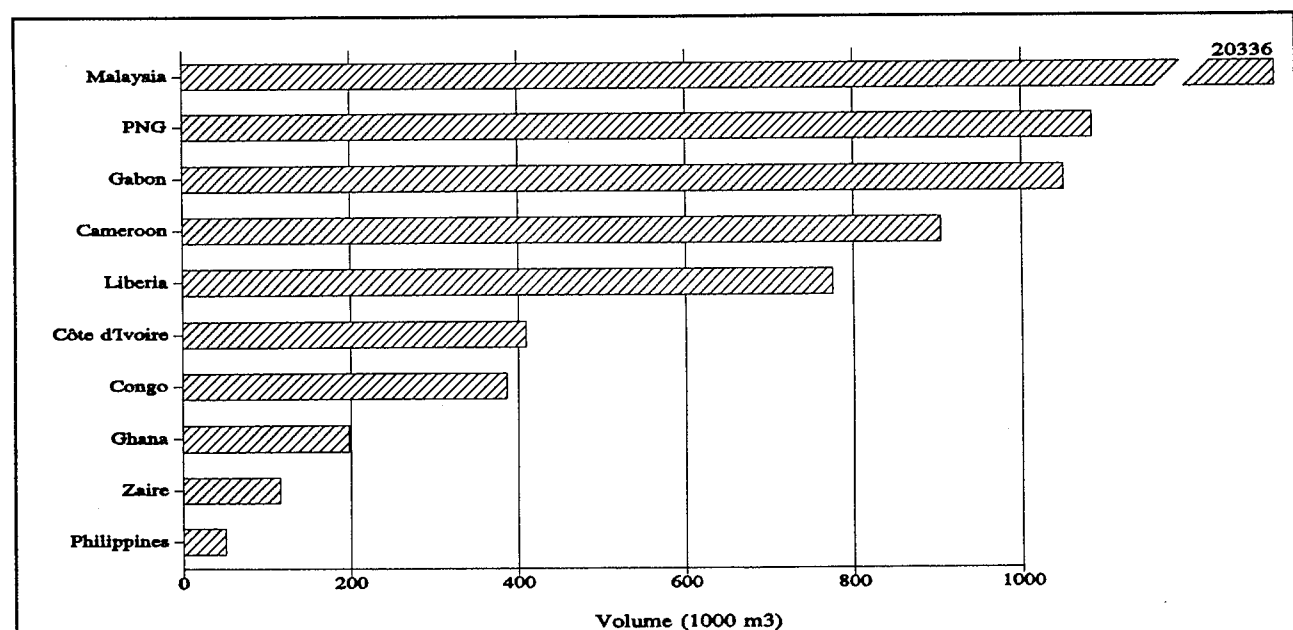


Figure 8. Major ITTO Log Exporters, 1990

Source: ITTO Enquiry

Export levels from both Malaysian states are dropping, however, due to new policies favoring further processing and other political and economic developments (see Country Notes). The Sarawak and Sabah Timber Associations have resolved to reduce 1991 exports to 12 and 4.5 million m³ respectively, an overall drop of 22 percent from the 1990 levels reported here. In Sarawak, a further drop of 3 million m³ in 1992 - '93 is planned, to bring exports in line with the recommendations of the ITTO Mission. These reductions will likely be felt most acutely by other Asian tropical timber producers who import Sarawak logs to supplement their own supplies. Indonesia, Peninsular Malaysia, the Philippines and Thailand accounted for 7 percent of Sarawak log exports in 1989; in 1990 this figure

almost doubled. It seems likely that Malaysia will reduce supplies to its traditional competitors to offset decreasing harvest levels before decreasing exports to traditional high volume markets like Japan (which, as noted above, is taking steps of its own to reduce tropical log consumption).

Papua New Guinea is the second largest tropical log exporter, with 1990 exports of 1.08 million m³. The bulk of PNG's log exports go to Province of Taiwan and the Republic of Korea, who prefer the relatively lower prices for PNG logs (see Prices). Log exports are estimated to have fallen to about 1 million m³ in 1990 due to export levies and a new National Forest Authority with increased monitoring powers (see Country Notes).

The majority of the remainder of world tropical hardwood log exports comes from Africa, directed primarily at European markets. The seven African countries shown in Figure 8 account for all of Africa's (and 8.3 percent of ITTO's) tropical log exports. Re-exports of logs by consumers reached approximately 120 000 m³ in 1990, mostly accounted for by inter-European trade.

Sawnwood

Figure 9 shows the top ten ITTO tropical sawnwood exporters in 1990, in order of export volume. Total ITTO producer exports of 7.2 million m³ (see Appendix 1) comprised 85 percent of global tropical hardwood sawnwood exports and 52 percent of non-coniferous sawnwood exports worldwide. Malaysia continues to dominate the trade in tropical sawnwood, with the 4.9 million m³ exported in 1990 constituting 68 percent of total ITTO member exports. Malaysia's sawnwood trade decreased in volume by 4.4 percent from 1989 levels. This decrease was due primarily to the imposition of an export levy on sawnwood of 22 species in June 1990. This levy came into full effect in March 1991 and led to the large decrease reported in Appendix 1 for 1991. Malaysian sawnwood exports should recover somewhat in 1992 as manufacturers adjust to the levy and as supplies from other regions become increasingly scarce.

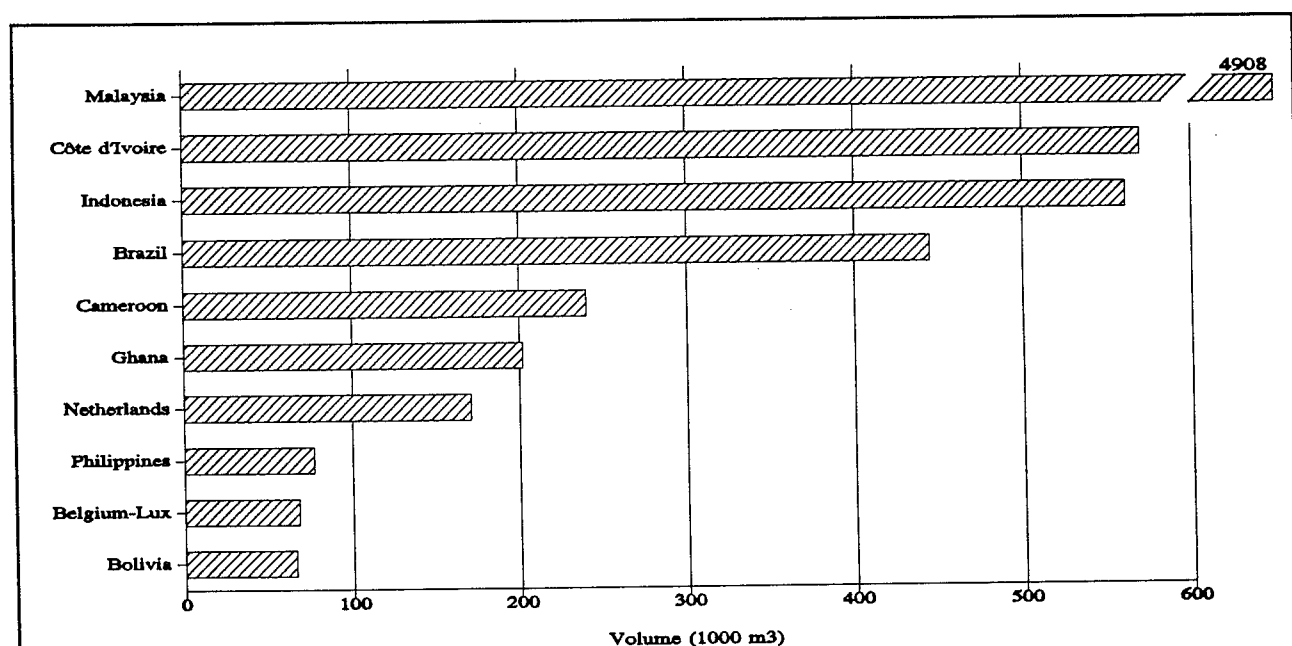


Figure 9. Major ITTO Sawnwood Exporters, 1990
Source: ITTO Enquiry

Indonesia's sawnwood exports dropped to 561 000 m³ in 1990, an 80 percent drop from 1989 exports. This dramatic drop followed the imposition of the export tax described in detail in the 1990 Review. Exports from the Philippines also fell dramatically (by 82 percent to 77 000 m³) due to export bans imposed during 1990. As the potential of African and Latin American producers to make up the resulting shortfall is limited, importers will increasingly turn to Malaysia for sawnwood supplies. As this country is continuing to impose measures to protect its own domestic processing industry, shortages, price increases and the search for substitute materials will intensify. In the face of impending shortages and increasing environmental concern, the U.K based Furniture Industry Research Association undertook a study of substitutes for tropical sawnwood in 1991.

A significant quantity of tropical sawnwood is also exported by ITTO consumers, primarily countries in the EEC. EEC exports of tropical sawnwood (produced from imported logs) totaled 275 000 m³ in 1990, with 1991 levels assumed to be similar. The Netherlands, now a larger tropical sawnwood exporter than the Philippines, was the main EEC sawnwood exporter.

Veneer

Figure 10 shows the top ten ITTO tropical veneer exporters in 1990, in order of export volume. Total ITTO exports of 673 000 m³ (see Appendix 1) were up by 16 percent from 1989 levels and comprised 92 percent of veneer exports from all developing countries. Malaysia continues to dominate the trade in tropical veneer with the 330 000 m³ exported in 1990 constituting 49 percent of total ITTO producer member exports. Malaysia's veneer trade increased in volume by 33 percent over 1989 levels, reflecting increased capacity. These increases will continue in 1991, as new export veneer mills reach their production capacities. Growth in Malaysian exports in 1991 was tempered slightly by the imposition of an export levy in March.

The EEC also exported significant quantities of tropical veneer (produced from imported logs) in 1990, with 1991 levels predicted to remain at about 40 000 m³. Germany is the largest EEC veneer exporter.

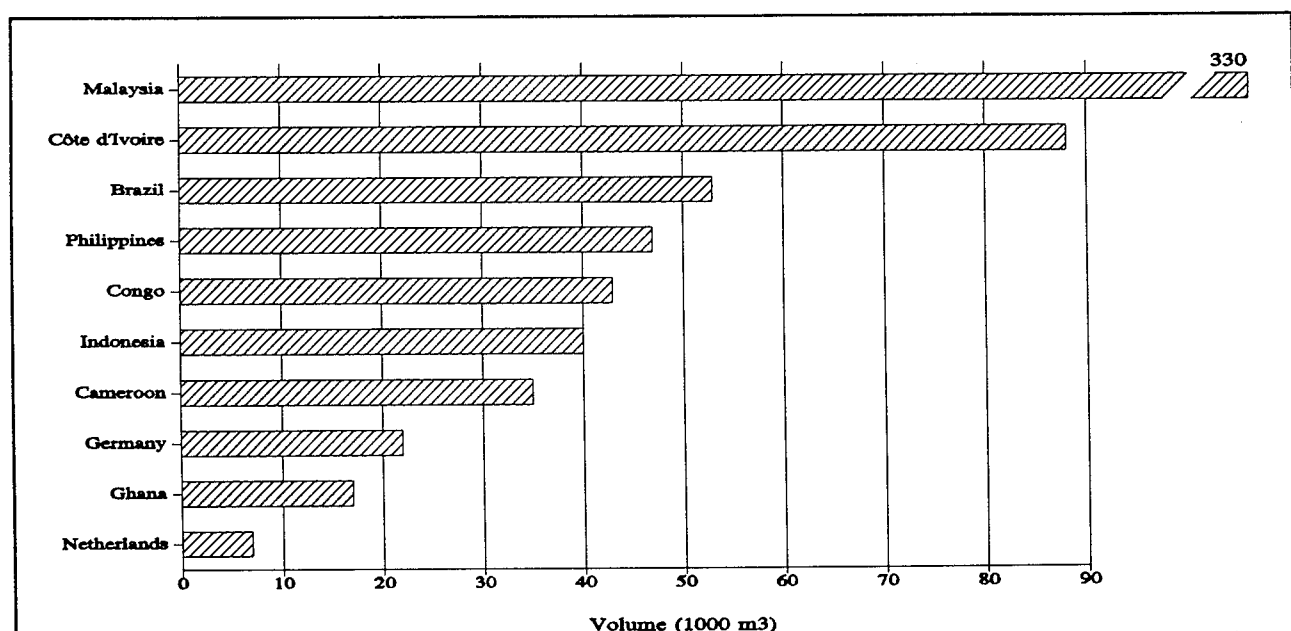
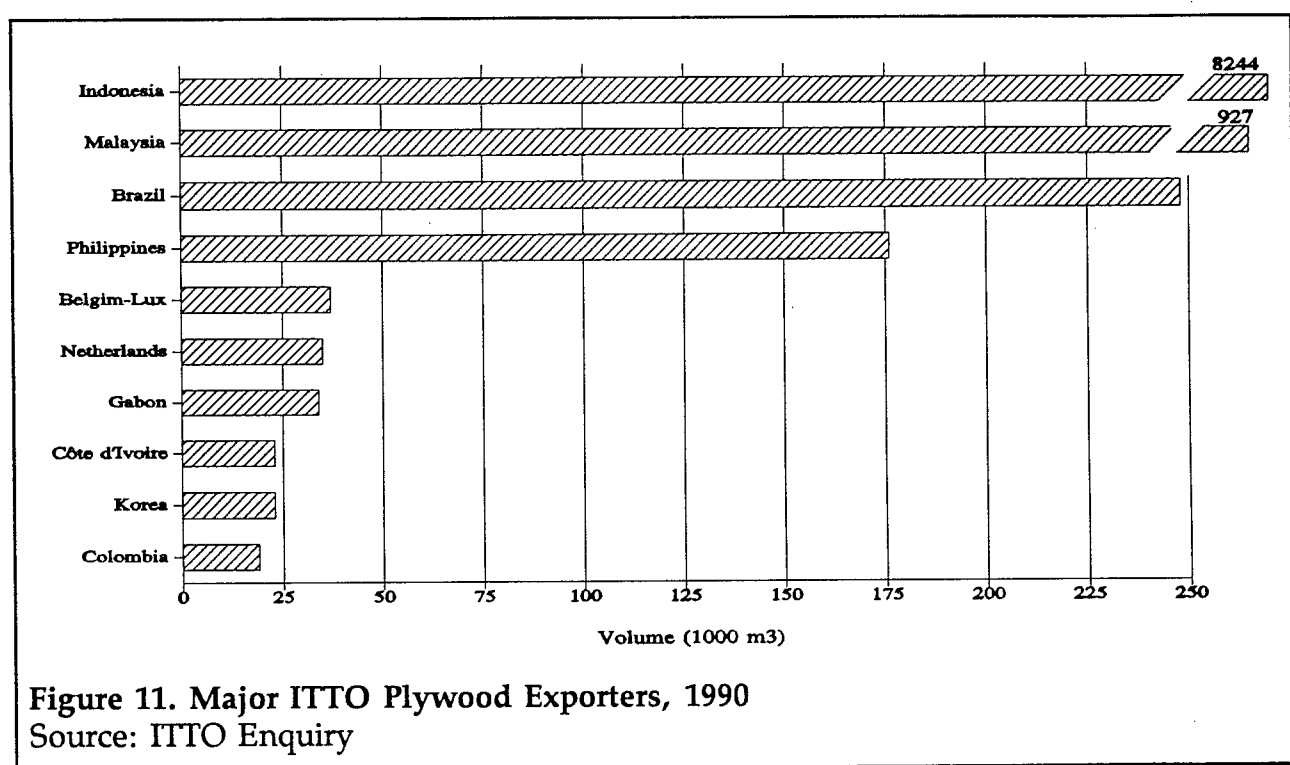


Figure 10. Major ITTO Veneer Exporters, 1990

Source: ITTO Enquiry

Plywood

Figure 11 shows the top ten ITTO tropical plywood exporters in 1990, in order of export volume. Total ITTO exports of 9.7 million m³ (see Appendix 1) increased by 1.6 percent over 1989 levels and comprised 82 percent of all developing country plywood exports (60 percent of global plywood exports). Indonesia continues to dominate the trade in tropical plywood with the 8.24 million m³ exported in 1990 constituting 85 percent of total ITTO producer member exports. Indonesia's plywood trade increased in volume by 2.5 percent over 1989 levels, reflecting increased capacity and ongoing industrial policy. 1991 exports were reported to have grown by over 500 000 m³ to nearly 8.8 million m³. Increases will continue in 1991 - '92, as logs previously used for export sawnwood continue to be diverted to the plywood sector. APKINDO has forecast 1992 forest export earnings of over \$4 billion, generated almost entirely from plywood exports. The Indonesian industry continues to strengthen its strategic position in tropical plywood trade, lobbying intensively to maintain (and if possible expand) its share of the Japanese market (see plywood imports).



Malaysia and Brazil are Indonesia's major competitors in tropical plywood trade. While exports from Malaysia continue to grow, those from Brazil face additional obstacles with respect to exchange rates/inflation and environmental concerns in its principal markets of the U.S. and the U.K. where protection of the Amazon has become a major issue.

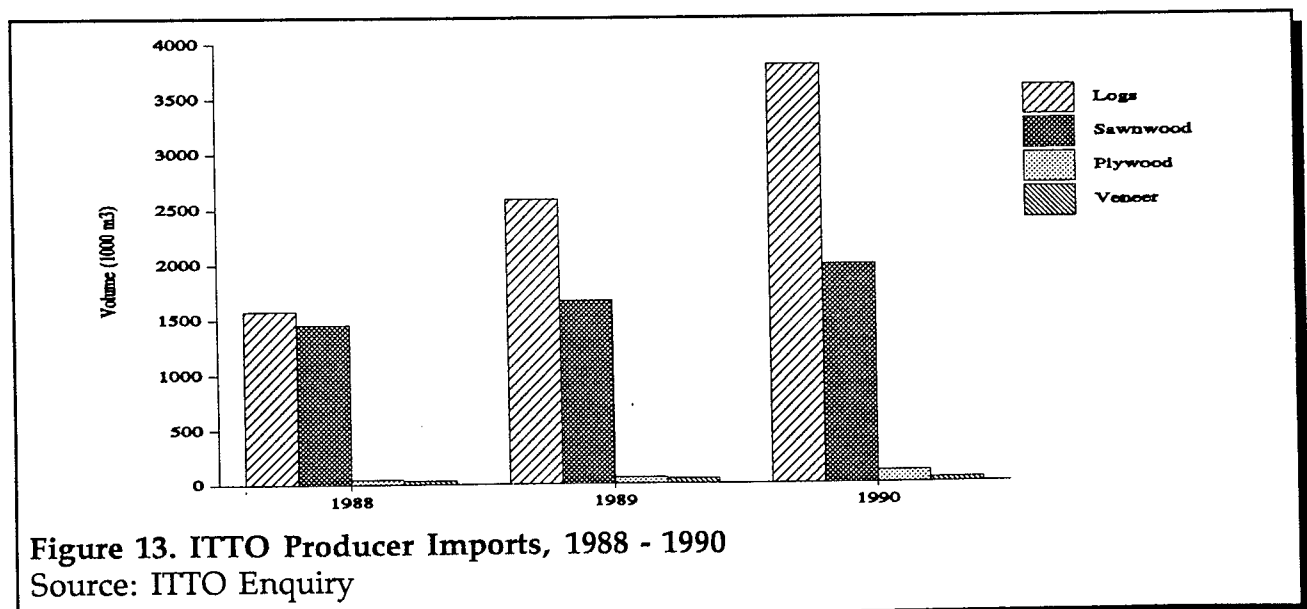
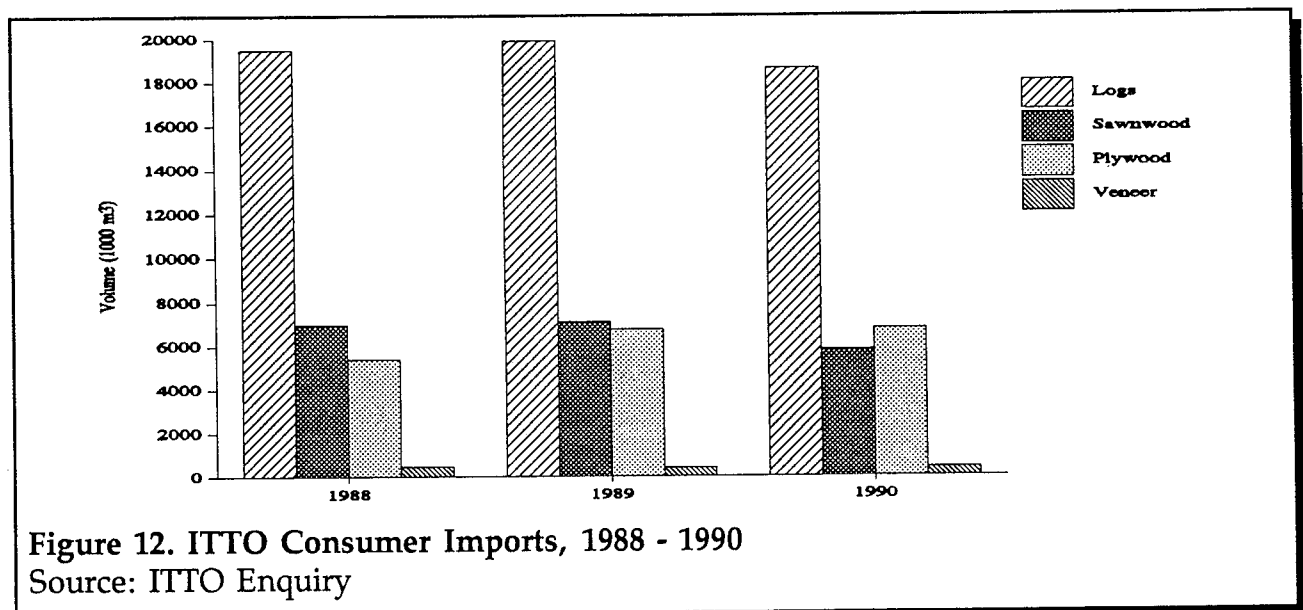
The EEC exported significant quantities of tropical plywood (produced from imported logs) in 1990, with 1991 levels assumed to remain at about 140 000 m³. These exports were mainly to other EEC countries, as was the case for EEC exports of sawnwood and veneer. The main EEC exporters of tropical plywood were Belgium-Luxembourg and the Netherlands.

Imports

Import markets for tropical timber products were somewhat depressed in 1990 - '91, with many countries using up substantial stocks to avoid export duties, taxes and quotas

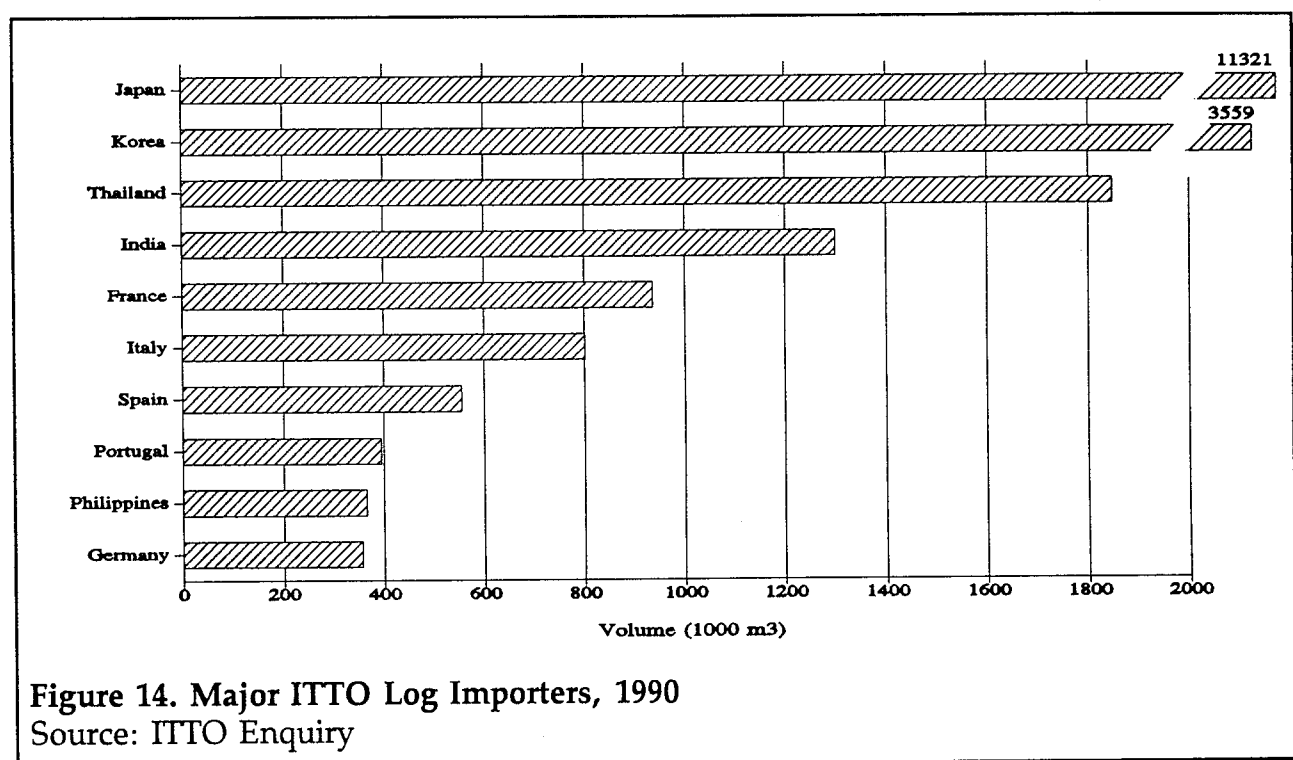
imposed by producers during the period. The negative impact of excessive stocks in these markets was felt in early 1990, after which prices for many products (particularly sawnwood) dropped substantially.

Figures 12 and 13 illustrate the relative stagnation of imports by traditional consuming countries over the past three years, and the relative boom in imports by producing countries. This changing pattern of trade illustrates the fact that five of ITTO's 22 producing members (Honduras, India, Thailand, Togo and Trinidad and Tobago) are currently net importers of tropical forest products, with several others poised to move into this category. The increase in producer imports is due to a range of factors: logging bans, declining availability and quality of forest resources and increasing demand in these countries all play a role. The FAO has estimated that growth in consumption of sawnwood and panels in developing countries will average 3.6 and 6.3 percent, respectively, until the turn of the century. These projections, significantly greater than those for developed countries, are borne out (and shown to be conservative) by the trends shown in Figure 13. It is clear that the increased consumption of tropical timber in producing countries will have profound effects on forest management and thus on the work of ITTO.



Logs

Total imports of tropical hardwood logs by ITTO members (consumers and producers) remained at 22.4 million m³ in 1990, 89 percent of total log exports by ITTO producers. Figure 14 shows the top ten ITTO log importers in 1990, in order of import volume. Japan clearly dominates the global tropical log market, with over 11.3 million m³ imported in 1990, primarily from Sarawak and Sabah. Japanese log imports dropped by nearly 1 million m³ in 1990, with a similar drop reported in 1991 (see Appendix 2). These decreasing levels of log imports are in response to environmental pressures and to the economic slowdown mentioned previously. Japanese demand for tropical logs will continue to be met primarily by output from Sarawak and Sabah, although the plan to decrease log exports from these Malaysian states (see Country Notes) will result in a greater diversity of suppliers to the Japanese market, including softwood and temperate hardwood suppliers.



The Republic of Korea is the second largest ITTO log consumer, absorbing 3.56 million m³ in 1990, primarily from Malaysia and PNG. This is a slight drop from 1989 levels, reflecting the trend towards more value-added imports in the Republic of Korea and the increasing wage rates affecting domestic processing costs. Log imports are expected to increase significantly in 1991 - '92, as the Korean economy continues to grow. Korea, like Japan and some other Asian consumers (Singapore, Taiwan, etc.), is undertaking to shift some of its processing capacity to producing countries, closer to resources and cheaper labor. In 1990 - '91, 33 Korean wood processing enterprises were relocated or established in producing countries.

The People's Republic of China reported imports of 151 000 m³ of tropical hardwood logs in 1990, over 80 percent of which came from Malaysia. Official Chinese import statistics do not include figures for imports by foreign enterprises or joint ventures. Given the rapid growth in such enterprises in China's growth zones, this practice results in the omission of a significant volume of logs and sawnwood. Both China and the Province of Taiwan hope to join the GATT in 1992; this may lead to more reliable and readily available trade statistics for these important markets.

The EEC countries imported over 3.4 million m³ of tropical logs in 1990, 98 percent of which came from African producers. France was the largest of the EEC log importers, with the bulk of its supplies coming from Gabon, Cameroon, and Liberia. Italy was the second largest EEC importer and the only European log market other than France which grew in 1990.

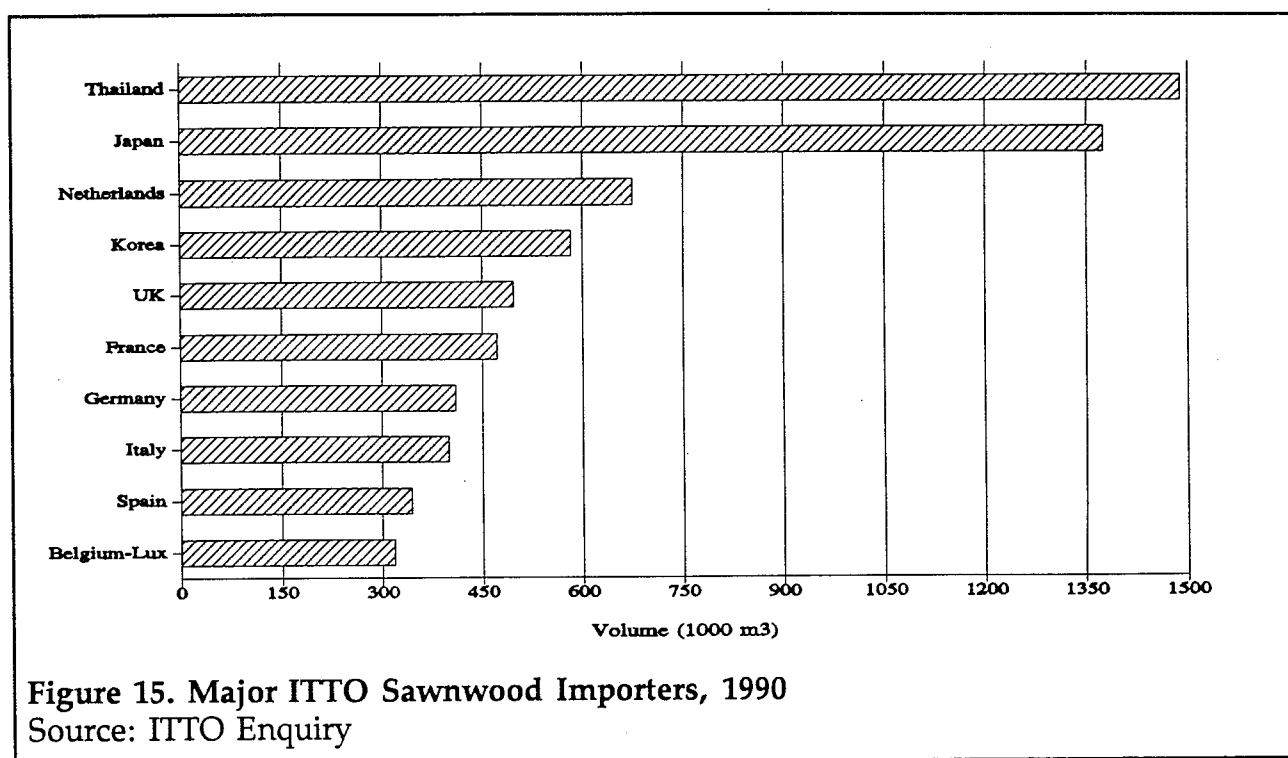
As indicated in Figure 13, several ITTO producing countries have become net importers of logs. This indicates the extent of the problems facing their domestic forest resources. Some producing countries (e.g. the Philippines) are considering limits on log imports due to problems with balance of trade with neighboring countries. This places forest industries in an extremely difficult position, virtually unable to secure adequate reliable wood supplies. Several mills in the Philippines have either reduced production, shifted operations to other countries (e.g. PNG) or closed down in the face of such pressures. Thailand (1 847 000 m³), India (1 300 000 m³) and the Philippines (365 000 m³) all reported substantial tropical log imports in 1990, reflecting resource scarcity in these countries. Total imports of tropical logs by ITTO producing countries grew by 47 percent in 1990, to over 3.8 million m³. This rate of growth in demand will, in combination with demand from traditional log consumers like Japan, place considerable pressure on the forest resources of the remaining log exporters, primarily Malaysia and, to a lesser extent, PNG. Careful regulation of log exports is required in these countries to ensure that the tightening supply situation does not exacerbate problems in the forest sectors of the producing countries.

Sawnwood

Total ITTO imports of tropical sawn hardwood fell to 7.76 million m³ in 1990, 7 percent greater than total exports by producing countries which fell to 7.23 million m³. Figure 15 shows the ten major ITTO sawnwood importers in 1990, in order of import volume. A producing country became the largest sawnwood importer for the first time -Thailand's imports grew to 1.49 million m³, overtaking Japan where imports fell over 20 percent to 1.38 million m³ in 1990. The large drop in reported Japanese imports was due at least partially to the slowing economy, and was partially offset by increased imports of softwoods. Both countries imported the bulk of their sawnwood from Malaysia. Japan's imports remained at the same level in 1991, while those of Thailand are reported to have increased by 10 percent. Imports to both countries from Indonesia dropped drastically in 1990 due to the tax on sawnwood exports implemented at the beginning of the year.

Imports of the major European consumers in 1990 fell to 3.3 million m³ in 1990, with the bulk of this total (over 65 percent) supplied by Asian producers, principally Malaysia. Cote d'Ivoire, Ghana, Gabon, Cameroon and Brazil supplied virtually all of the remainder of European imports. Problems in the economies of Eastern Europe and the former U.S.S.R., and the growing environmental concern in Western European countries will contribute to a continuing decline in European consumption of tropical timbers in 1991 - 1992. The Netherlands remains the largest importer of tropical sawnwood in the EEC, although 1990 imports of 675 000 m³ were down by more than 20 percent on the previous year's figure. The Netherlands' policy to only import sustainably produced tropical timbers after 1995 will lead to further import reductions.

The Republic of Korea imported 583 000 m³ of tropical sawnwood in 1990, with 1991 levels expected to rise significantly. The People's Republic of China is not a substantial importer of tropical sawnwood (relative to the size of the market), with only 73 000 m³ imported in 1990. Imports by foreign enterprises and joint ventures, however, may increase total Chinese imports substantially. Malaysia also supplied the bulk of these country's imports, capitalizing on markets previously dominated by Indonesian sawnwood.



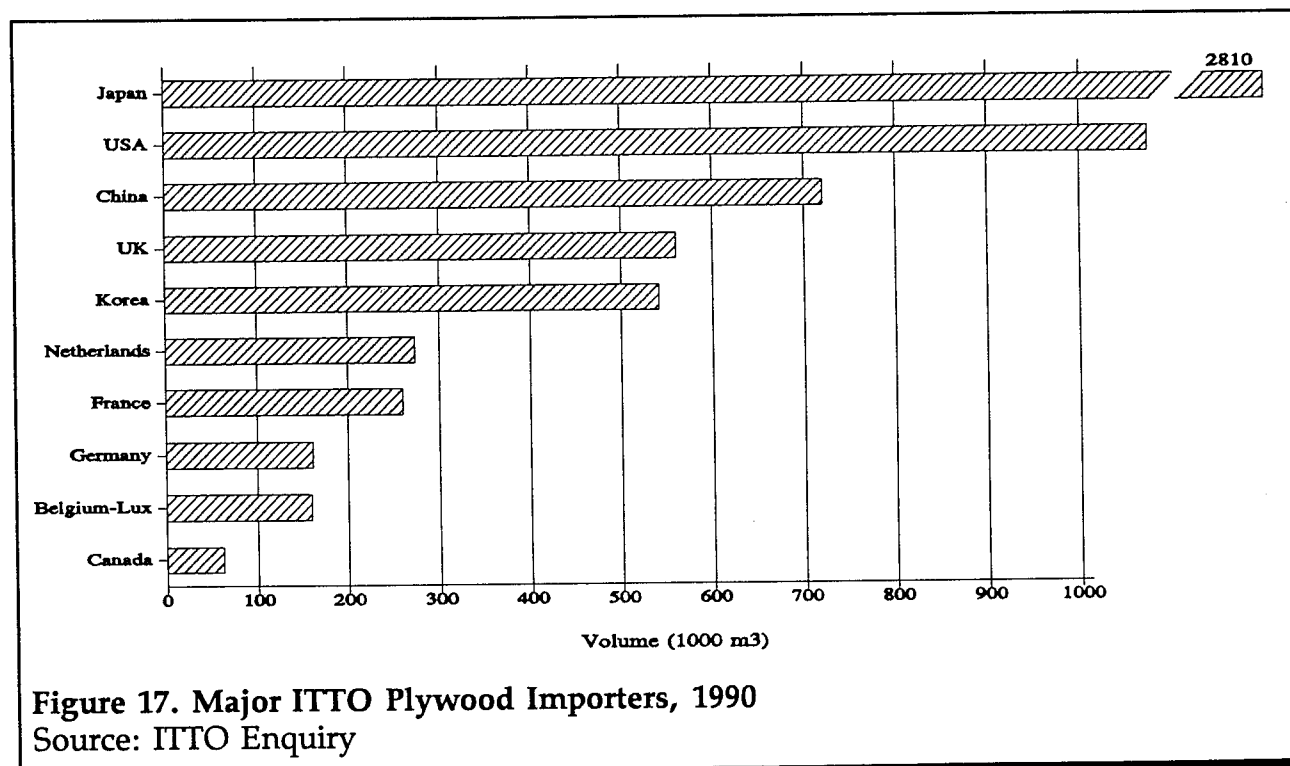
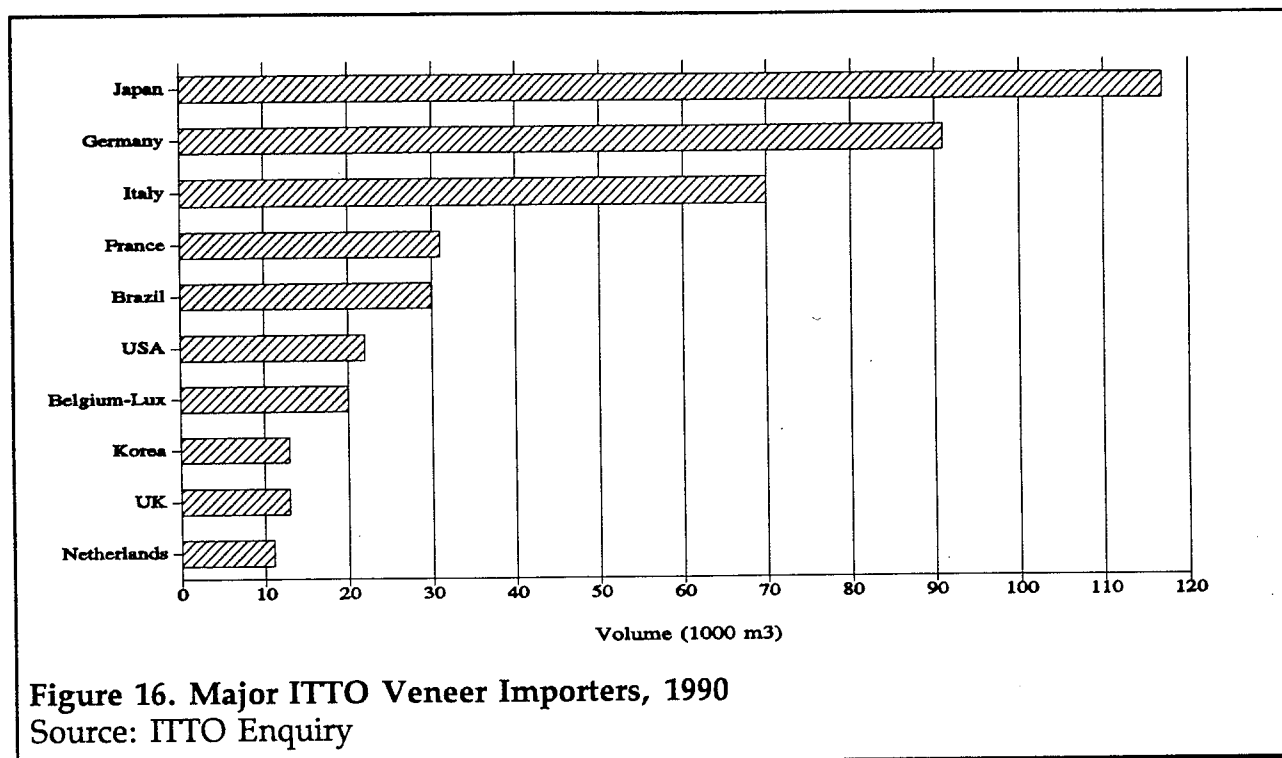
Veneer

Many importing countries do not differentiate between different types of veneer and plywood (e.g. softwood/hardwood, temperate/tropical). This lack of resolution in trade statistics is compounded by the fact that countries use a wide variety of scales to measure trade in panel products. Some countries use volume (as is used here), some use surface area and still others use weight. All of these can be reported in metric or imperial units, depending on the country. The many discrepancies evident in the direction of trade tables for veneer are at least partially due to the use of different conversion factors in different countries. The adoption of a standard measuring system for panel products and veneer is a priority if improvements in the accuracy of these statistics are to be achieved. Although every effort has been taken to sift out tropical data and to homogenize it via the application of relevant conversion factors, the figures presented in this section and the next should be treated with caution.

Figure 16 shows the ten major ITTO veneer importers in 1990, in order of import volume. Total ITTO imports of veneer reached 466 000m³ in 1990. Japan accounted for one-quarter of these imports, with members of the EEC accounting for just over half. Japanese imports were primarily sourced from Asia, while the majority of European imports were from African producers. The USA was the largest tropical veneer importer in 1988 but has now fallen behind its traditional supplier (Brazil) in import quantity. This illustrates the problems facing tropical timbers in the world's largest market.

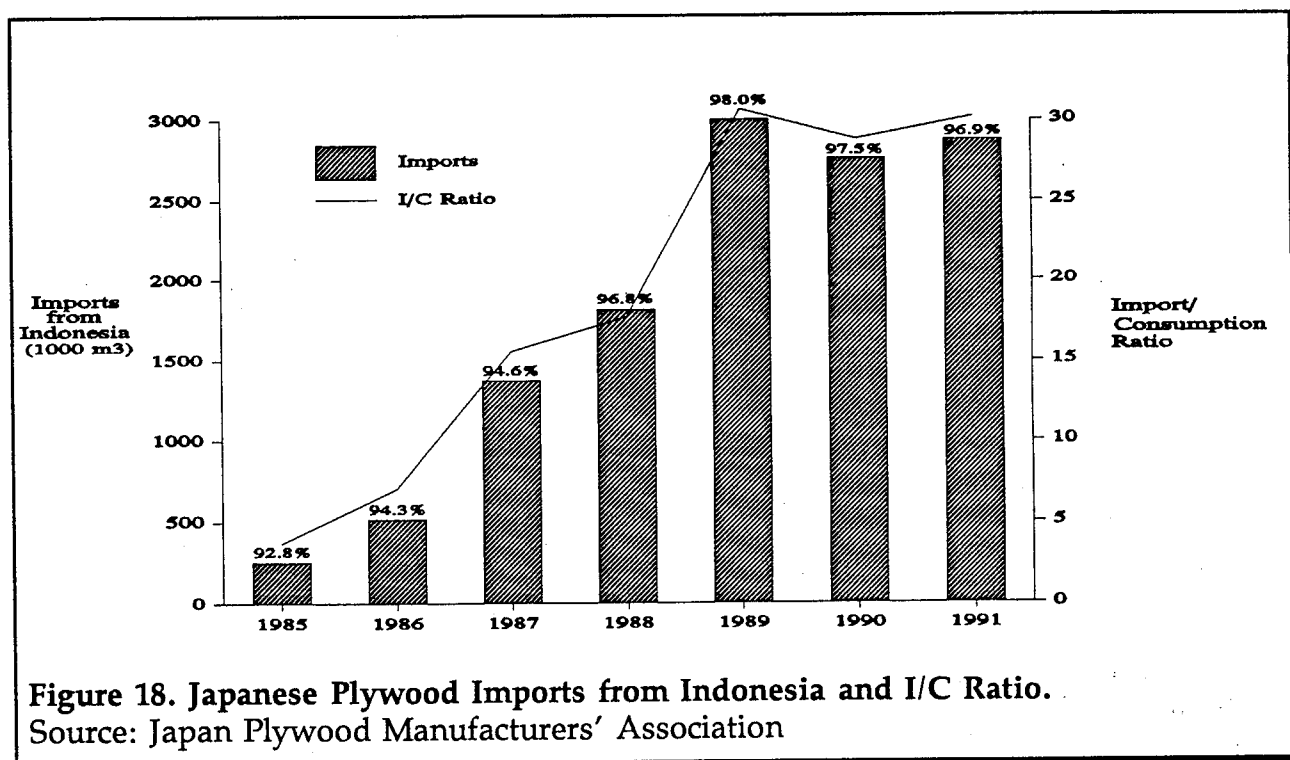
Plywood

Figure 17 shows the ten largest ITTO plywood importers in 1990, in order of import volume. The majority of both Japanese and U.S. imports (the biggest ITTO plywood consumers) of tropical plywood came from Indonesia (98 percent and 81 percent respectively in 1990). Both of these countries are expected to maintain or slightly increase tropical plywood imports in 1991-1992, although some of the issues discussed under Market Developments may temper Japanese demand somewhat.



Japan continued to negotiate with Indonesia in an attempt to safeguard its domestic industry from the threat due to relatively low-priced imports. Indonesia has taken a strong position, however, claiming that it would refer to the GATT any effort by Japan to raise tariffs or otherwise restrict entry to Indonesian plywood. Figure 18 shows the growth in Japan's imports from Indonesia, the percentage of total plywood imports sourced from Indonesia and the movement of the Import Consumption ratio (Indonesian imports divided by Apparent Domestic Consumption), which is calculated monthly by the Japan Plywood Manufacturers' Association. This graph clearly shows the dominant position which Indonesia has established in their most important plywood market. In 1990

- 1991, imports from Indonesia accounted for about 97 percent of total Japanese plywood imports, making up 30 percent of total Japanese consumption of plywood (70 percent of consumption was produced in Japan from imported logs). Figure 18 shows the relatively privileged market position which Indonesia has earned in the past few years. There is, however, clearly a limit to the amount of imported plywood which Japan can absorb.



European imports of tropical plywood totaled approximately 1.5 million m³ in 1990, with more than half of this amount coming from Indonesia, Malaysia, and the Philippines. Cameroon and Brazil provided the bulk of the remainder of European imports. As discussed under sawnwood, European demand for processed tropical forest products will likely weaken during the next few years.

The Republic of Korea (541 000 m³) and the People's Republic of China (721 000 m³) were both substantial tropical plywood importers in 1990 and have apparently continued in this role in 1991. Indonesia supplies the majority of these imports as well, further consolidating its strategic position in the global tropical plywood market.

Prices

The following section is an update of that presented in the 1990 Review, utilizing data received from ITC for 1990 and early 1991. A more detailed analysis of 1991 price trends will be carried out for the 1992 Review.

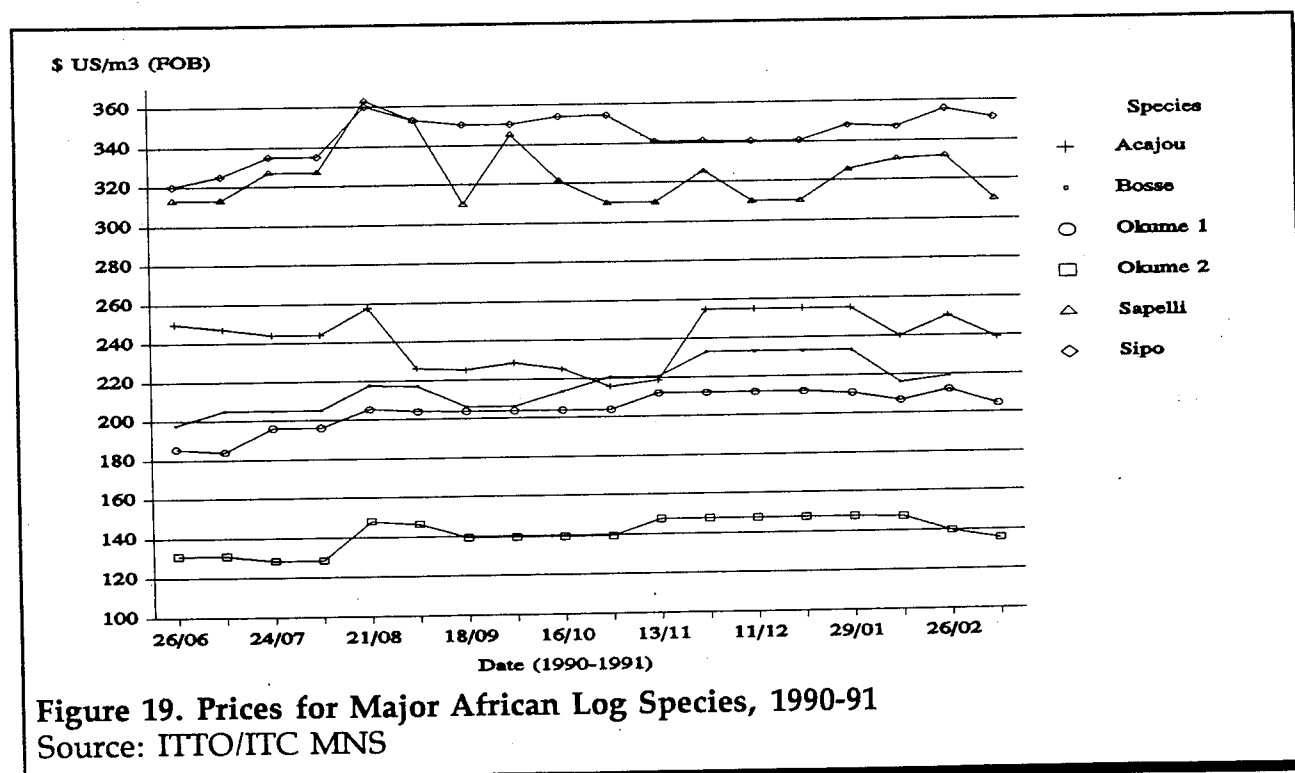
Average export price trends from June 1990 for major log and sawnwood species from each exporting region are shown. The graphs were derived from ITTO/ITC MNS data and as such reflect exchange rate fluctuations as well as real changes in price. The relative differences between the species groups within a region are thought to be representative of actual price differentials, however. Not all species are reported in each issue of the MNS. Prices for major species were averaged by high and low reported levels, across countries within a region (when more than one country exported a given species) and across size/quality categories when differences between these were found to be

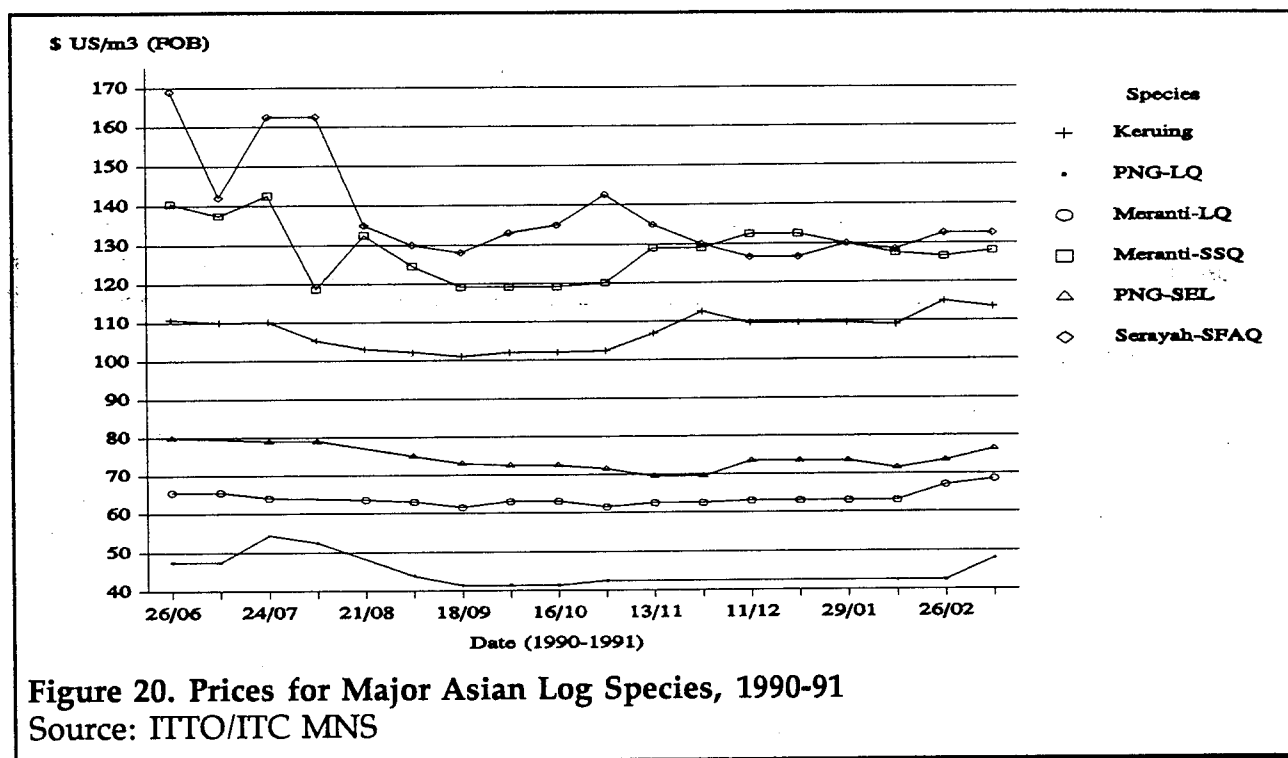
insignificant, for each period reported. Sawnwood export data was further delineated by destination in some cases (usually U.S. or U.K.); price differences between different destinations were, in general, insignificant and these figures were also averaged. The MNS price data are included here to indicate recent trends in regional prices, given the importance of the price factor in tropical timber markets. Average export prices for 1990 and 1991 have also been derived and presented for each product and region where possible, using a range of sources identified in the text. The price figures presented here are indicative only of average changes over the period under review; actual prices paid by merchants or received by producers vary considerably with quantity traded, specifications, port of shipment and quality within grade. All prices quoted are nominal.

Logs

Logs

Figures 19 and 20 show average FOB prices for major species of African and Asian log exports during 1990 and early 1991. Average FOB prices for some species of African log exports are also provided in the FAO/ECE monthly price series. 1990 averages are as follows: acajou - \$240/m³; sapelli - \$317/m³; sipo - \$341/m³. These prices all decreased slightly (\$5 - \$10/m³) in 1991 judging from data for the first three quarters. The World Bank reviews commodity markets on a quarterly basis and provides price projections; according to this data FOB prices for African sapelli averaged \$344/m³ in 1990, falling to \$316/m³ in 1991. These figures correspond with those reported by the MNS for these species during 1990 and in early 1991 (Figure 19). The decline in prices for African logs is primarily due to the economic slowdown in much of Europe and the ready availability of storm damaged timber in many European countries. The World Bank also reports Japanese wholesale prices for Sabah meranti logs; the average for 1990 was \$210/m³, rising to \$222/m³ in 1992. This increase is due to exchange rate fluctuations, as actual yen prices declined 4 percent reflecting decreasing demand and increasing softwood substitution. The difference between these figures and those shown for meranti in Figure 20 reflect transport costs and mark-up. The volume weighted aggregate FOB price for Sabah logs which can be derived from the FAO Monthly Bulletin is close to \$100/m³, reasonably close to the average for the two qualities of meranti shown in Figure 20.





Sawnwood

Sawnwood prices (FOB) for major species in the three ITTO producing regions are plotted in Figures 21, 22 and 23. Figure 21 shows prices for African species. FAO/ECE averages for African sawnwood in 1990 are as follows: sipo - \$697/m³; sapelli - \$625/m³; mahogany - \$417/m³. Preliminary 1991 prices appear to have increased by about \$10/m³ for sipo, remained stable for mahogany and decreased substantially for sapelli to about \$560/m³. The World Bank figures for sawn sapelli do not show such a precipitous drop: 1990 FOB prices averaged \$628/m³, falling to \$606/m³ in 1991. All of these figures are quite close to the average prices depicted in Figure 21, with the exception of the FAO/ECE mahogany price, which appears to be significantly lower than average prices reported by the MNS. In general, it appears that average prices for African sawnwood fell slightly in 1991, following a substantial increase from 1989 levels. The decrease in 1991 reflects the changes in European markets which have already been discussed.

Asian sawnwood prices are shown in Figure 22. No explanation was provided in the MNS for the steep decline in jelutong and light red meranti prices between July and October 1991. The FAO/ECE figures represent average domestic prices in Malaysia and as such may not be directly comparable with the MNS FOB figures: dark red meranti - \$770/m³; light red meranti - \$670/m³; jelutong - \$650/m³. These figures seem quite high for domestic prices. The World Bank's figure of \$524/m³ for Malaysian dark red meranti CIF at French ports provides a more realistic comparison with the figures shown for this species in Figure 22. The Bank figures show a substantial decrease in this figure in 1991, to \$472/m³, as French (and European) demand for tropical sawnwood continues to diminish.

The MNS coverage of Latin America is not as comprehensive as in the other regions, as evidenced by the limited number of data points in Figure 23. However, a general downward trend can be seen for most of the species plotted, reflecting the strengthening of the U.S. dollar against Latin American currencies. The average price quoted by the FAO/ECE for Brazilian mahogany (FAS-KD, C&F) in 1990 is \$980/m³, comparable with the FOB figures given by the MNS. No other sources for Latin American sawnwood prices are available.

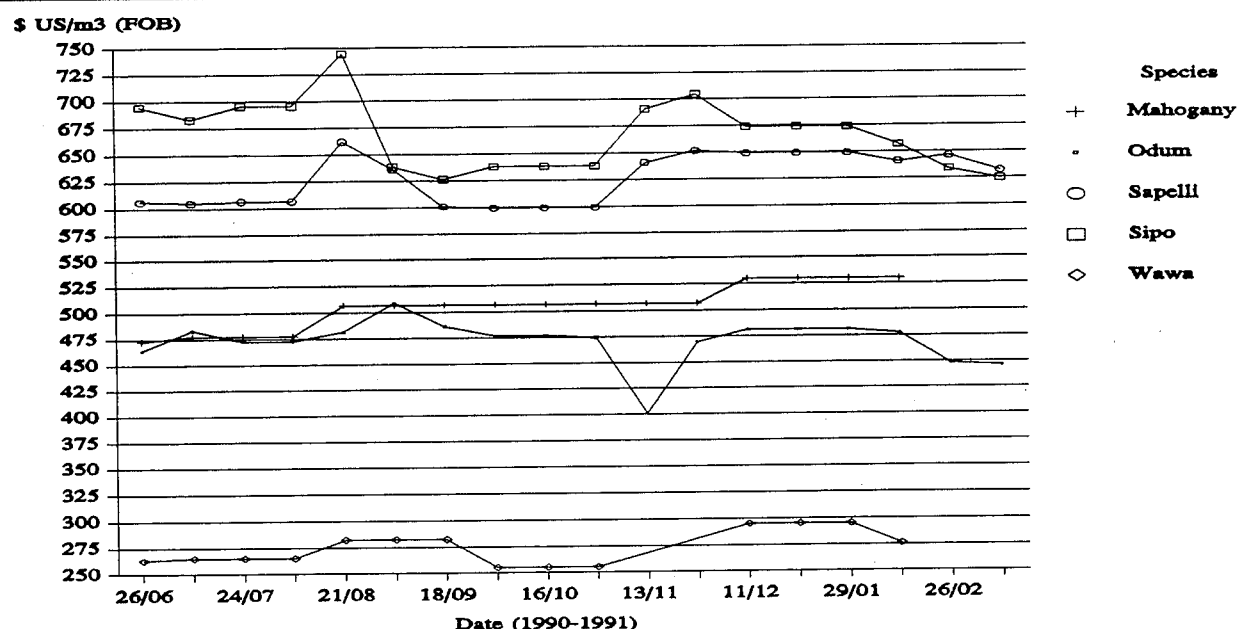


Figure 21. Prices for Major African Sawnwood Species, 1990 - '91
Source: ITTO/ITC MNS

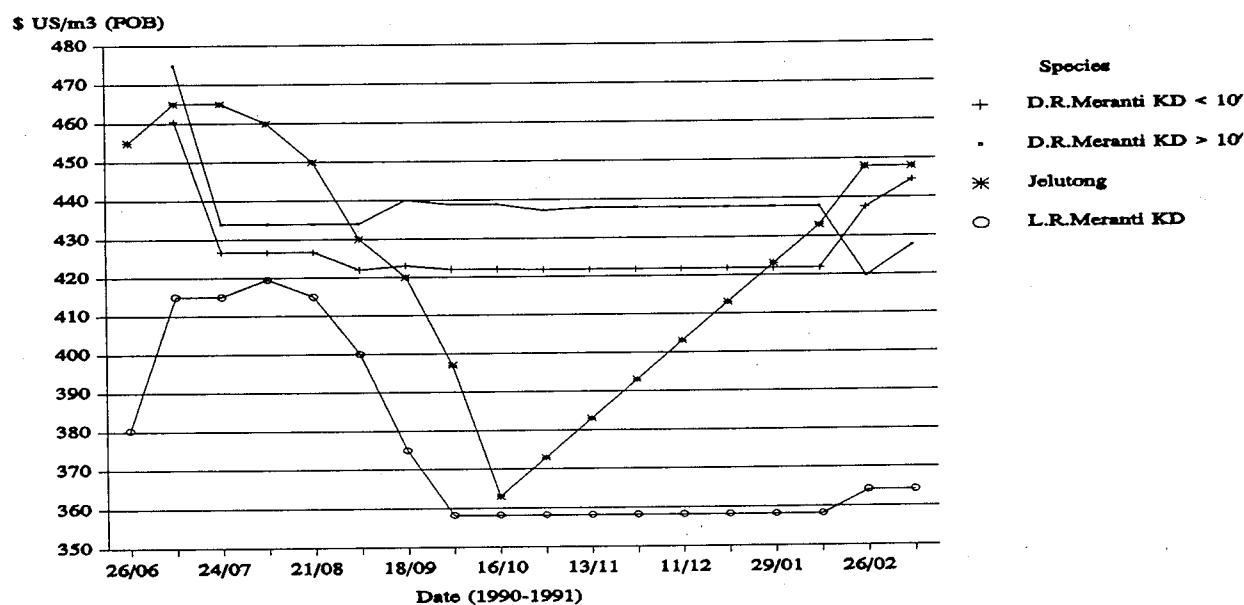
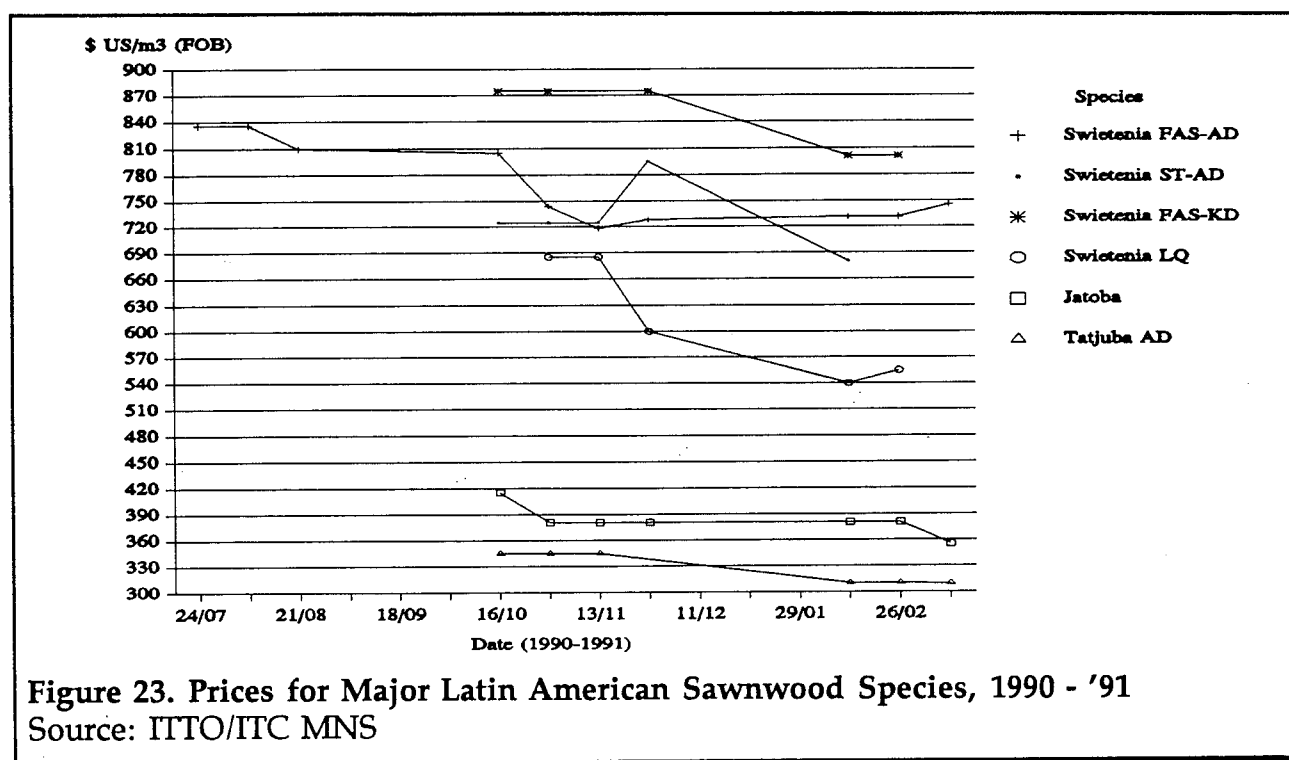


Figure 22. Prices for Major Asian Sawnwood Species, 1990 - '91
Source: ITTO/ITC MNS

Veneer

Unfortunately, veneer prices are not reported at this stage in the ITTO/ITC Market News Service. No veneer prices are quoted in any of the other sources which have been referred to. The volume weighted average price for African veneer in 1989 was \$434.60/m³, down substantially from average 1988 levels (\$457.04/m³). Average Asian veneer prices fell from \$280.87/m³ in 1988 to \$229.38/m³ a year later. Asian FOB prices for veneer remained stable at this level in 1990 according to the Monthly Bulletin (only Asian figures were provided in the 1990 summary). These prices in the two regions reflect species and market differences. No Latin American veneer price data is available.



Plywood

Although Asian plywood prices are often reported in the ITTO/ITC Market News Service, no price database corresponding to those for logs and sawnwood has yet been established. The following recent prices have been derived from other sources. The prices have been averaged for all thicknesses and qualities and are indicative of general levels only. Prices for African and Latin American plywood are not generally reported by the MNS.

The volume weighted average FOB price for Asian plywood as reported by the Monthly Bulletin in 1990 was \$344/m³, down substantially from average 1989 levels (\$413/m³). The World Bank reports wholesale prices for Asian lauan plywood in Japan. The 1990 price quoted for this product was \$355/m³, with a \$10/m³ increase expected in 1991 figures. Unfortunately, no African or Latin American plywood price statistics are available to the Secretariat.

Country Notes

The following notes provide details of relevant developments in ITTO producing countries during 1991, including estimates of production and trade not reported elsewhere. The notes, grouped by producing region, are not meant to be comprehensive country reports. They provide a broad but timely synopsis of some of the relevant forest sector and related developments in ITTO producing nations during the period under review.

Africa

Cameroon

Work is scheduled to begin soon on a section of the Trans-African highway which will pass close to the Dja Reserve (a World Heritage site) in south-east Cameroon. The road will open up large areas of forest for logging, as proposed in the Cameroon TFAP. Annual log production in the Eastern Province already totals over 1.4 million m³, more than half of total production. The Cameroon railway to Douala provides ready port access for increased production. Environmentalists have expressed fears that inadequate safeguards have been taken to ensure the sustainability of logging that will occur in this region.

ITTO's Cameroon correspondent reports that several proposals are under consideration by government to enhance forest products trade. These include easing of administrative procedures, export tax reduction and revision of the foreign investment code. It was also reported that reforestation efforts had virtually ceased in 1990, although no reason was given for this.

Congo

The World Bank announced plans to fund forest conservation and development operations in the Congo in early 1991, with a \$10 million grant to come from the newly formed global environment facility. The grant is linked to the establishment of protected conservation areas. Several TFAP studies are also underway in the country.

Congo was traditionally reliant on Eastern European markets for most of its timber products. Recent events have reduced the size of this market and the search for new or expanded markets in Western Europe is proving difficult. The country has 50 000 ha of eucalyptus plantations (part of an abandoned pulp mill scheme) and is embarking on efforts to sell charcoal to neighboring countries from this resource. 350 000 tonnes of eucalyptus pullogs were sold to the EEC and Scandinavia in 1990.

ITTO's Congo correspondent reports that joint venture high value processing plants (doors, furniture, etc.) are being promoted in major population centers. Tax concessions are offered to processors locating in less developed areas. Traditional house building materials (wood and soil bricks) are increasingly being replaced in the major cities by expensive imported non-renewable materials.

Côte d'Ivoire

A monthly auction system for export quotas on some species of logs and sawnwood began in 1991. This (together with heavy rains) caused a substantial drop in production of logs to be predicted for 1991, although log exports were not predicted to fall until 1992. Exporters are establishing secondary processing facilities to avoid the quota system. The government hopes to phase out log exports entirely when annual processing capacity reaches 3 million m³.

Ghana

Ghana introduced a new \$64.6 million forest management program in 1991, designed to implement ITTO's guidelines for sustainable management. The program includes a review of forestry fees, a rationalization of the concession system and encouragement for the planting, protection and management of forest resources outside reserves.

As of January, 1991, logs of 17 species were banned from export due to low stocking levels. A complete ban on log exports will be in place by 1993, followed by a complete ban on green/air-dried lumber by 1994. Kilning capacity will increase by 50%, to 90 000 m³, as the industry adjusts to these bans. Export levies from 8.5 to 50 percent are currently imposed on selected species of logs and lumber. Improvements in technology and training are seen as vital prerequisites in the country's shift to value-added downstream processing.

Ghana launched a scheme in late 1991 to plant one million trees in 1992 and more in the years to follow. A one percent levy on all timber exports since March 1991 has raised over \$1.5 million to start the program. The involvement of local councils and small scale farmers in the scheme should help to relieve agricultural encroachment on forests.

Zaire

The German Development Bank withdrew its support for the rehabilitation of the Kisangani-Bukavu road in September. The road, which passes close to a national park and World Heritage Site, would allow access to the Zaire basin from the densely populated eastern highlands. The project was halted at least partially because of concerns over the potential negative impacts of the road on the region's forests. Local community groups, now virtually cut off from the outside world, are campaigning to have the project restarted. Environmentalists have proposed an alternative route but this would add greatly to the cost of the road.

A government official admitted in 1991 that measures to ban the exploitation of wenge black wood and injunctions against the operation of timber trucks in the Lower Zaire region have cost the country approximately \$7 million in lost foreign exchange.

Asia-Pacific

India

A 20 percent increase in auxiliary customs duties on timber imports was introduced in India in mid-1991. The Minister for Finance was asked to reconsider the customs duty by the Minister for the Environment and Forests, who maintained that the higher prices for imported timber would lead to more illegal cutting of India's already scarce forests. India imported an estimated 1.3 million m³ of logs in 1990 (4th overall among ITTO members) and small quantities of other products.

Indonesia

The Indonesian government increased vigilance in 1991 to crack down on illegal logging. The western-most province of Aceh investigated reports that illegal logging there was being used to finance the activities of anti-government rebels. The government stated that if such charges were substantiated, offenders would be charged with subversion which carries the death penalty. Concession holders throughout the country were subjected to increased scrutiny on their adherence to forestry agreements and logging rules. Over 40 licenses had been revoked by mid 1991, and only 22 of 527 concessionaires reviewed by the end of 1990 were found to be logging according to government guidelines. In July 1991, one of Indonesia's largest timber companies (PT Barito Pacific Lumber) was fined

\$6 million for logging in a restricted area of East Kalimantan. The company claims that it encroached on the restricted area because its adjacent concession had been encroached on. The fine has not been paid to date.

Indonesia continued to emphasize its commitment to shift forest production to plantations in 1991. In September the Minister of Forestry requested forest concessionaires to plant 5000 ha of young trees 'as soon as possible.' The average size of timber concessions is 100 000 ha. Indonesia hopes to have over 6 million ha of forest plantations by the turn of the century, up from the current 1.8 million ha. As plantations expand, logging in indigenous forest will be decreased at the rate of 2 percent per year, allowing for the complete preservation of 30 million ha of Indonesia's tropical rainforests.

Malaysia

Malaysia announced plans in 1991 to embark on the large scale cultivation of rubber trees for timber production. Rubber plantations of 100 000 ha are to be established by the turn of the century to produce timber for furniture production. The Malaysian Forestry Department and the Rubber Research Institute of Malaysia are collaborating on research into the planting of rubber trees for forestry.

The anti-tropical timber campaign continued to focus on Sarawak in 1991. The government announced a new counter-offensive to present a clear picture of Malaysia's forest policy to consumers. The newly formed Malaysian Timber Industry Development Council (MTIDC) and the MTIB will be in charge of coordinating efforts on this front. In Sarawak, the government announced that a 3 million m³ reduction in annual harvests from the Permanent Forest Estate would be phased in by the end of 1993. It was also announced that measures are underway to increase the Permanent Forest Estate in Sarawak by one-third, to 6 million ha, and to increase totally protected areas for biodiversity conservation from the current level of 290 000 ha to 1 million ha over the same period. These moves are in keeping with the recommendations of the ITTO Sarawak Mission.

Papua New Guinea

A new Minister of Forests (the Hon. Jack Genia) was appointed in PNG in 1991 following a cabinet reshuffle. The new Minister announced in early 1991 that forestry companies implicated in the Barnett Enquiry into PNG's timber practices would not have their timber concession permits renewed. This announcement followed strong criticism of the government's perceived delay in implementing the recommendations of the Enquiry. The announcement was followed up in July with the approval of a new Forestry Bill introduced by Mr. Genia. The new Bill extends greater powers to traditional landowners and facilitates greater local involvement in resource development. It also provides for the establishment of a National Forest Authority (NFA) incorporating national and provincial forestry bodies to facilitate rational forest planning and development. The Bill also reflects the government's policy to promote on-shore processing. The NFA will be empowered to impose fines of up to \$110 000 and/or prison sentences of up to 5 years for illegal logging or intimidation of landowners or forest inspectors. Foreign companies can be deported. Controversy arose over the final passage of the bill, with several amendments in the final version alleged to give greater power to the Minister at the expense of the NFA.

Philippines

A drought in the Philippines lasting much of 1991 caused cuts in production of sawnwood and plywood/veneer due to power shortages. Most power in the Philippines is generated by hydro-electric plants. The Mount Pinatubo eruption caused the devastation of Angeles

City, a national center for furniture production. The Chamber of Furniture Industries of the Philippines estimated that the industry could not recover for at least 6 months. The ban on sawnwood exports continued, with the dramatic effects on the industry clearly visible in the data in Appendix 1.

The Philippines, like other Asian countries, moved to protect its forests from illegal logging and over-exploitation in 1991. The country moved close to a complete ban on logging in virgin forests to commence early in 1992. This will likely be difficult to enforce. Illegal logging is reportedly widespread in the Philippines. In September, 82 small companies were closed and 52 charges were laid in a campaign to protect the country's 2 million ha of remaining virgin forest. Following the devastating flash floods in late 1991, which some blamed on excessive deforestation, the government committed more resources to control illegal logging.

Thailand

The Thai government implemented a controversial resettlement scheme to curb deforestation by moving villagers from protected forest areas to degraded forest areas where basic facilities were to be installed.

Extraction of trees uprooted by Typhoon Gay in Tasae District in late 1989 was halted by the government due to widespread reports of illegal logging of healthy trees during the salvage operation. Thailand has banned commercial logging since 1989 when it suffered widespread floods and landslides. Thailand continued to import substantial amounts of timber from neighboring Myanmar and signed an agreement in late 1991 to import \$24 million of timber in the first 4 months of 1992.

Due to a 1989 prohibition on logging, the industry has increasingly had to rely on imports of raw materials. Imported materials are to be used in domestic production only although finished products produced from them can be exported. Due to decreasing wood supplies, the trend in housing is toward non-wood materials such as brick and cement.

Latin America/Caribbean

Bolivia

ITTO's Bolivian correspondent indicates that the government has developed an action plan for forest development in Bolivia, outlining projects in forest management, reforestation, watershed management, and soil erosion control. Bolivia has recently adopted the following measures to curb deterioration of its tropical forest base: a five-year moratorium on new forest concessions (1990-94), reversal of status of existing concessions, reduction in the area of forest land that may be logged, and a prohibition against tenant farmers.

Bolivia currently exports primarily *Swietenia macrophylla*, *Cedrela*, and *Amburana cearenis*. The economic recession of the past few years has hit the wood industries particularly hard, resulting in several mill closures.

Brazil

A report from the Brazilian National Space Research Institute indicates that destruction of the Amazon rain forest slowed by 20% in 1991.

Due to poor economic conditions and climbing production costs and interest rates, the demand for forest products for all major users, except for the pulp and paper industries,

is declining. Furniture and home construction industries are particularly hard hit, resulting in a substantial decrease in the use of panel products.

The Brazilian government, backed by international support from nations and interest groups concerned with environmental and Indian rights issues, made significant strides in these areas in 1991. In July it announced its plan to create a \$100 million fund for the environment through debt-for-nature swaps. Donors can purchase Brazilian debt at a discount; the donations will then be converted into new bonds named "national environmental treasury notes" and placed in a fund for conservation projects.

Also in July the world's seven wealthiest nations pledged \$50 million to fund a pilot project to save Brazilian rainforests. Later, in December, the Group of Seven joined forces with the European Commission and the World Bank to grant Brazil \$250 million for conservation. The program will fund scientific research and the establishment of national parks, tribal reserves, and new zones set aside exclusively for non-destructive activities such as rubber tapping and collecting Brazil nuts. The donors will pay their donations into a Rain Forest Trust, to be managed by the World Bank.

A new government decree (PIFI) now demands that any forest operations consuming more than 12 000 m³ per annum (round measure) must have a management plan, and by 1995 must obtain all its timber from managed forest, capable of continuous supply when harvests are balanced with growth and yield. Those exploiting the forest to a lesser extent must pay a tax which goes into forest management programs in the state, and all movement of timber, in any form, must be registered and checked at road blocks on all the major roads. IBAMA is opening offices in all the forest resource areas to maintain tighter control against abuses.

The Brazilian government has eliminated all monetary incentives to attract investment to the Amazon basin to discourage agro-businesses from clearcutting for farming and ranching. The government has also brought in tighter fiscal controls for companies already in the area. The government indicates that it will need \$4 billion over the next four years to help finance ongoing conservation projects in the region.

Brazil's 180 Indian tribes have united under an intertribal committee to insure that their grievances on legal and land rights are heard at the U.N. Conference on Environment and Development, to be held in Rio de Janeiro in June 1992. Their goal is the legal recognition and demarcation of their native lands.

In November the government signed a decree giving back the original lands of the Yanomami Indians, comprising 94,000 square km of rainforest reservation on Brazil's northern border with Venezuela. That same month it demarcated five million hectares of virgin rainforest in the northern state of Para and north-central state of Mato Grosso for the Menkragnotire Indian tribe. The government continues to work to define the areas for more than 100 of the 180 different Indian tribes living in Brazil. A total of 17.3 million hectares of land in eight different states have already been formally accepted by the government as Indian territory. The total area of land generally recognized as Indian land, but not officially demarcated, is approximately 90 million hectares (10 percent of the total area of Brazil).

Colombia

Colombia launched its first comprehensive environmental plan in August 1991, creating a Ministry of the Environment to be funded by \$972 million over the next four years.

Colombia's primary tropical timber exports are *Prioria copaifera* (Cativo), *Cariniana pyriformis* (Abarco), *Bombacopsis quinatum* (Ceiba tolua), *Dyalianthera gracilipes* (Otobo), *Camptosperma panamensis* (Sajo), and *Virola* species (Cuángare). IITC's Colombian correspondent indicates that the government is in favor of backing wood exports through incentives and favorable tariff conditions. However, deforestation has severely affected the availability of commercial species.

Ecuador

Controversy continued in 1991 over planned oil drilling in eastern Ecuador and construction of a 100-mile pipeline and road through national park land, particularly in relation to their potential impacts on the Huaorani Indians and the rainforest. The Indian's concerns focus less on the impacts of oil extraction than the proposed road, which will encourage settlement in the area. The government has conceded 27.5 million acres of the Amazonian rainforest for exploration to the state oil company. One of the original oil companies to hold the concession on Huaorani Indian land solicited advice from several environmental groups in an attempt to address concerns about the potential impacts of oil exploration in the rainforest; however, it withdrew from the project in October. Meanwhile, several other members of the investment group are planning to continue the project despite protests from local Indians and both Ecuadorian and international environmental organizations.

Ecuador is one of many Latin America countries taking advantage of the new debt-for-nature swap programs. This year the Nature Conservancy and World Wildlife Fund bought \$9 million worth of Ecuador's debt. In turn, the Government of Ecuador will pay an equal amount in its own currency to the Nature Foundation of Ecuador, which will use the funds to support nine national parks.

Ecuador's primary export species are *Ochroma lagopus*, *Cedrela odorata*, *Tectona grandis*, and *Eucalyptus globulus*.

Panama

Panama imports primarily softwood timber (*Pinus caribea*), with minimal imports of tropical fine veneers. Its major export species are *Prioria copaifera*, *Anacardium excelsum*, *Swietenia macrophylla*, *Cedrela odorata*, *Zanthophyllum* and *Platinisium*.

Peru

Peru currently has prohibitions against exporting unprocessed timber and certain high-value species. Peru's major export species are caoba, cedro, cumala, tornillo, and capirona. It imports guayacán, oregja de león, hualtaco, and bálsamo.

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Various 1990-91 issues of the following publications were also consulted:

Asian Timber/A.T. News	Maskayu
Asia Pacific Forest Industries	ITTO/ITC Market News Service
Brazil Environment	Tropical Timbers
The Economist	Unofficial Reports, USDA Foreign Ag. Service
E-Sheet	World Rainforest Report
Far East Economic Review	World Wood
International Herald Tribune	WWF News
Japan Times	World Bank Quarterly Review of Commodity Markets

The following data bases were utilized in preparing the Review:

ITTO Forecasting Enquiry	ECE Timber Database
FAO PC Agrostat Database	Market News Service Price Database

The following organizations were personally consulted during preparation of the Review:

FAO Forestry Department	Japan Lumber Importers' Association
International Trade Center	Japan Plywood Manufacturers' Association

Appendix 1.

Production and Trade of Tropical Forest Products by ITTO Producers ('000 m³)

Country	Products	Production				Imports				Exports				Apparent Domestic Consumption			
		1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991
AFRICA Cameroon	logs	2000	1969	2479	2540	0	0	0	0	460	457	905	915	1540	1512	1574	1625
	sawnwood	568	568	489	492	0	0	0	0	71	157	240	235	497	411	249	257
	plywood	42	48	60	59	0	0	3	0	30	9	0	0	12	39	63	59
	veneer	29	39	50	50	0	0	0	0	22	39	35	30	7	0	15	20
Congo	logs	751	808	833	675	0	0	0	0	382	443	386	175	190	369	365	447
	sawnwood	57	46	51	49	10	10	9	11	25	24	26	30	28	42	34	30
	plywood	3	2	0	0	0	0	12	16	15	0	0	0	0	3	2	12
	veneer	56	52	51	55	0	0	0	0	35	29	43	45	41	21	23	8
Cote d'Ivoire	logs	2542	2491	2811	2442	0	0	0	0	501	491	409	462	2041	2000	2402	1980
	sawnwood	780	800	753	730	0	0	0	0	546	487	570	404	234	313	183	326
	plywood	55	53	42	42	0	0	0	0	20	18	23	30	20	35	19	12
	veneer	175	175	206	222	0	0	0	0	75	102	88	82	100	100	73	118
Gabon	logs	1300	1222	1590		0	0	0	0	913	813	1050		387	409	540	
	sawnwood	106	106	140		0	0	0	0	1	1	2		105	105	138	
	plywood	131	131	100		0	0	0	0	46	46	34		85	85	66	
	veneer	7	7	6		0	0	0	0	5	5	4		2	2	2	
Ghana	logs	1137	996	1290	1100	0	0	0	0	339	201	198	204	220	798	795	1092
	sawnwood	439	437	436	420	0	0	0	0	170	154	202	173	191	269	283	234
	plywood	25	22	18	15	0	0	0	0	1	1	2	1	2	24	21	16
	veneer	34	26	27	30	0	0	0	0	21	15	17	19	20	13	11	10
Liberia	logs	1007	1008	1350	1485	0	0	0	0	681	701	776	854	939	326	307	574
	sawnwood	150	140	33	36	0	0	0	0	15	25	29	32	35	135	115	4
	plywood	5	3	3	3	0	0	0	0	4	1	1	1	1	1	2	4
	veneer	5	3	3	4	0	0	0	0	5	3	3	4	4	0	0	0
Togo	logs	18	18	5		0	0	0	0	0	0	0	0	18	18	5	
	sawnwood	5	5	2		10	10	27	0	0	0	0	0	15	15	29	
	plywood	0	0	0		0	0	2	0	0	0	0	0	0	0	0	
	veneer	0	0	0		0	0	0	0	0	0	0	0	0	0	0	
Zaire	logs	380	380	500		0	0	0	0	113	117	116		267	263	384	
	sawnwood	121	121	121		0	0	0	0	20	23	23		101	98	98	
	plywood	19	19	19		1	1	1	1	0	1	0		20	19	20	
	veneer	33	33	33		0	0	0	0	8	4	4		25	29	29	
AFRICA TOTAL logs		9135	8892	10858		0	0	0	0	3389	3223	3840		5746	5669	7018	
sawnwood		2226	2223	2025		20	20	36		848	871	1092		1398	1372	969	
plywood		280	278	242		1	1	18		101	76	60		180	203	200	
veneer		339	335	376		0	0	0		171	197	194		168	138	182	

Production and Trade of Tropical Forest Products by LHO Producers (000 M)

Country	Products	Production					Imports					Exports					1992	1991	1990	1989	1988	1987																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Production and Trade of Tropical Forest Products by ITTO Producers ('000 m³)

Country	Products	Production				Imports				Exports				Apparent Domestic Consumption							
		1988	1989	1990	1991	1992	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992					
ASIA/PACIFIC																					
India	logs	18350	18350	18350	18350		1030	895	1300	1500		5	2	8	6	19375	19243	19844			
	sawnwood	8800	8800	8800	8800		6	15	20	25		11	0	0	0	8795	8815	8825			
	plywood	360	360	360	360		2	3	4	5		6	5	4	4	356	358	361			
	veneer	4	4	4	4		0	0	0	0		4	1	1	1	0	3	3			
Indonesia	logs	28500	29500	27500	26500		0	0	0	0		0	0	0	0	28500	29500	26500			
	sawnwood	10173	10546	8632	8400		0	0	0	0		2874	2692	561	250	7299	7854	8150			
	plywood	7733	8500	9250	9600		0	0	0	0		6800	8040	8244	8757	933	460	1006			
	veneer	54	54	44	60		0	0	0	0		45	29	40	55	9	25	4			
Malaysia	logs	37593	38900	39100	39520	40000	77	10	173	181	206	20571	21100	20336	19032	20781	17099	17810	18937	20669	19425
	sawnwood	6600	7660	8400	8400	8500	250	197	52	56	59	4088	5134	4908	4351	4550	2762	2723	3544	4105	4009
	plywood	1092	1001	1135	1300	1500	2	15	15	20	17	1028	915	927	984	958	66	101	223	336	559
	veneer	383	445	480	540	500	5	5	6	11	8	211	249	330	423	373	177	201	156	128	135
Papua New Guinea	logs	1800	1700	1450	1550	1600	0	0	0	0	0	1283	1260	1084	1015	1024	517	440	366	535	576
	sawnwood	74	118	124	126	130	0	0	0	0	0	3	3	4	3	4	71	115	120	123	126
	plywood	9	18	18	18	18	0	0	0	0	0	0	0	0	0	3	9	18	18	15	15
	veneer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Philippines	logs	3159	2773	2502	2203	1917	7	394	365	365	349	174	110	51	39	27	2992	3057	2816	2529	2239
	sawnwood	1033	975	841	817	801	0	12	4	6	9	629	438	77	66	55	404	549	768	757	755
	plywood	415	341	397	413	429	1	3	3	4	5	243	131	176	175	174	173	213	224	242	260
	veneer	85	75	49	46	43	0	0	0	0	0	63	53	47	45	43	22	22	2	2	1
Thailand	logs	1983	919	491	337		439	1193	1847	1712		94	2	0	0	2328	2110	2338	2049		
	sawnwood	1035	1056	1169	1024		1059	1308	1489	1635		187	109	48	55	1907	2255	2610	2604		
	plywood	154	185	153	164		5	4	20	24		39	12	2	2	120	177	171	186		
	veneer	50	60	146	164		1	2	2	3		6	8	5	4	45	54	143	163		
ASIA/PACIFIC TOTAL																					
TOTAL	logs	91385	92142	89393	88460		1553	2492	3685	3758		22127	22474	21479	20092	70811	72160	71599	72126		
	sawnwood	27715	29155	27966	27567		1315	1532	1565	1722		7792	8376	5598	4725	21238	22311	23933	24564		
	plywood	9763	10405	11313	11855		10	25	42	53		8116	9103	9353	9925	1657	1327	2002	1983		
	veneer	576	638	723	814		6	7	8	14		329	340	423	528	253	305	308	300		
OVERALL																					
TOTAL	logs	130736	133915	128344			1578	2595	3809			25628	25698	25320		106686	110812	106833			
	sawnwood	40439	42549	39310			1456	1667	1922			9228	9687	7229		32667	34529	34003			
	plywood	11248	12115	13027			43	61	114			8652	9551	9701		2639	2625	3440			
	veneer	1455	1634	1594			33	44	40			557	578	673		931	1100	961			

Sources: ITTO Enquiry, FAO Monthly Bulletin, FAO Agostat and Trade Associations.

Notes: 1) Zero entries imply quantities less than 500 m³; blank entries imply data not available.

2) The following countries did not respond to the ITTO enquiry by April 1, 1992: Gabon, India, Indonesia, Trinidad and Tobago, and Zaire.

Appendix 2.

Imports of Tropical Forest Products by ITTO Consumers ('000 m³)

Country	Product	Imports				
		1988	1989	1990	1991	1992
Australia	logs	0	1	0	0	
	sawnwood	320	299	181	150	
	plywood	42	30	41	31	
	veneer	18	14	10	6	
Austria	logs	4	4	4	3	1
	sawnwood	39	64	23	20	
	plywood	2	3	2	3	
	veneer	0	0	0	0	
Canada	logs	0	0	2	1	
	sawnwood	65	65	26		
	plywood	75	75	62	50	45
	veneer	4	3	3		
China	logs	179	292	151	160	
	sawnwood	44	64	73	113	
	plywood	400	600	721		
	veneer	3	4	5		
EEC						
Belgium-Luxembourg	logs	57	79	60	45	45
	sawnwood	264	329	318	300	
	plywood	180	166	160		
	veneer	15	19	20		
Denmark	logs	6	4	3	1	0
	sawnwood	27	30	34	8	
	plywood	25	23	23	17	
	veneer	30	37	7	9	
France	logs	797	882	937	930	930
	sawnwood	443	490	472	370	
	plywood	201	207	260		
	veneer	25	24	31		
Germany FRG	logs	398	365	356	290	260
	sawnwood	431	495	410	360	
	plywood	142	143	161		
	veneer	46	76	91		
Greece	logs	160	186	160	160	160
	sawnwood	12	23	28		
	plywood	3	3	4		
	veneer	0	2	3		
Ireland	logs	0	0	0		
	sawnwood	48	74	95		
	plywood	10	12	15		
	veneer	0	0	0		
Italy	logs	584	734	802	750	750
	sawnwood	494	534	399		
	plywood	23	33	39		
	veneer	47	42	70		
Netherlands	logs	136	154	110	110	110
	sawnwood	650	876	675		
	plywood	276	253	274		
	veneer	16	12	11		
Portugal	logs	429	401	394	440	440
	sawnwood	21	33	30	42	42
	plywood	1	1	1	0	0
	veneer	1	1	1	1	1

Imports of Tropical Forest Products by ITTO Consumers ('000 m³)

Country	Product	Imports				
		1988	1989	1990	1991	1992
Spain	logs	516	583	556	500	450
	sawnwood	313	320	344	310	
	plywood	5	5	7	5	
	veneer	1	1	1	1	
United Kingdom	logs	71	57	37	25	20
	sawnwood	622	703	497	410	
	plywood	704	532	560	480	
	veneer	21	14	13	10	
Egypt	logs	0	0	0	0	0
	sawnwood		20	10	4	13
	plywood			23	20	15
	veneer	0	0	0	0	0
Finland	logs	0	0	0	0	0
	sawnwood	13	10	10	8	8
	plywood	1	1	1	1	1
	veneer	1	1	1	1	1
Japan	logs	11901	12305	11321	10289	
	sawnwood	1453	1773	1375	1322	
	plywood	1850	3050	2810	2945	
	veneer	81	88	117	163	
Nepal	logs	0	0	0	0	
	sawnwood	10	10	10	10	
	plywood	0	0	0	0	
	veneer	0	0	0	0	
Norway	logs	0	0	0	0	
	sawnwood	5	4	5	3	
	plywood	10	9	11	8	
	veneer	2	1	2	1	
Republic of Korea	logs	4049	3640	3559	3882	3898
	sawnwood	643	580	583	740	743
	plywood	200	488	541	766	766
	veneer	16	12	13	11	11
Sweden	logs	5	4	3	2	2
	sawnwood	15	14	14		
	plywood	14	13	13		
	veneer	3	2	2		
Switzerland	logs	15	17	18	20	20
	sawnwood	6	22	19		
	plywood	4	3	2		
	veneer	2	2	2		
USSR	logs	178	178	143	100	100
	sawnwood	0	0	0		
	plywood	3	3	2		
	veneer	1	1	1		
USA	logs	19	30	13	6	10
	sawnwood	1082	270	204	180	215
	plywood	1247	1100	1074	858	960
	veneer	141	70	22	19	30
OVERALL TOTAL	logs	19504	19916	18629		
	sawnwood	7020	7102	5835		
	plywood	5418	6753	6807		
	veneer	474	426	426		

Sources: ITTO Enquiry, FAO Monthly Bulletin, ECE/FAO database, FAO Agrostat and Trade Associations.

Notes: 1) Zero entries imply quantities less than 500 m³; blank entries imply data not available.

2) The following countries did not respond to the ITTO enquiry by April 1, 1992: Belgium-Luxembourg, France, Nepal, Spain, and the former U.S.S.R.

Appendix 3. Direction of Trade

The following tables are grouped by product, with a separate table for each of the major importing/exporting pairs. Countries with no reported imports or exports have been deleted from these tables. Figures reported by exporters (importers) are in italics (normal type). Boxed cells indicate response received from both exporter and importer; double boxes indicate discrepancies. Totals may not sum due to missing data.

DIRECTIONS OF TRADE

SAWLOGS/VENEER LOGS 1990

Table DIRLOG90 (1): AF - AF/AP/LANA

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Africa Egypt Zaire Others	Africa Total	Asia/Pacific India	Japan	Republic of Korea	Others	Asia/ Pacific Total	Latin America Brazil Others	Latin America Total	North America USA	North America Total	Total Exports
Africa												905.0
Cameroon												336.0
Congo	5.0	12.0	17.0	3.0	1.8	12.0						409.0
Côte d'Ivoire				2.0	0.1					2.0		830.0
Gabon				1.0								197.7
Ghana				61.0	4.3		0.7	26.7	26.7	2.0		775.0
Liberia	4.0	11.0	15.0	0.5	0.2		75.0	6.0	6.0			3,640.0
Others												
Africa Total				66.0	6.4					4.0		3,640.0
Total Imports			1,304.0	11,321.0	3,559.0			123.0		13.0		25,120.0
												18,627.0

DIRECTIONS OF TRADE
SAWLOGS/ veneer LOGS 1990
QUANTITY 1000CUM

Table DIRLOG90 (2): AF - EU

IMPORTERS EXPORTERS	Europe EEC	Belgium-- Luxembourg	Denmark	France	Germany	Greece	Italy	Netherlands	Portugal	Spain	United Kingdom	Sweden	Switzerland	Others	Europe Total	Total Exports
Africa																
Cameroon															5.0	905.0
Congo			0.1	1.0	55.0	60.0	32.3	178.0	54.9	61.0	54.0	6.0	1.2	5.9	331.2	386.0
Côte d'Ivoire	325.4	1.0	1.0	60.0	29.0	29.0	20.0	60.0	0.1	107.0	108.0	0.2	0.3	1.2	325.4	409.0
Gabon																
Ghana		0.1		2.9	134.8	123.0	0.3	11.0	7.4	0.6	5.2	0.3	1.8	2.9	165.5	197.7
Liberia		3.0		285.0	43.0	68.0	20.0	86.0	6.4	0.0	32.0	10.0	0.2	64.0	650.0	776.0
Zaire									7.0	59.0						
Others					11.0		40.0			28.0	0.5		1.9			
Africa Total			2.0		343.0	159.7	702.0		98.6	394.0	25.6	2.7	13.4		3,640.0	
Total Imports		60.0	3.0	937.0	356.0	160.0	802.0	110.1	394.0	556.0	37.0	3.3	18.0		25,120.0	18,627.0

DIRECTIONS OF TRADE

SAW LOGS/VENEER LOGS 1990

QUANTITY 1000CUM

[illegible]

Table DIRLOG90 (4): AP -- EU/NA

DIRECTION OF TRADE

SAWLOGS/VENEER LOGS 1990

QUANTITY 1000CUM

[illegible]

Table DIRSAW90 (1): AF -- AF/AP/LANA

DIRECTION OF TRADE

SAWNWOOD 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Africa Togo Others	Africa Total	Asia/Pacific India Japan Republic of Korea Others	Asia/ Pacific Total	Latin America/ Caribbean Others	Latin America/ Caribbean Total	North America Canada USA	North America Total	Total Exports
Africa									
Cameroon			1.0				0.7	1.0	240.0
Côte d'Ivoire									370.0
Gabon					14.6				2.0
Ghana	13 15.7	14.2	1.7	0.1	0.1	2.3		6.0 3.0	202.4
Liberia		3.0							29.0
Zaire									23.0
Others	11.1						0.1		
Africa Total	26.9		1.0				0.8	5.0	1,092.0
Total Imports	26.9	36.0	20.0	1,375.0	583.0	321.0	25.9	204.0	7,779.0 5,876.0

DIRECTION OF TRADE

SAWNWOOD 1990

QUANTITY 1000CUM

Table DIRSAW90(2): AF - EU

[illegible]

Table DIRSAW90 (3): AP - AP

DIRECTION OF TRADE

SAWNWOOD 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Africa Others	Africa Total	Asia/Pacific Australia	China	Japan	Malaysia	Philippines	Republic of Korea	Thailand	Others	Asia/ Pacific Total	North America Canada	USA	North America Total	Total Exports
Asia/Pacific															
China							0.4	0.9							
India						0.2		5.3							
Indonesia						29.0		43.8				0.9	8.0		9,244.0
Malaysia	65.0	65.0	3.0	1.7	140.0			3.0	1,197.0	1,293.0	3,653.0	0.5	21.0	21.5	4,908.0
Papua New Guinea			96.0	82.0	533.0			449.0				2.1	21.0		
Philippines			168.0	68.0	390.0			529.4		2.3					
Thailand			2.1												
Others			2.0			4.0									
Asia/Pacific Total			2.3	29.3	27.8			0.7			57.4	1.5	1.2	2.7	76.9
			2.0	(Taiwan)	44.0							0.9	14.0		46.0
			4.0	1.2	1.0	1.4	0.2	11.4				0.1	3.0		
				2.1	32.0	1.4						0.1	9.0		
			179.0	73.1	607.0	36.0	0.6	592.4				4.1			3,598.0
Total Imports			181.0	73.1	1,375.0	52.0	3.7	583.0	1,489.0			25.9	204.0		7,229.0
															5,876.0

DIRECTION OF TRADE
SAWNWOOD 1990

QUANTITY 1000CUM

Table DIRSAW90 (4): AP - EU

[illegible]

Table DIRSAW90(5): EU - AP/EU

DIRECTION OF TRADE

SAWNWOOD 1990

QUANTITY 1000 CUM

IMPORTERS EXPORTERS	Asia/Pacific Republic of Korea	Asia/ Pacific Total	Europe EEC	Denmark	Netherlands	Portugal	Finland	Norway	Sweden	Switzerland	Europe Total	Latin America/ Caribbean Brazil	Latin America/ Caribbean Total	North America Canada USA	North America Total	Total Exports
Europe																
Belgium - Luxembourg	0.1			23.2	1.0					0.1						
Denmark							0.1	1.0	1.2							
France				0.1						6.1						
Germany	6.7			3.0	3.8		0.6		0.6	4.0						
Greece																
Ireland				5.1												
Italy										0.3						
Netherlands								0.1		0.4				0.1		
Portugal																
United Kingdom	0.2			0.6						0.1		0.3				
Sweden							0.4									
Others									0.6	1.0		0.5			2.0	
Europe Total	7.0			4.0	32.8	1.0	1.3							0.1	2.0	
Total Imports	583.0			33.0	674.5	30.0	9.6	5.0	14.2	19.0		280.9		25.9	204.0	587.9

DIRECTION OF TRADE
SAWNWOOD 1990
QUANTITY 1000CUM

Table DIRSA W90 (6): LANA - AF/AP/LANA

IMPORTERS	Africa Others	Africa Total	Asia/Pacific Australia	Indonesia	Japan	Philippines	Republic of Korea	Thailand	Others	Asia/ Pacific Total	Latin America/Caribbean Brazil	Columbia	Panama	Trinidad and Tobago	Others	Latin America/ Caribbean Total	North America Canada	USA	North America Total	Total Exports
EXPORTERS																				
Latin America/Caribbean																				
Bolivia				0.3		0.5				0.7	2.6				27.1	29.7	0.3	31.1	31.1	65.5
Brazil	16.0	16.0	2.5		5.0				15.0	22.5	3.3			0.1	6.0	6.1	4.0	88.0	92.0	145.5
Columbia			2.0										0.4		1.0		12.4	71.0		2.0
Ecuador														1.7	0.1		0.2	12.4		18.6
Honduras													5.7	2.0			0.1	0.3		1.0
Panama																		1.2		1.5
Peru																	1.4	2.0		
Others								2.0			274.0		0.2				0.0	9.0		339.0
Latin America Total			2.0					2.0									14.3	142.0		
North America																				
Canada																				
USA																	6.7	1.0		
North America Total																	6.7	1.0		
Total Imports			14.0								280.0						25.9	204.0	229.9	5,876.0

Table DIRSAW90 (7): LA - EU

DIRECTION OF TRADE

SAWNWOOD 1990

QUANTITY 1000CUM

IMPORTERS	Europe EEC	EXPORTERS															Europe Total	Total Exports		
		Belgium-- Luxembourg	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Spain	United Kingdom	Austria	Finland	Norway	Sweden			Switzerland	
Latin America/Caribbean					0.5	0.3					1.6						0.1	1.7	4.0	65.5
Bolivia																	0.3			
Brazil	305.7	18.5	3.0 3.0	44.5	7.2 7.0	0.4	8.0	29.7	25.5 12.7	25.3 1.0	58.6	85.0	2.5	0.2 0.5	0.2		1.7		308.9	445.5
Columbia											0.6									
Ecuador			0.1	0.5	0.7 2.0			0.5			0.5	0.6		0.1 0.4						18.6
Honduras																				1.0
Panama					0.3				0.1											
Trinidad & Tobago																				
Others					9.0			1.9							0.1					739.0
Latin America Total		3.0		18.0				14.7							1.0					
North America																				
USA								0.0							0.2		0.3			
North America Total								0.0							0.2					
Total Imports		318.0	34.0	472.0	410.9	28.0	95.0	392.0	618.5	30.0	544.0	457.0	23.0	2.6	5.0	14.2	19.0		7229.0	5876.0

DIRECTION OF TRADE

VENEER 1990

QUANTITY 1000CUM

IMPORTERS	Africa Togo	Africa Others	Africa Total	Asia/Pacific Australia	Asia/Pacific Others	Asia/ Pacific Total	North America Canada	North America USA Total	USSR	Total Exports
EXPORTERS										
Africa										43.0
Congo							0.2			88.0
Côte d'Ivoire				0.1	0.2	0.2			0.1	17.0
Ghana		0.1	0.1							4.0
Zaire							0.3			
Others		0.1		0.3						194.0
Africa Total		0.1		0.4			0.4	0.3		655.0
Total Imports		0.1		9.9			2.7	22.0		426.0

Table DIR VNR90 (2): AF - EU

DIRECTION OF TRADE

VENEER 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Europe EEC										Europe Total	Total Exports
	Belgium- Luxembourg	Denmark	France	Germany	Italy	Netherlands	Spain	United Kingdom	Finland	Sweden	Switzerland	Others
Africa												
Cameroon	1.0				31.0			0.8				35.0
Congo	4.0			14.0	5.0	4.7		0.2	1.1		2.8	43.0
Côte d'Ivoire				45.0	16.0	0.8		0.8	0.3	0.5	0.1	68.0
Gabon					1.0			0.4			0.1	4.0
Ghana	0.2			1.5	6.7 8.0	3.2 4.0		0.6				17.0
Liberia					2.0							3.0
Zaire				3.0				0.7				4.0
Others				1.0		0.3		1.0				3.0
Africa Total	5.0	7.0	31.0	73.0	57.0	5.9			0.5	1.6	2.9	194.0
Total Imports	20.0	7.0	31.0	91.0	70.0	11.2	1.0	13.0	1.3	2.4	2.0	655.0
												425.0

Table DIRVNR90 (3): AP - AP
DIRECTION OF TRADE
VENEER 1990
QUANTITY 1000CUM

IMPORTERS EXPORTERS	Asia/Pacific Australia	China	Japan	Malaysia	Philippines	Republic of Korea	Thailand	Others	Asia/ Pacific Total	Total Exports
Asia/Pacific										1.0
India						0.8				40.0
Indonesia			1.0			2.0	1.0			
Japan						2.9		100.0	320.0	330.3
Malaysia	1.0 3.0	8.0 4.7	203.0 108.0			8.0 8.6		0.2	26.8	47.1
Philippines	2.9 3.0	2.6 (Taiwan)	21.0 7.0					1.0	2.0	5.0
Thailand	0.1	0.1		0.1		1.0 0.6				
Others	3.0			6.0		0.5				
Asia/Pacific Total	9.5	5.0	116.0	6.1	0.1	15.6				655.0
Total Imports	9.9	5.0	117.0	6.1	0.1	27.0	2.0			426.0

Table DIRVNR90 (4): AP - EU/NA

DIRECTION OF TRADE

VENEER 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Europe EEC	Belgium- Luxembourg	Denmark	France	Germany	Netherlands	United Kingdom	Finland	Switzerland	Europe Total	North America Canada	USA	North America Total	Total Exports
Asia/Pacific														1.0
India							0.1							40.0
Indonesia			1.0				0.6	0.1					2.7	
Japan														
Malaysia		0.1				4.0	0.9		0.2	4.3	6.0	2.5	6.0	33.0
Philippines						3.1	1.3		0.1	2.5	0.3	15.2	17.8	47.1
Thailand						1.2	0.2		1.5	3.0	2.6	9.7		5.0
Others							1.0	0.1						
		2.0					1.0					0.4		
						2.0	0.2	0.4			0.1			
Asia/Pacific Total						3.3	3.1	0.3	1.6		0.5	15.4		423.0
Total Imports	20.0	7.0	51.0	91.0	11.2	13.0	1.3	2.0			2.7	22.0		426.0

Table DIRVNR90 (5): EU - APEUNA
DIRECTION OF TRADE
VENEER 1990
QUANTITY 1000CUM

IMPORTERS EXPORTERS	Asia/Pacific Japan	Philippines Republic of Korea	Asia/ Pacific Total	Europe EEC	Denmark	Italy	Netherlands	United Kingdom	Finland	Sweden	Switzerland	Europe Total	North America Canada	USA	North America Total	Total Exports
Europe																
Belgium - Luxembourg															0.1	
Denmark																
France			0.1													
Germany			0.8												0.2	0.3
Greece																
Ireland																
Italy	1.0	1.2													0.1	
Netherlands																
Portugal																
Spain																
United Kingdom			1.0												0.1	
Austria																
Finland																
Sweden																
Switzerland																
Others																
Europe Total	1.0	3.1			2.0	34.0	1.8	47.9	0.5			0.6	0.5	0.5	0.5	655.0
	1.0	3.1			2.0	34.0	1.8	47.9	0.5			0.6	0.5	0.5	0.5	426.0

DIRECTION OF TRADE

Table DIRVNR90 (6): LANA - AF/AP/LANA

ENEER 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Asia/Pacific Japan	Philippines Republic of Korea	Asia/ Pacific Total	Latin America/Caribbean Brazil Columbia Peru	Others	Latin America Total	North America Canada USA	North America Total	Other Region	Total Exports
Latin America/Caribbean										
Bolivia	0.5		0.5	0.2	2.1	0.9	1.1	1.1		2.5
Brazil	0.1		0.1			2.0	0.2 0.4	35.9 5.2		52.8
Columbia				0.1			0.4			0.0
Honduras							0.1			
Others				30.0			0.4			
Latin America Total				30.2			0.5	5.6		
North America										
Canada		0.1								
USA		8.2					0.9			
North America Total		8.3					0.9			
Total Imports	117.0	47.0	13.0	39.2	2.4		2.7	22.8		653.0 426.0

DIRECTION OF TRADE

1990

QUANTITY 1000CUM

Table DIRVNR90 (7): LA - EU

IMPORTERS	Europe EEC	Belgium - Luxembourg	Denmark	France	Germany	Greece	Italy	Netherlands	Spain	United Kingdom	Austria	Europe Total	Total Exports
EXPORTERS													
Latin America/Caribbean													2.5
Bolivia							0.5						52.8
Brazil	14.0	1.0	0.8 1.0	0.1	8.9 15.0	0.1	2.5 3.0	0.2 0.2	0.1	0.3 1.1	0.4	14.4	56.3
Latin America Total			1.0		15.0		3.5	0.2		1.1			
North America													
Canada							0.9				0.4		
USA							8.0				10.9		
North America Total							8.9				11.3		
USSR											0.1		
Total Imports		20.0	7.0	31.0	91.0	3.0	70.0	11.2	1.0	13.0			655.0 426.0

Table DIRPLY90 (1): AF - AF/EU

DIRECTION OF TRADE

PLYWOOD 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Africa			Europe			Europe			Total Exports
	Congo	Togo	Others	Africa Total	EEC	Italy	Netherlands	United Kingdom	Switzerland	Total
Africa										
Cameroon						2.0				23.0
Côte d'Ivoire						1.0				34.0
Gabon						1.0			0.1	1.8
Ghana		1.1	0.2	1.3						1.0
Liberia			1.0	1.0						0.5
Zaire								0.1		
Others	12.0	1.3						6.4		60.0
Africa Total	12.0	1.3		18.0			0.1			970.0
Total Imports	12.0	1.7			39.0	274.0		560.0	2.0	6805.0

DIRECTION OF TRADE
PLYWOOD 1990
QUANTITY 1000CUM

Table DIRPLY90 (2): AP - AF/AP/NA

IMPORTERS EXPORTERS	Africa Others	Africa Total	Asia/Pacific Australia	China	India	Japan	Malaysia	Philippines	Republic of Korea	Thailand	Others	Asia/ Pacific Total	North America Canada	USA	North America Total	Total Exports
<i>Asia/Pacific</i>																
China			2.0						4.3				0.6	1.0		4.0
India																
Indonesia			18.0	523.5		2763.0	0.7	0.4	713.4	4.0			53.3	890.0		8244.0
Japan																
Malaysia	0.7	0.7			3.0	22.0						499.0		96.0		977.0
Philippines																
Republic of Korea																
Thailand																
Others		2.0														
Asia/Pacific Total			41.3	721.4	2790.3	14.8	3.1	538.0	20.0			649.0	55.2	1023.0		9701.0
Total Imports			41.3	721.4	4.0	2810.0	15.3	3.1	541.0	20.0			61.6	1074.0		6805.0

Table DIRPLY90 (3): AP - EU

DIRECTION OF TRADE

PLYWOOD 1990

QUANTITY 1000CUM

IMPORTERS EXPORTERS	Europe EEC	Belgium - Luxembourg	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	United Kingdom	Austria	Finland	Norway	Sweden	Switzerland	Others	Europe Total	Total Exports
Asia/Pacific																		4.0
India																		8742.0
Indonesia																		927.0
Malaysia																		125.9
Philippines																		76.3
Republic of Korea	0.6																	
Others																		9353.0
Asia/Pacific Total																		9701.0
Total Imports																		6805.0

DIRECTION OF TRADE
PLYWOOD 1990
QUANTITY 1000CUM

Table DIRPLY90 (4): EU - EU

IMPORTERS EXPORTERS	Asia/Pacific Republic of Korea	Asia/Pacific Total	Europe EEC	Denmark	Italy	Netherlands	Norway	Sweden	Switzerland	Europe Total	North America USA	North America Total	Total Exports
<i>Europe</i>													
<i>Belgium-Luxembourg</i>		0.3			1.0	15.8							
<i>Denmark</i>					0.1	0.2	1.0	1.2					
<i>France</i>				1.0	21.0	60.1		0.5	4.3				
<i>Germany</i>						0.2		0.8	0.4				
<i>Greece</i>					1.0						4.0		
<i>Italy</i>		0.1				2.5			1.3				
<i>Netherlands</i>					0.1				0.1		1.0		
<i>Spain</i>		0.1				0.9		0.2					
<i>United Kingdom</i>		0.1				0.1							
<i>Austria</i>					18.0								
<i>Finland</i>					7.0		1.0	0.1			1.0		
<i>Norway</i>					0.1								
<i>Sweden</i>					0.1		1.0						
<i>Switzerland</i>					1.0								
<i>Others</i>						0.1		0.3	0.1				
<i>Europe Total</i>				1.0		79.9							
<i>Total Imports</i>	541.0			25.0	39.0	274.0	14.0	12.5	2.0		1074.0		6805.0

TaRe DIRPLY90 (5):LANA - AF/AP/LANA

DIRECTION OF TRADE

PLYWOOD 1990

QUANTITY 1000CUM

QUANTITY 1000 CUM

IMPORTERS EXPORTERS	Africa Egypt	Africa Others	Africa Total	Asia/Pacific Australia	Japan	Malaysia	Republic of Korea	Others	Asia/ Pacific Total	Latin America/Caribbean Brazil	Columbia	Honduras	Panama	Peru	Trinidad and Tobago	Others	Latin America/ Caribbean Total	North America Canada	USA	North America Total	Total Exports
Latin America/Caribbean																					
Bolivia										0.3											1.0
Brazil	2.4	37.0	39.4	0.6		0.5		3.0	0.6					0.4	6.0	2.0	8.0	1.0	38.0	39.0	218.0
Columbia																			33.0		18.8
Ecuador														0.2					1.7		
Honduras																					
Panama																					
Peru																					
Trinidad & Tobago																					
Others																					
Latin America Total										1.1			0.4					0.2	2.0		218.0
North America																		0.1			
Canada																					
USA														32				0.1	2.0		
North America Total																		0.1	2.0		
Total Imports	25.0			40.3	240.0	13.3	541.6			2.9	5.0	2.0	5.0	2.0	2.0	2.0	61.6	1074.0			1701.0

Table DIRPLY90 (6): LA/NA/USSR - EU
DIRECTION OF TRADE
PLYWOOD 1990
QUANTITY 1000CUM

IMPORTERS EXPORTERS	Europe EEC	Belgium-- Luxembourg	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	Portugal	Spain	United Kingdom	Austria	Finland	Norway	Sweden	Switzerland	Others	Europe Total	Total Exports
Latin America/Caribbean																				
Bolivia		18.0	6.0 2.0																	1.0
Brazil				0.1	13.0 17.0	1.0 0.7	7.0 8.1													245.0
Colombia																				19.3
Ecuador																				13.2
Others																				255.0
Latin America Total			2.0		17.0															
North America																				
Canada																				
USA																				
North America Total																				
USSR																				
Total Imports		150.0	23.0	240.0	161.0	4.0	14.5	39.0	224.0	1.0	7.0	569.0	1.4	11.0	19.5	2.0			9707.0	6895.0