



**INTERNATIONAL TROPICAL TIMBER ORGANIZATION  
(ITTO)**

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**ANNUAL REVIEW AND ASSESSMENT OF  
THE WORLD TROPICAL TIMBER SITUATION  
1992**



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This document supersedes document ITTC (XIV)/3 "Elements for the 1992 Annual Review and Assessment of the World Tropical Timber Situation". It presents updated and revised statistics of the world tropical timber situation received during and following consideration of document ITTC (XIV)/3 by the International Tropical Timber Council in May 1993. The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever on the part of the International Tropical Timber Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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## Summary

The nominal value of exports of primary timber products from ITTO producer member countries rose by 7.8 percent in 1991 (the most recent date for which comprehensive statistics for all ITTO members are available) to \$7.89 billion. This increase was due to increased exports of veneer and plywood (primarily from Indonesia and Malaysia) and came in spite of a decline of 5.3 percent in the volume of log exports from ITTO producers. Although comprehensive export value statistics are not available, it appears that increasing veneer and plywood exports continued to offset losses from a further 9 percent volume decrease in 1992 log exports. The total value of exports looks certain to drop in 1993, however, with producers predicting a massive drop of more than one-quarter in log export volume to 16 million m<sup>3</sup>.

Production of tropical saw and veneer logs in ITTO producing countries totalled almost 133.3 million m<sup>3</sup> in 1991, a 2 percent decrease from revised 1990 levels. The proportion of log production being utilized domestically in Africa and Asia in 1991 (Latin America consumes virtually all logs produced) remained at 1990 levels of 62 and 79 percent respectively. While the proportion of domestically processed logs for Africa is predicted to fall slightly through 1993, the Asian figure will grow rapidly over the same period to 86 percent, reflecting increasing populations, growing economies and the desire to export value-added products in this region. Sawnwood production totalled almost 38.6 million m<sup>3</sup> in 1991, down 1.8 percent from revised 1990 levels. This decrease was primarily due to the large decrease in Indonesia's sawnwood production in 1991. In 1992 both log and sawnwood production are expected to have rebounded in aggregate. Tropical hardwood veneer production totalled slightly over 1.5 million m<sup>3</sup> in 1991, a 13.1 percent increase from revised 1990 levels. This increase was largely due to new capacity in Malaysia, with further increases expected in 1992-93. Plywood production rose by 4.6 percent in 1991, to 12.9 million m<sup>3</sup>. This increase was primarily due to growth in both Indonesian and Malaysian plywood production, although the rate of growth of the Malaysian industry now exceeds that of Indonesia. Both countries will continue to increase production in 1992-93, Indonesia slowly as limits on plant capacities and annual allowable cuts are reached, and Malaysia more quickly as new plants to process logs from Sabah and Sarawak are built.

ITTO consumer countries also produced substantial quantities of tropical timber products in 1991. Consumers produced over 2.8 million m<sup>3</sup> of sawnwood, 1.2 million m<sup>3</sup> of veneer and nearly 8.8 million m<sup>3</sup> of plywood, nearly all from imported tropical logs. These production levels, particularly for plywood, will drop in 1992-93 as the supply of tropical logs dwindles.

ITTO producers exported 24.1 million m<sup>3</sup> of logs in 1991, with Malaysia providing 80 percent of this amount. The Malaysian proportion of total ITTO log exports will decline to about 65 percent as a result of a major drop in log exports projected for 1993. This decline is due to the combined pressures of domestic demand, value-added policies and environmental concern. Sawnwood exports remained steady at 7.4 million m<sup>3</sup> in 1991. Exports are projected to have increased by 5.5 percent to 7.8 million m<sup>3</sup> in 1992, dropping to 7.7 million m<sup>3</sup> in 1993. Indonesian sawnwood exports have stabilized and (in spite of ongoing decreases in production) have begun to increase as exporters adjust to the export taxes imposed in 1989-90. Malaysia remains the largest sawnwood exporter, accounting for 67 percent of the total volume of ITTO exports in 1991. Veneer exports, also led by Malaysia, increased by almost 14 percent over the 1990 level to almost 0.77 million m<sup>3</sup>. Plywood exports from ITTO producing nations increased by 5.7 percent over 1990 levels, to 10.6 million m<sup>3</sup>. This increase was due to continuing expansion in both Malaysian and Indonesian exports which together constituted almost 95 percent of the ITTO total in 1991. ITTO consumers also exported or re-exported substantial quantities of tropical timber in 1991, led by plywood exports of 0.49 million m<sup>3</sup>. This trade is largely centered in Europe and is expected to gradually decline in magnitude through 1993.

Tropical hardwood log imports by ITTO consumers fell 1 percent to just over 22.9 million m<sup>3</sup> in 1991. If imports by producing members are taken into account, however, total 1991 tropical log imports reached 27.3 million m<sup>3</sup>. This figure is 3.1 million m<sup>3</sup> greater than total exports, with the shortfall presumably made up by non-ITTO suppliers (including Myanmar, Vietnam, Laos, Solomon Islands and several relatively minor African log exporters). As this shortfall is probably approaching the limit of what these non-member countries can provide, the gap between projected total tropical log imports and exports in 1992 (5.6 million m<sup>3</sup>) and 1993 (9.3 million m<sup>3</sup>) will increasingly need to be filled by substitute materials. Japan maintained its position as the dominant importer of tropical logs in 1991, accounting for over 45 percent of all consumer country log imports. Japanese demand for tropical logs softened by 8 percent in 1991, with similar decreases forecast for 1992 and 1993. Amongst consumer countries, only China (including Taiwan Province of China) will substantially increase tropical log imports in 1992-93. India, Thailand and the Philippines are the major producing country log importers; the latter two predict increased imports through 1993.

Japan's imports of 1.0 million m<sup>3</sup> of tropical sawnwood in 1991 fell by over 26 percent from 1990 levels, following a similar percentage decrease in 1989-90. Japan still remained the main importer amongst consumers whose imports totalled 5.8 million m<sup>3</sup> in 1991. Thailand remained the largest ITTO importer of tropical sawnwood in 1991 at 1.5 million m<sup>3</sup>. Thailand will continue to be the major market for tropical sawnwood in the foreseeable future, with imports expected to grow to 1.8 million m<sup>3</sup> in 1993. In contrast, all consuming countries but Korea predict relatively stable or decreasing imports of tropical sawnwood through 1993. The drop in total ITTO tropical sawnwood imports of nearly 0.3 million m<sup>3</sup> in 1991 is primarily attributable to the large drop in Japanese imports, together with a steady decline in European imports.

Japan consolidated its position as the dominant tropical hardwood veneer importer in 1991, absorbing an estimated 677 000 m<sup>3</sup> (57 percent of all consumer imports and 55 percent of total ITTO imports). Japan significantly revised upwards its tropical veneer import figures this year and expects veneer imports to continue to grow. Tropical plywood importers also continue to be led by Japan, which absorbed over 2.9 million m<sup>3</sup> in 1991, up almost 5 percent from 1990. Tropical plywood imports continue to grow in almost all consuming countries, reaching 8.1 million m<sup>3</sup> in 1991.

Real prices for primary tropical hardwood products appear to have firmed somewhat during 1991-92 for Asian producers, while falling slightly for Latin American exporters and remaining more or less constant for the African region. Asian log and sawnwood prices began to increase significantly at the end of 1992 in response to tighter supply. This trend is predicted to continue and intensify during 1993 as wood shortages become apparent. Average nominal prices for logs, sawnwood and plywood (Asian exporters only) have, in general, firmed for all regions in 1991-92, with fluctuations due to exchange rate variation, large consumer stockpiles and general economic conditions.

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 chapter on Markets, Trade and Prices.

## Introduction

### Overview

Despite a continuing decline in log exports, the total nominal value of exports of tropical logs, sawnwood veneer and plywood by ITTO producers increased by 7.8 percent in 1991, to \$7.89 billion. This increase was driven by increases in plywood and veneer exports (sawnwood exports remained stable), primarily by Malaysia and Indonesia. The real increase in value from 1990 was between 3 and 6 percent, however, as commonly used deflator indices (G5 MUV, G7 CPI) increased from 2 to 5 percent during the year. Nominal export values should remain relatively stable (and real values drop) when precise figures for 1992 become available, judging from the estimated production and export figures provided by members. Nominal export revenues appear set to fall in 1993, as large decreases in log exports proposed by Malaysia take effect. However, shortages engendered by decreasing log supplies will drive log prices up, offsetting the magnitude of such decreases. Recessions and/or economic slowdowns in many major markets continued to depress demand for all wood products in 1991-92. Tropical timbers were particularly hard hit in the developed markets of Europe and Japan where faltering economies combined with increasing environmental concern over the sourcing of wood products to continue to depress demand.

ITTO member countries continue to account for a majority of tropical forest area and production and trade of the primary products arising from these areas as indicated by Tables 1 and 2. ITTO's current producing members account for almost 80 percent of the world's closed tropical forest area. The Organization's 23 producer member countries accounted for 82 percent of global exports of all tropical forest products in 1991 (by value), with the proportion rising to 89 percent when only the products covered by the ITTA are considered (non-coniferous saw/veneer logs, non-coniferous sawnwood, veneer and plywood). Table 1 also shows that ITTO members account for more than half of the global value of these products. Almost two-thirds of the global value of trade in forest products is made up by exports of pulp, paper and reconstituted ('other') panels, while these products are of only minor significance in tropical countries. In volume terms, ITTO's producer members in 1991 accounted for 93 percent of tropical saw/veneer log exports, 84 percent of tropical sawnwood exports, 89 percent of tropical veneer exports and (led by Indonesia) 91 percent of tropical plywood exports.

Several factors combined to affect tropical forests and forest products in 1991-92. 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 throughout the trade. Calls for eco-labels continued in Europe and elsewhere, culminating in the passage of a law by Austria requiring labels on all tropical timber products identifying them as such. Recessionary forces eased somewhat in North America but became stronger in Japan and parts of Europe. Europe was seized by a monetary crisis as countries struggled to maintain their currencies within the EC exchange rate mechanism. Little progress was made in resolving the deadlocked talks to negotiate a new world trade agreement under GATT, with several major trading partners considering or implementing regional trade blocs. These factors and many others combined to make 1992 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 1. Forest Area, Production and Export Statistics.

		World		Tropical		ITTO Producers	
1980 Forest Area (10 <sup>9</sup> ha)	Total	4.2		2.3		1.4	
	-Closed	2.9		1.3		1.0	
	-Open	1.3		1.0		0.4	
1991 Prod- uction (10 <sup>6</sup> m <sup>3</sup> )	Fuelwood/chcl.	1830.2		1305.7		797.3	
	Ind.roundwood	1599.3		273.9		200.1	
	-saw/ven.logs	935.7		186.3		140.1	
	(non-conif.)	280.5		155.7		133.3	
	-pulpwood	429.3		37.1		34.4	
	-other	234.3		50.4		25.6	
	Sawnwood	457.5		60.4		49.6	
	(non-conif.)	130.8		46.0		38.6	
	Panels	122.4		19.7		17.5	
	-veneer	5.1		2.1		1.5	
	-plywood	47.6		14.5		12.9	
	-other	69.7		3.2		2.2	
	Wood pulp*	154.7		7.6		6.8	
	Paper/paperbd.*	243.5		15.9		11.5	
1991 Exports (10 <sup>6</sup> m <sup>3</sup> , 10 <sup>9</sup> \$)		Volume	Value	Volume	Value	Volume	Value
	All products	--	97.87	--	11.83	--	9.69
	ITTA products	--	14.89	--	8.82	--	7.89
	Fuelwood/chcl.	3.1	0.11	1.6	0.04	1.0	0.02
	Ind.roundwood	123.5	9.13	27.9	2.53	25.7	2.25
	-saw/ven.logs	65.7	6.40	25.9	2.42	24.4	2.18
	(non-conif.)	32.9	3.28	25.9	2.42	24.1	2.18
	-pulpwood	55.7	2.57	1.9	0.09	1.3	0.05
	-other	2.0	0.16	0.1	0.01	0.1	0.01
	Sawnwood	87.5	17.09	9.8	2.50	7.7	2.02
	(non-conif.)	14.9	4.67	8.8	2.28	7.4	1.96
	Panels	30.2	9.99	12.6	4.28	11.1	3.87
	-veneer	2.1	1.28	0.9	0.35	0.8	0.32
	-plywood	14.9	5.66	11.7	3.78	10.6	3.44
	-other	13.2	3.05	0.7	0.16	0.4	0.11
	Wood pulp*	26.4	13.86	1.2	0.70	1.2	0.68
	Paper/paperbd.*	57.7	47.69	2.7	1.77	1.4	0.85

\* Wood pulp and paper product volumes in 10<sup>6</sup> MT. Totals may not sum due to rounding. Tropical refers to countries with more than half their land area between the tropics of Cancer and Capricorn.

Sources: FAO (1988), FAO (1993a), ITTO Enquiry. ITTO production and export volume data used for producer members. Data for all other countries/categories from FAO.

ITTO producing member export values in Table 1 are from FAO and are used to allow comparison with global and tropical figures, also derived from this source. The ITTO values should be treated with caution; incomplete figures (2 producers did not respond and at least one included softwood export values) from the ITTO Enquiry (Appendix 3) suggest that values of ITTO sawnwood, and plywood exports may be underestimated by FAO. Table 2 shows ITTO's share of tropical forest products production and trade; these proportions were stable or grew slightly in 1991.

**Table 2. ITTO's Share of Tropical Timber Production and Trade, 1991 (percent)**

Product	Production <sup>1</sup>	Exports	
		Volume	Value
Logs (non-coniferous)	86	93	90
Sawnwood (non-coniferous)	84	84	86
Veneer	71	89	91
Plywood	89	91	91
Average <sup>2</sup>	85	90	89

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

2) For volume statistics, roundwood equivalents were used to derive a representative average for all products. No weighting was applied to export value statistics.

### Scope and Structure

The remainder of the Review is divided into five chapters. Relevant resource and environmental issues are discussed first, with the following two chapters summarizing production and consumption statistics, and market developments, trade and prices, respectively. The latter chapter draws from a relatively detailed coverage of trade flows, improving on the coverage presented last year, utilizing data from the revised Forecasting and Statistical Enquiry. A chapter dealing with recent developments in markets and production of secondary tropical forest products follows. The final chapter of the Review provides brief notes of relevant trends and developments in ITTO producing countries not covered elsewhere.

Unless otherwise noted, all value units quoted are in nominal U.S. dollars, while volumes are reported in 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 1992 ITTO Forecasting and Statistical Enquiry wherever possible. Most members (21 of 23 producers and 22 of 27 consumers) provided at least partial responses to the Enquiry in time for inclusion in the Review, although several of these responses contained significant and obvious errors in one or more categories. A complete, unedited listing of member country responses to the Enquiry is contained in the document "Results of the 1992 Forecasting and Statistical Enquiry" (ITTC (XIV)/4 Rev. 1), available from the ITTO Secretariat. Countries which did not respond to the 1992 Enquiry are identified in the notes preceding the Appendices.

A range of supplementary sources were consulted to verify members' responses to the Enquiry, to fill in incomplete or obviously incorrect responses and to provide data for non-responding countries. These supplementary sources are listed in the notes preceding the Appendices and in the References following the Country Notes. Estimates of production and trade were derived for partial and non-responding countries based on direction of trade statistics reported by trading partners, proposed capacity changes (if available) and the other sources listed in the notes to the Appendices. Many countries failed to report forecasts for 1993 and were unable to provide final figures for 1992. Caution should be used when interpreting the estimates given here for these years.

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 reported in previous editions of the Review. All data used in the preparation of the Review are compiled in Appendices 1-4 and Tables 1-9. Notes relevant to all data precede the appendices.

The assistance of those countries which responded to the 1992 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

Tables 3 and 4 summarize statistics on forest areas and roundwood removals in 1991 for ITTO producer members. Such information will be essential to ITTO's efforts to monitor progress towards Target 2000. Table 3 is based on the same management categories as used by FAO in the Forest Resource Assessment project to facilitate comparison with this data when it becomes available. Producers were requested to classify forest areas as sustainably managed only if they met the criteria and indicators of sustainability adopted under Decision 6(XI) of the ITTC. A copy of this decision was attached to the Enquiry questionnaires. Forest area data for countries not responding to the ITTO Enquiry were taken from the 1980 Forest Resource Assessment.

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 over two-thirds of forests in ITTO producer member countries are classed as productive. Only Ghana, Malaysia and Guyana reported significant areas of forest under sustainable management as per the definition in Decision 6(XI). A significant area of plantations has been established in many countries, with 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. Table 4 provides details of roundwood removals by category of forest (natural or plantation) and by type of product. Many countries provided little or no information other than saw and veneer log removals.

Although the Enquiry explicitly requests estimates of annual logging areas from members, most provided only estimates of total forest area. Only Malaysia provided reasonable estimates of areas logged in 1991. Peninsular Malaysia logged 139 000 ha in 1991, Sabah 186 000 ha and Sarawak 400 000 ha. The logging areas for Sabah and Sarawak decrease to 143 000 ha and 370 000 ha respectively in 1992, although Appendix 1 shows that total Malaysian log production will increase slightly. This may be partly due to increased harvesting of rubberwood in Peninsular Malaysia. Sabah reported 2 million m<sup>3</sup> of production from conversion forests in 1991 in addition to 4.1 million m<sup>3</sup> from its permanent forest estate. Sarawak reported that 260 000 ha were sustainably logged in permanent forest estate with slopes less than 60 percent, producing 12.6 million m<sup>3</sup> or just over 48 m<sup>3</sup>/ha. The remainder of Sarawak's logging area and volume was derived from conversion forests. The full details of country responses to these aspects of the Enquiry are contained in document ITTC (XIV)/4 Rev. 1.

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 for the inclusion of Brazilian rosewood (*Dalbergia nigra*) in the most restrictive Appendix I and for the inclusion of afrormosia (*Pericopsis elata*) and lignum vitae (*Guaiacum officinale*) in Appendix II of CITES were accepted, while proposals to include ramin (*Gonstylus bancanus*), merbau (*Intsia* spp.), quebracho (*Schinopsis* spp.) and true mahoganies (*Swietenia* spp.) in Appendix II were withdrawn or amended to exclude non-threatened populations (South American mahogany populations were excluded from the *Swietenia* proposal). ITTO will continue to work closely with CITES to ensure its members are kept up to date on any proposals of relevance to tropical timber which may be presented. Appendix 4 contains a list of major species traded by ITTO producers and consumers in 1991-92.



Table 3. Tropical Forest Areas for ITTO Producers as of 1991 (1000 ha)

Country	Total Land Area	Natural Closed Broadleaved Forest					Plantations and Natural Coniferous Forest			Total Tropical Forest Area
		Productive			Unproductive (Legally reserved)	Total	Coniferous Forest			
		Total	Managed (Sust. managed)	Unmanaged (Unexploited)			Hardwood (rapid growth)	Soft-wood		
Cameroon	46944	17500	0 (0)	17500 (8500)	4550 (2100)	22050	36 (44)	1	22087	
Congo	34150	14741	5241	9500	7500	22241	53 (48)	3	22297	
Côte d'Ivoire	31800	5050	10 (10)	5040 (0)	1950 (1950)	7000	78	1	7079	
Gabon	25767	7466			12534	20000	30 (15)	1	20031	
Ghana	23002	2053	1679 (1679)	374	6173	8226	77 (4)	0	8303	
Liberia	9632	3900	1700	2200	1000	4900	10 (5)	0	4910	
Togo	5439	140	8	132	757	897	23	0	920	
Zaire	226760	23390	1890	21500	104610 (8510)	128000	21	4	128025	
Africa	403494	74240			139074	213314	328	10	213652	
India <sup>F</sup>	297319	38358	29440	8918 (4885)	7686 (5758)	46044	1478 (941)	58	47580	
Indonesia <sup>F</sup>	181157	64575	40	64535 (38915)	49000 (19000)	113575	2000 (1800)	0	115575	
Malaysia	32855	14540	12679 (10479)	1911 (838)	4388	18928	111 (107)	5	19044	
Peninsular		3482	2755 (2755)	727 (164)	2506	5988	47 (47)	5	6040	
Sabah		3858	2674 (2674)	1184 (674)	382	4240	64 (60)	0	4304	
Sarawak		7200	7200 (5000)	0 (0)	1500 (1500)	8700	0 (0)	0	8700	
Papua New Guinea	45171	11971	5292	6679	21908 (1908)	33879	32 (32)	18	33929	
Philippines	29817	3224			2036 (2036)	5260	93	235*	5588	
Thailand <sup>F</sup>	51177	3915	0 (0)	3915	4220 (2185)	8135	61	2	8198	
Asia-Pacific	637496	136583			89238	225821	3775	318	229914	
Bolivia	108439	56519	0 (0)	56519 (36002)		56519	14 (14)	0	56533	
Brazil <sup>F</sup>	845651	300630	0 (0)	300630 (288630)	55650 (4650)	356280	2675 (675)	1232	360187	
Colombia	103870	47023	180	46843	0 (0)	47023	0 (0)	293	47316	
Ecuador	27684	13549	855	12694 (5027)	1395	14944	60 (54)	36	15040	
Guyana	19685	16078	8678 (5251)	7400 (7400)	422 (422)	16500	0 (0)	0	16500	
Honduras <sup>F</sup>	11189	1484	0 (0)	1484 (297)	371 (0)	1855	0 (0)	2400*	4255	
Panama	7599	1898	38	1860	1475 (1475)	3373	6 (0)	5	3384	
Peru	128000	36800	0 (0)	36800 (2800)	8000 (8000)	44800	264 (264)	0	45064	
Trinidad & Tobago <sup>F</sup>	513	148	14	134 (0)	60	208	10 (0)	6	224	
Latin America	1252630	474129	9765	464364	67373	541502	3029	3972	548503	
Total ITTO	2293620	684952			295685	980637	7132	4300	992069	

Note: F - FAO 1980 Forest Resource Assessment data used due to lack of response by member.

\* - Natural closed tropical coniferous forest.

Table 4. Tropical Roundwood Removals by ITTO Producers in 1991 (1000 m<sup>3</sup>)

Country	Natural Forest Removals				Plantation Removals			All Removals
	Saw veneer logs	Other Industrial Wood	Fuelwood	Total	Industrial Wood	Fuelwood	Total	
Cameroon	2290						313	
Congo	572							
Côte d'Ivoire	2046	0	10000	12046				
Gabon	1178							
Ghana	1229	0	19555	20784	6	2160	2166	22950
Liberia	593							
Togo	12 <sup>1</sup>							
Zaire	391							
<b>Africa</b>	<b>8311</b>							
India	18350 <sup>1</sup>							
Indonesia	26880							
Malaysia	39840	54	0	39894				
<i>Peninsular</i>	2280	0	0	2280				
<i>Sabah</i>	8160	54	0	8214				
<i>Sarawak</i>	19400	0	0	19400	0	0	0	19400
Papua New Guinea	700	1900						
Philippines	1919	291	168	2378	70	0	70	2448
Thailand	231	450	409	1090				
<b>Asia-Pacific</b>	<b>87920</b>							
Bolivia	386							
Brazil*	19700*	33	163000	235700	80900	21000	101900	337600
Colombia	1350	53000	6000	7780	128	0	128	7908
Ecuador	2001	85	5000	7086	94	0	94	7180
Guyana	129	19	10	158	0	0	0	158
Honduras	689*	15						
Panama	130 <sup>1</sup>							
Peru	945	109	6518	7572	171	0	171	7743
Trinidad & Tobago	40 <sup>1</sup>							
<b>Latin America</b>	<b>25370</b>							
<b>Total ITTO</b>	<b>121601</b>							

Note: I - ITTO estimate, \* - Unofficial data

a) including coniferous timber (200000 m<sup>3</sup> Brazil, 652000 m<sup>3</sup> Honduras)

The United Nations Conference on Environment and Development took place in June 1992 with approximately 20 000 participants. Major outputs of the conference included: the Rio declaration, a 27 point statement of principles for the integration of environment and development; Agenda 21, a 500 page action plan for all areas relating to sustainable development through the 21st century; the signing of international conventions on biodiversity and climate change; and a non-legally binding statement of forestry principles. Negotiations to arrive at the statement of forestry principles dealt with national sovereignty, establishment of internationally accepted forest management guidelines, technology transfer, trade, rights of indigenous people, market access and the need for an international forest convention. Many developing countries felt that a legally binding forest convention would constrain development opportunities, and this option was not pursued at length. Financing the many proposals arising from UNCED was discussed at length, both in terms of the magnitude of funds required and mechanisms for distributing them. Full reports of ITTO's participation in UNCED have been published elsewhere.

A further output of UNCED was the agreement to establish a new UN institution, to be known as the Sustainable Development Commission. This Commission is meant to review progress on Agenda 21 and to monitor compliance with the conventions on biodiversity and climate change. ITTO will provide inputs to the Sustainable Development Commission on issues relevant to its mandate.

Several countries, municipalities and organizations continued to propose bans or boycotts on tropical timber in 1992. Several Japanese municipal governments including Fujiidera City in Osaka prefecture and Misato City in Saitama prefecture have called for programs to reduce Japanese imports and use of tropical timbers. Misato City has begun to use coated concrete form-ply and non-wood substitutes in city funded public construction projects, and has called on private contractors to do likewise. An independent survey of local governments in western Japan in 1992 showed that at least 14 had specified some policy to restrict or reduce the use of tropical plywood. Major Asian producers have requested the Japanese government to ensure that such actions do not impede market access. The Hong Kong government was considering a ban on use of tropical timber in public construction, probably to be implemented in 1993. Austria passed a law in June 1992 which required tropical wood imports to carry a label stating "contains" or "made of tropical wood." Another Austrian law provides for eco-labels for sustainably produced timber. In December 1992, the Austrian legislature rejected a 70 percent import duty on tropical timber imports following strong protests from major tropical timber producers. Such an increase (the current tariff is 8 percent) would also have been rejected by GATT as discriminatory if not achieved through negotiations and compensatory reduction in tariffs on imports of other products from affected countries. It is likely that the mandatory labelling law will also be altered, as it would affect demand for tropical timber only and may therefore put Austria in breach of the GATT ruling against discrimination between like products produced by different processes (i.e. tropical and temperate timber). While Austria's imports of tropical timbers are small (tropical sawnwood, its major import, fell from 64 000 m<sup>3</sup> in 1989 to 17 000 m<sup>3</sup> in 1992), producers felt the move would set a precedent and have protested strongly to the Austrian government.

Some companies in producing countries are reported to be implementing their own eco-labels or certificates in order to identify their products as sustainable and are seeking cooperation from trade and non-governmental organizations. Several organizations started or proposed timber certification schemes in North America and Europe in 1991-92, including the Rainforest Alliance (Smart Wood Program), Scientific Certification Systems (Green Cross), Institute for Sustainable Forestry (Pacific Certified Ecological Forest Products), Ecological Trading Company and the Forest Stewardship Council (the last has proposed a list of criteria to be used by certifiers). This array of systems, dealing with both tropical and temperate timbers, employs a variety of criteria for assessing producers prior to certification. All include on-site verification of producer

performance and some method of tracking certified wood from forest to market. To date, however, many producers of both temperate and tropical timbers have been skeptical of the ability of certification programs to deliver increased profits from environmentally concerned consumers. The schemes have generated only minor revenues to date, with most financed through donations and/or research grants. However, the recent proliferation of certification schemes is evidence of increasing environmental concern in major wood markets.

### **Target 2000 Progress Reports**

Several countries have now begun to submit regular reports on their progress towards achieving ITTO's Target 2000, the development of trade based on sustainably produced tropical timbers by the turn of the century. Commencing with this year's Review, synopses of the country reports presented in the year under review will be included in this chapter on Resources and the Environment. Producer country reports generally deal with a much greater range of activities than consumer country reports and are therefore abstracted in somewhat more detail.

#### ***Ghana***

The Tropical High Forest Zone of Ghana covers 7 million hectares of the country's total land area of 23.9 million ha. To date about 1.8 million ha of this High Forest zone, consisting of Wet Evergreen Forest, Moist Evergreen Forest, Moist Semi-Deciduous Forest and Dry Semi-Deciduous Forest, have been dedicated to permanent forestry. Seventy-six percent of this Permanent Forest Estate has been designated as productive forest, while the remaining 24 percent fulfils protective functions. Furthermore, a plan has been implemented to protect the area of forest outside the Permanent Forest Estate with continuous canopy, estimated at 0.3 million ha, by involving rural communities in its management.

A national plantation project began in 1970, aiming to establish 110 000 ha over a ten-year period. To date, 76 460 ha have been planted and the current planting rate is 2000 ha per annum. All plantations are presently being re-surveyed and development plans are being formulated with the objectives of managing them for the production of timber to reduce the pressure on the natural forest and to protect the High Forest reserves from encroachment by the Savannah.

Growth modelling has been introduced to assist in more accurate yield predictions. The growth of the forest is being monitored from data derived from a national inventory and a network of 600 Permanent Sample Plots. Forest reserves have been grouped into Forest Management Units (FMUs) of about 500 km<sup>2</sup>. Work Plans are being written for each FMU, detailing management practices to achieve sustained yield.

Since 1989 the felling cycle has been increased from 25 to 40 years to allow sufficient time for the residual forest to recover and satisfactorily regenerate after harvesting. Additionally, efforts are being made to harvest a wider variety of species to prevent over-exploitation of a few better known species. Felling limits have been established for all commercial species and are enforced through a permit system. A logging manual has been introduced to ensure sound harvesting techniques. In addition, the lease period for a concession has been increased to coincide with the felling cycle. To control and monitor yield from forest reserves, all felled trees are individually marked on the butt end and stump with codes to identify trees harvested from managed forests. To arrest depletion of the forest and to promote domestic value added in the country's wood processing industry, a ban on the export of several species in log form has been implemented in the past decade. There are plans to ban all log exports by 1994.

A new royalty fee structure was introduced in 1989 to discourage resource depletion, waste and inefficiency in the forest industry sector, resulting in increased fees in real terms, higher fees for over-used species and more frequent and easier adjustment of fees.

In February 1992 a new Forest Policy was introduced by the Government, updating the original 1948 Forestry Development Guide. This new policy includes provisions for 1) maintaining, protecting, enlarging and developing forest land (including plantations); 2) managing the forest estate to optimize environmental and economic benefits; 3) providing support to forest-based industries; 4) encouraging private and social forestry; 5) enhancing the conservation and development of wildlife occurring in the forested and savannah woodland ecosystems outside the "special" wildlife conservation areas; 6) enhancing the availability of trained manpower for the implementation of this policy; 7) maintaining a research capability to improve monitoring, provide information and develop technology for policy formulation and decision-making to facilitate better management; 8) developing, strengthening and maintaining sectoral efficiency through adequate motivation and remuneration of staff as well as the coordination of programmes and funding of the institutions required to implement this policy; 9) cooperating with other interested bodies, both national and international, to harmonize efforts at environmental conservation and economic development; 10) establishing a special fund to ensure the achievement of the objectives of this policy; 11) enacting appropriate legislation to implement this policy; and 12) ensuring a periodic review of the policy to reflect changing socio-economic conditions and/or availability of new information.

Since late 1989 Ghana has been implementing a Forest Resource Management Project, financed with grants from ODA (U.K) and DANIDA (Denmark), a loan from the World Bank and a contribution from the Ghanaian Government. A Financial and Technical Audit of the Ghana wood industry is to be undertaken soon with the aim of analyzing the structure of the wood-based industry in Ghana so as to optimize sustainable use of forest resources. Finally, the Government of Ghana, with support from ODA and DANIDA and under the auspices of ITTO, will design a complete system of possible incentives to motivate and promote the sustainable development of the tropical High Forest of Ghana.

### *Zaire*

All forests are the property of the state and are divided between reserved forest and protected forest. Reserved forests account for roughly 18 percent of Zaire's 1.28 million km<sup>2</sup> of forest land and are comprised of national parks, biosphere reserves, forest and other natural reserves, hunting and associated areas, reforestation sites and botanical and zoological gardens. Protected forests are comprised of productive forest land and other non-reserved forest land and account for 82 percent of all forests.

Zaire's forests are divided into evergreen and semi-deciduous forest; degraded dry dense forest; a mosaic of woodland and savanna; brushland and grassy savanna; forest growing on hydromorphic soil; and mountain vegetation. Only evergreen and semi-deciduous forests are able to sustain large-scale utilization.

As the manager of the forests, the State awards concessions on a temporary or relatively permanent basis. Concessionaires are obligated to take into account the traditional and customary rights of any local populations. Any forest territory which is to be utilized must first be surveyed. It is then made available to logging companies through a letter of intent, which grants the developer three years to obtain any required equipment. If the necessary investments have been made at the end of this term, the letter of intent is converted into a renewable 25-year guarantee of supply. As of 1990 letters of intent and guarantees of supply had been issued for 6.4 million ha and 6.5 million ha of forest land, respectively.

With a view to ensuring rational management in accordance with the criteria for sustainable management, administration and forest management services are organized within the Ministry of the Environment and Tourism around the following major departments and institutions: the Administration for the Management of Renewable Natural Resources; the Administration for Planning, Training and International Relations; the Permanent Survey and Forest Management Service; the National Reforestation Service; the Timber Promotion Center (for lesser-known species); the Center for Adaptation of Wood-Energy Technologies; the Fund for Reconstitution of Forest Capital (levies taxes on logging permits and timber exports to finance forest management activities); The National Program for Man and the Biosphere; the Zaire Institute for Nature Conservation and the Zaire Institute of Zoological and Botanical Gardens.

To date, the Permanent Survey and Forest Management Service has surveyed 16 percent of all forest land and mapped 12 percent, in addition to preparing a summary forest map of the national territory, eight management, development and rehabilitation plans, an outline of a zoning system for the national territory, and a list of the forest species in the surveyed territories. This work is no longer continuing due to lack of funds; however, it has contributed to the preparation of the standards and administrative procedures associated with forest use in Zaire, in particular the "Logger's Guide," the "Logging Survey Standards," and the "Forest Allocation Survey Standards."

The primary causes of deforestation in Zaire are the gathering of firewood and slash-and-burn agriculture. Commercial logging accounts for only 10 percent of deforestation. Current reforestation objectives include: utility timber; wood-energy; community reforestation and agroforestry; and erosion control. As of 1989 the area reforested in Zaire had reached 830 ha.

Based on priorities identified in the Tropical Forestry Action Plan (TFAP), 97 projects have been selected with an estimated cost of \$228 million. In 1990 donors indicated their intention to fund 50 of these projects at an estimated cost of \$160 million. However, the TFAP has not yet been implemented due to the current political situation in Zaire, which has resulted in the withdrawal of all bilateral and multilateral cooperation.

### *Indonesia*

Indonesia currently has 113 million ha of forest land, of which 49 million ha is protected: 30 million ha have been designated as Protection Forest and 19 million ha have been designated as Nature Conservation areas (of which 18.66 million ha and 17.1 million ha have been legally confirmed, respectively). It also has 30 million ha of forest land slated for conversion to other land uses.

Approximately 574 000 ha of industrial timber plantation have been established in the Outer Islands. According to Indonesia's Five-year Development Plans for this decade, industrial plantations should increase to 1.5 million ha by 1994 and 6 million ha by the turn of the century.

In 1990 Indonesia enacted the Conservation of Living Resources and its Ecosystem law. Indonesia is increasing its efforts to monitor the logging practices of concessionaires, issuing warnings, imposing penalties and permanently or temporarily revoking concessionaire's licenses. As of June 1992, \$20.5 million in fines had been imposed and 29 licenses had been revoked.

To facilitate better forest management practices, the Government implements the following forest management plans: General Spatial Planning (for each province), General Forestry Five-Year Plan, Forest Utilization Operational Plan, Reforestation and Land Rehabilitation Operational Plan and Forest Protection and Nature Conservation Operational Plan. Additionally, concessionaires are required to complete Overall Management Plans for the full tenure of each concession, Five-Year Working Plans and Annual Working Plans.

Environmental Impact Assessments are required on all forms of forestry development. Additionally, measures have been taken to conserve biodiversity in the production forest and to encourage concession holders to support local community involvement in forest development. To encourage income distribution, a program is currently underway to transfer shares from concessionaires to cooperatives. Indonesia's export earnings from the forestry sector have been increasing, from \$1.606 billion in 1986 to \$3.98 billion in 1992.

In 1992 a Ministerial Decree was issued, establishing guidelines for forestry planning on an annual, medium-term and long-term basis and at national, regional and management unit levels. Numerous other decrees have also been issued with the intent of achieving sustainable forest management. Indonesia has committed itself to several international conventions regarding protection of the environment, including Ramsar (wetlands), UNESCO Cultural and Natural Heritage Sites and the Convention on Biodiversity.

All log exports have been banned since 1985. Felling cycles range from 35-45 years for Dipterocarps, ebony and ramin; while concession tenures are 20 years. Annual Allowable Cut is regulated and controlled by the Government. The annual log production target from natural production forests for the period 1989-94 is 31.5 million m<sup>3</sup>.

### *Malaysia*

Malaysia structured its annual report along the format presented in the ITTO Guidelines. The following are some highlights of the report.

In Malaysia, most forested lands are publicly owned. The Government has designated a total of 12.55 million ha of natural forest as Permanent Forest Estate (PFE), to be managed under sustained yield (38.2 percent of total land area). Approximately 9.81 million ha of the PFE have been identified as production forests. In keeping with the recommendations of the ITTO Mission to Sarawak, the state is currently undertaking measures to increase its PFE from 36.4 percent to 70 percent of total land area. Hence, the PFE of Malaysia is soon expected to cover a total area of 14.16 million ha (or 43 percent of its total land area). Malaysia has also established a network of protected areas for the conservation of biological diversity, currently comprising 1.41 million ha, of which 0.33 million ha are located within the PFE. An additional 1.42 million ha is under consideration for future conservation.

To improve management and encourage multiple use of the PFE, all the State Forestry Departments in Peninsular Malaysia are in the process of reclassifying the PFE by slope class and one or more of the following functions: 1) sustained yield timber production, 2) soil protection, 3) soil reclamation, 4) flood control, 5) water catchment, 6) wildlife sanctuary, 7) virgin jungle reserve, 8) amenity, 9) education, 10) research and 11) federal purposes.

Although forest land falls under the jurisdiction of the thirteen state governments of Malaysia, the country established the National Forestry Council (NFC) in 1971 to formulate national policy on mining, agriculture and forestry. The NFC serves as a forum for the federal and state governments to discuss and resolve common problems and issues relating to forest policy, administration and management. The National Forest Policy (NFP) was accepted by the NFC in 1977 and is currently being implemented by all the states in Peninsular Malaysia, in addition to Sabah. This Policy was reviewed and discussed at the 1991 National Forestry Policy Seminar and recommendations were made to improve its implementation. The Seminar also provided an opportunity to distribute copies of the "ITTO Guidelines for the Sustainable Management of Natural Tropical Forests" to all state Forest Management Officers and Forest Silviculturalists. In Sarawak, an earlier Forest Policy approved in 1954 and having similar provisions to the NFP is the basis for forestry practices.

In 1984 a National Forestry Act was passed, requiring that all State Forest Enactments be reviewed, updated and made uniform in order to streamline forest administration and forestry sector development in the country. Also in 1984 the Wood-Based Industries law was passed to ensure the orderly development of the forest industry sector. The various State Forestry Departments in Peninsular Malaysia have adopted "Standard Road Specifications" and "Forest Harvesting Guidelines" for strict adherence by all logging contractors. In addition, the Environmental Quality Act of 1974 requires environmental impact assessments for many forestry related activities, particularly the conversion of forest land to other land uses. A 10-year Forest Management Plan (1986-1995) is currently in effect for Peninsular Malaysia.

Several regional forest inventories have been conducted in Malaysia. Forests were inventoried in Peninsular Malaysia in 1970-71 and again in 1981-82. An inventory is currently being conducted by the Forestry Department of Sabah and was expected to be largely complete by late 1992. A statewide forest inventory was conducted in 1969-1972 in Sabah, followed up by an inventory of disturbed forests in 1986. In Sarawak, an inventory was carried out in 1969-72.

The production forests of the PFE are currently inventoried at the operational level prior to logging to determine sustainable felling regimes. They are inventoried again after harvesting to assess the regeneration status of the logged-over forest for appropriate prescription of silvicultural treatments. Production forests are currently being managed under renewable cycles of 30 years for the richer forests and 55 years for others. Concessions are granted for periods ranging from 20-60 years. The annual harvest approved by the National Forestry Council for Peninsular Malaysia for the period 1991-95 is 52 250 ha in the PFE.

State Forestry Departments are required to complete a forest management and work plan describing the area to be harvested, the species to be removed, the cutting limit and allowable cut prescribed and penalties for poor logging, etc. Applicants for logging licenses must also prepare forest management/harvesting plans, along with a reforestation plan.

State Forestry Departments levy three kinds of charges on logs removed from the forest: royalty, forest premium and forest development cess. Royalties are charged on a volumetric basis and can vary between species and states, accounting for 17-90 percent of the total forest revenue collected by each state. The forest premium is payment to the Government for the right to extract timber from an area held under permit and is determined by the area to be logged or the volume to be removed. The rate may be as low as RM20/ha but is often negotiated at a higher price, depending on the conditions in the market and commercial value of the forest. The forest development cess has been revised upwards from RM0.70/m<sup>3</sup> to RM2.15-2.80/m<sup>3</sup>. This money is placed in a trust fund (the "Forest Development Fund") and used by the States to develop and implement forest management and reforestation plans.

To ensure adequate supply of raw material to the timber processing industries in the country, export levies have been imposed on 22 species of sawnwood and all species of veneer exported from Peninsular Malaysia, effective June 1990. The levy imposed varies from RM60-120/m<sup>3</sup>, depending on the timber grade and species involved. This levy helps finance research and development on improved wood utilization, reforestation activities and development of wood-based industries. Royalty fees may be waived under certain conditions, such as for those species having little or no market demand which would otherwise be uneconomical to harvest and for forest products which have been damaged by fire, pest, disease, or other causes.

Various research activities aimed at improving forest management and utilization are conducted by the Forestry Departments and institutions in the country, notably the Forest Research Institute



of Malaysia (FRIM), the ASEAN Institute of Forest Management (AIFM) and the Forestry Faculty of the University of Agriculture.

To provide benefits to local populations and alleviate encroachment on the forest, 1952 ha of fruit trees and 4980 ha of rattan and rubber small-holdings have been established along the fringes of forested areas located near villages. The Department of 'Orang Asli Affairs' in Peninsular Malaysia monitors logging in reserves set aside for indigenous people and consults them regarding any proposals to designate forested land on their reserves as permanent reserved forest.

### *Australia*

Australia is unique within ITTO by being the only consumer country member with substantial tropical forests. Approximately 1.5 million ha of the country's total forest area of 44.2 million ha is tropical rainforest. Additionally, Australia has 400 000 ha of sub-tropical rainforest, 1 million ha of temperate rainforest and 913 000 ha of mangrove and swamp forest.

The Australian Government has undertaken a number of actions to promote the sustainable management of its forest resources. These include the establishment of a series of committees and investigations to assess forest management in Australia and to provide guidance for the future. These committees include: The Ecologically Sustainable Development Working Group Report on Forest Use, the Resource Assessment Commission inquiry into Australia's forest and timber industries, the National Plantations Advisory Committee investigation of ways of better integrating forestry and agriculture and of expanding Australia's plantation resources, and the development of a National Forests Inventory to document the values of Australia's forests. The Government is developing a National Forests Policy to take account of the findings from these reports and to provide a comprehensive framework for the sustainable management of Australia's forest resources over the long term. This Policy is being developed in partnership with the State and Territory Governments and in consultation with interested non-government bodies. It was due to be completed by the end of 1992.

Australia has largely ceased logging its tropical forests, many of which have been included since 1989 in the Wet Tropics World Heritage listing in North Queensland. Financial compensation of A\$75 million over three years was made available under a structural adjustment package to ease the effect which this had upon the domestic timber industry. Other domestic initiatives relating to the protection of tropical rainforest include the establishment in 1986 of the National Rainforest Conservation Program, with A\$44.45 million provided for a range of rainforest conservation measures in cooperation with the States; and the allocation of A\$1 million to establish and maintain the Institute of Tropical Rainforest Studies.

There has been a reduction in the level of tropical timber imports into Australia during recent years. While much of this is due to a decline in construction activity, part has been attributed to consumer concerns about tropical deforestation. The Australian Timber Importers' Federation identifies producer countries moving towards sustainable management practices and encourages its members to buy timber from these sources.

The Australian Government actively supports forest-related environment and development assistance through its participation in the ITTO, the United Nations Environment Program, the Food and Agriculture Organization and other international organizations. Australian Government agencies, such as the Australian International Development Assistance Bureau (AIDAB), the Australian Centre for International Agriculture Research and the Commonwealth Scientific and Industrial Research Organization are involved in forest projects in many countries.

Australia has developed considerable expertise in sustainable forest management principles and techniques. This has provided the basis for a number of initiatives designed to assist other tropical timber producing countries to better develop their management expertise. Australia has assisted many countries to expand tree planting, thereby lessening pressure on indigenous forest. The Australian Tree Seed Centre now provides approximately 5000 seed samples annually to other countries. This work is augmented by other forms of support for reforestation and forest management.

The Government has announced an Interim Policy Statement on Ecologically Sustainable Development in International Development Co-operation. This Policy is supported by a range of initiatives under the Environmental Assistance Program. It requires environmental impact assessments for all development projects and supports the following types of activities: local processing of forest products and value-adding industries consistent with ecologically sustainable development criteria, recognition of non-timber values of forest resources, full negotiation of development projects with local and indigenous peoples, conservation/biosphere reserves, income-earning opportunities for local peoples based on renewable wood and non-wood forest resources, reforestation with native flora of previously logged or damaged areas and plantations of commercial timber species on already cleared land. The Policy also outlines the types of forestry projects which will not be supported, such as those that endanger species or ecosystems, are unsustainable or cause unacceptable external costs, are contrary to the wishes of local or indigenous people, etc.

The bulk of Australia's forest-related aid is channelled through AIDAB. Funding of forestry projects in 1991-92 totalled A\$4.3 million. Continuing programs include A\$1.7 million to the Papua New Guinea National Forest Action Plan and A\$700,000 for a training program aimed at improving tropical forest management in South East Asia. A total of A\$1.9 million has been provided for new activities in the tropical forest sector in 1991-92. These include projects involving sustainable use and management of tropical forests in South East Asian and Pacific countries, contributions to international organizations which support sustainable tropical forest projects and projects being undertaken by the Australian Centre for International Agricultural Research.

### ***Denmark***

Denmark outlines its development assistance policy in a recent report entitled, "Sustaining the Tropical Forests, Government Policy for a Danish Contribution." The report evaluates the following international mechanisms for promoting sustainable development and outlines the country's participation in each: Tropical Forestry Action Programme, United Nations Conference on Environment and Development (UNCED), ITTO, Global Environment Facility (GEF), World Bank, International Forestry Research and CGIAR, European Economic Community, General Agreement on Tariffs and Trade (GATT) and Organization for Economic Co-operation and Development (OECD).

Denmark will continue to increase development aid for activities related to forestry, in partial follow-up to Agenda 21 of UNCED. The country supports, among other activities, the implementation of national forest sector plans, reforms of the TFAP, incorporation of endangered timber tree species in CITES, collaboration with producing countries on a system of export-based certification of forest products for consumer information, follow up on the Declaration of Forest Principles adopted at UNCED, upgrading research in forestry and agroforestry conducted under CGIAR, initiatives at the European level to obtain better trade statistics on tropical timber and participation in the GATT Working Committee on Trade and Environment to encourage such policies as an adjustment of tariffs to favour manufactured products of tropical timber as opposed to roundwood.

At the national level, the Government is committed to educating its population on the need for sustainable forest management. It will support importers in their voluntary efforts to source tropical timber from areas implementing or approaching sustainable production. It will also encourage the marketing of lesser known tropical tree species, strengthen the research and education on tropical forestry in Denmark and further develop national expertise to assist multilateral and bilateral development assistance programs.

### ***Finland***

Finland's common forestry policy for development assistance has recently been revised to move toward smaller-scale projects. The focus is on rural development, community forestry and integration of forestry with other sectors, especially the agricultural sector and land use planning. Finland does not believe that unilateral actions aimed at restricting trade of tropical timber would benefit forests. Forest owners, local communities and governments all have an interest in caring for forests and should cooperate towards this end. Finland intends to allocate more financial resources to the forestry sector in light of the importance of this resource which was recognized at UNCED.

The country encourages agreement on the definition of "sustainable" and stresses the need for flexibility in arriving at a consensus definition. It also advocates further development of existing ITTO Guidelines and the development of new guidelines on sustainable forest industries.

Finland believes that sustainable development must be addressed on a national level, in addition to the aforementioned international mechanisms. It views TFAP as a critical tool to assist countries at the national level in their efforts toward sustainable development and urges TFAP co-sponsors to strengthen the programme through necessary revisions.

### ***Italy***

Italy submitted a statement reaffirming its commitment to Target 2000 and outlined several proposals for furthering this aim, such as establishing a United Nations register of world forest areas and their uses; determining the minimum forest area necessary to maintain the climatic balance of the planet; delineating protected areas of natural tropical forest for each producing country; and setting up an ITTO register of timber species to monitor location, quantity and rate of utilization. Although these proposals primarily focus on actions to be taken by other countries and international organizations, Italy expressed its commitment to act in accordance with the aims of these proposals, thus contributing to the preservation of tropical forests and ecological balance. Additionally, it will continue to contribute finances for a training program on wood processing as well as projects aimed at forest classification.

### ***Japan***

In view of its commitment to Target 2000 and the outcome of UNCED, Japan gives high priority to sustainable management, conservation and research of tropical forests through bilateral and multilateral cooperation and intends to further expand and strengthen environmental considerations in its aid policy.

Japan's voluntary contributions to ITTO activities amounted to approximately \$28.52 million in 1989-90 and \$9.62 million in 1991. Specific measures to be taken toward Target 2000 include: promoting dialogue with producing countries to identify means for implementing ITTO Guidelines; following up on the Senior Forester' Conference through workshops and seminars; enhancing the ability of local communities to obtain appropriate returns and other benefits from sustainably managed forests; promoting cooperation with producing countries in realizing fair trade in tropical timber; and promoting cooperation for conservation of biodiversity.

In light of the importance of sustainable management of tropical forests, Japan, being the largest importer of tropical timber, has taken or will take the following measures under the principles of free trade and respect for sovereignty of the producing countries, to facilitate fair trade practices in line with ITTC Decision 3(X)2.e.

**Monitoring Trade:** 1) analyze macroeconomic trends in the supply and demand of sustainably produced tropical timber to the year 2000 and beyond [ITTO project PD 182/91 (M)]; 2) identify appropriate measures for Japan's domestic forest industries in light of expected import volumes of sustainably managed timber from producer countries; 3) monitor trade trends to identify cases where actual import levels deviate from what is expected; and 4) encourage the voluntary adoption of timber trade guidelines by the Japan Lumber Importers' Association to facilitate compliance on behalf of suppliers with the ITTO Guidelines, promote efficient utilization of timber through the provision of appropriate market information to producing countries and cooperate with other timber industries in enhancing the value added to tropical timber.

**Consuming Tropical Timber Wisely:** 1) support the Japan Plywood Manufacturer's Association, a major consumer of tropical timber in Japan, in its target to substitute 30 percent of tropical timber used as raw materials for plywood by 1996; and 2) encourage rational utilization of tropical timber, such as increasing the number of times plywood concrete forms are re-used.

**Enhancing Value Added:** continue to support basic research, technology development, training, etc. to enhance the value added to tropical timber in producing countries.

**Establishing Appropriate Prices:** participate actively in ITTO meetings to examine the costs of sustainable management in an effort to determine appropriate prices for tropical timber.

### ***Netherlands***

The Netherlands presented a government approved policy paper on tropical rainforests to the ITTC in November, 1991. A high level interdepartmental government committee was established in early 1992 to coordinate and supervise implementation of the policy. The committee drafted an action plan consisting of 75 areas of special attention, with responsibility for implementation of each of these areas assigned to the various government departments involved. Progress will be reported to future sessions of Council.

Tripartite consultations between representatives of the trade, NGOs and the government commenced in 1992 in order to develop a code of conduct for the trade in tropical timber from sustainably managed forests by 1995. Related initiatives include a study on the feasibility of timber identification systems and investigations of the prospects of bilateral agreements with major tropical timber suppliers to the Netherlands with regard to sustainable timber trade and production. The Netherlands also participated actively in the CITES meeting in March 1992, withdrawing its initial sponsorship for including Merbau and Ramin in Appendix II. The Netherlands contributes Dfl100 million to forestry projects annually, of which ten to twenty percent is directed to tropical rainforests.

### ***United Kingdom***

The United Kingdom's assistance to developing countries is administered by the Overseas Development Administration (ODA). ODA currently has 202 forestry sector projects either

underway or in preparation at a total cost of £158 million (excluding contributions to multilateral development and the European Community). The U.K. operates a Joint Funding Scheme with NGOs, by which ODA provides half of the capital for agreed projects. In 1991 ODA was committed to providing £1.548 million for NGO forestry projects. All projects are subject to stringent project appraisal, including environmental and social impact assessment. ODA is committed to facilitating the conservation of biodiversity in developing countries and had financed 33 projects of this nature by the end of 1990. In 1992 the U.K. published a report titled "Biological Diversity and Developing Countries: Issues and Options".

The U.K. supports the Tropical Forestry Action Programme but has expressed concern at the slow pace of reform. It believes that the TFAP should become the main mechanism by which developing countries implement their National Forestry Action Plans (NFAPs) and achieve ITTO's Target 2000. ODA is the lead agency for two NFAPs and has participated in the preparation of 23 others. The U.K. also supports the Global Environment Facility (GEF) and has contributed £40.3 million to the pilot phase. It also welcomes the World Bank's new Forest Policy and encourages the regional development banks to consider reviewing their own forest policies. Additionally, the country is currently contributing funds for several ITTO projects. Finally, the U.K. is the largest contributor to the International Board for Plant Genetic Resources.

The U.K. has been at the forefront of efforts to relieve the debt burden on developing countries, which may indirectly benefit tropical forests by alleviating an impetus to exploit natural resources for foreign exchange. The U.K. co-sponsored with Denmark a proposal to add *Pericopsis elata* to Appendix II of CITES and supports decisions of the 1992 CITES Conference to control and/or prohibit trade in certain endangered tree species.

In 1991 the U.K. Timber Trade Federation (TTF) advised all members of the U.K. National Hardwood Association to actively support ITTO's Target 2000. Members were asked to include a "Statement of Intent" in every hardwood supplier's contract confirming that the timber supplied would be sourced from sustainably managed forests or plantations. While the British Government welcomed this initiative, reaction of overseas suppliers has generally been disappointing, as many believe this should be the responsibility of governments. The U.K. encourages the cooperation of both the public and private sectors in working towards Target 2000 and outlines specific responsibilities for each.

The U.K. TTF and the World Wide Fund for Nature (WWF) have agreed on an "Environmental Policy" for companies in the timber trade and timber industry and a "Company Environmental Purchasing Policy." Both policies encompass temperate and tropical timbers and timber products. TTF's Forests Forever Campaign and WWF are urging all U.K. Timber importing companies to formally adopt their policies; these have been accepted by over 121 companies, accounting for more than 85 percent of tropical timber imported to the U.K. Discussions are ongoing in the private sector on the feasibility and methodology of monitoring sustainable forest management practices under the auspices of the Forest Stewardship Council, aimed at linking environmentally committed timber producers to green consumers through a reliable certification scheme. The U.K. Government will be in a better position to comment on this program in its next report to the Council. The Government will also consider whether a "Standard for Forest Stewardship" might be developed in consultation with the British Standards Institute.

#### *United States of America*

Estimated U.S. direct bilateral assistance for tropical forest conservation and sustainable use totals nearly \$150 million. In addition, the U.S. Government indirectly provides about \$70 million annually for forest funding through contributions to international organizations. Further funding estimated at \$400 million annually is represented by creative debt financing and the U.S. share

of total loans and loan guarantees for forest conservation and sector development. Current annual support for forest conservation and sustainable use by private U.S. based NGOs totals about \$30 million.

Over the past two years, Agency for International Development (AID) assistance related to forest conservation and sustainable use has averaged about \$105 million a year. The AID portfolio currently includes more than 120 forestry projects in 88 countries throughout the tropical world. These projects, many of which are being undertaken in partnership with local NGOs as well as government partners, finance basic research on tropical forest ecosystems and species; management of natural forests for sustainable production; forest regeneration; forested park management; agroforestry research and extension; watershed and related land use management; fuelwood plantations, shelterbelts and roadside plantations; forester training and forestry institution strengthening; and development of forest policy and planning for sustainable management of forest resources.

The U.S. Forest Service is currently providing about \$5 million in support of international forest activities. This amount is expected to increase in the future. The Forest Service provides technical expertise and services to AID and the U.S. Peace Corps on tropical forestry and natural resources. Through its Tropical Forestry Program, a new initiative begun in 1990, the Forest Service provides direct training and technical assistance to a number of tropical countries. The Forest Service is also a significant supporter of international forestry research, notably through its Forest Products Laboratory in Madison, Wisconsin, the Institute for Tropical Forestry in Puerto Rico and the Pacific Islands Research Institute in Hawaii.

The U.S. Peace Corps, with AID programming support, has more than 400 volunteers working in tropical countries on a variety of forest activities, including community reforestation, forest management, nursery development, agroforestry and park management. Last year, forestry assistance by the Peace Corps totalled about \$13 million.

A number of other U.S. agencies support tropical forest-related research and technical assistance programs at combined levels of about \$25 million annually. Major programs include research by the National Science Foundation on forest biodiversity and ecosystems, the Smithsonian Institution's environmental biology research programs, the U.S. Environmental Protection Agency's climate change research program, the National Aeronautics and Space Administration's forest cover remote sensing satellite programs, the State Department's U.S. Man and the Biosphere program and the National Park Service's training program for park managers.

Forest-related multilateral contributions include \$200 million pledged over a three-year period to a restructured Global Environment Facility; \$20 million in total contributions to the Brazil/World Bank/G-7 pilot program to conserve the Brazilian rainforest; \$15 million to UN agencies and other international and regional intergovernmental organizations (UNDP, UNEP, FAO, ITTO, OAS); \$25 million annually for the World Food Program and a substantial amount of the almost \$1 billion lent or granted by the World Bank, Inter-American Development Bank, African Development Bank and Asian Development Bank.

In 1991, under the Enterprise for the Americas Initiative, the U.S. signed agreements with Bolivia, Jamaica and Chile to cancel \$263 million in official debt owed to the U.S. Over the life of the initiative, interest payments of \$32.4 million will be used in-country to support local environment and conservation programs, many of which may be forest-related. In addition, from 1987-90, AID provided \$11 million in grants to NGOs for debt-for-nature swaps in eight tropical countries throughout the three major producer regions.

Through the Overseas Private Investment Corporation, an agency of the U.S. Government, the U.S. supports private investment in tropical countries via loan guarantees for forest sector development. These loan guarantees total about \$120 million per year through insured or financed private sector forest development projects and through an environmental investment fund using insurance and guarantee authority. The U.S. Government's Export-Import Bank also provides loan or loan guarantee commitments for U.S. exporters bidding for economic development projects. In the forest sector, loans to support pulp, paper and other forest product mill construction or upgrading have been made for five major mills in Latin America and Asia over the last two years.

## Production and Consumption

This chapter provides statistics on production of primary forest products in ITTO member 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 PC Agrostat and other available data sources (see Appendix 1). Apparent domestic consumption (production plus imports minus exports) statistics may include changes in stock levels which are not reported or reported incorrectly by almost all countries responding to the ITTO Enquiry. Those countries which did report reasonable figures for stock changes in one or more products are listed in the notes preceding the Appendices.

Table 5 presents information for producer members on industrial structure, capacity of production, average recovery rates 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. Consumer countries did not in general have information on mills processing tropical wood. Nonetheless, Table 5 shows that up to 6 million people are directly 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, including an estimated 3.8 million in India and nearly 1.2 million in Indonesia. Employment in producing country forest industries appears to have remained stable in 1991, although the many countries not providing up to date data make generalizations and analysis of regional and product totals difficult. Several countries (most notably Ghana, Malaysia and the Philippines) predict substantial decreases in logging employees through 1993, as log harvests decrease. These employees will be largely absorbed by new and existing processing mills. Guyana is the only country which reported an increase in logging employment (50 percent) through 1993, as plans to increase sawnwood and plywood capacity will require increased logging. Several countries also reported the existence of secondary processing mills of various types; these are described in the chapter on Secondary Processing.

### Logs

The production of tropical hardwood saw/veneer logs in ITTO producer member countries totalled 133 336 000 m<sup>3</sup> in 1991, 86 percent of global tropical hardwood log production and 48 percent of the world's total non-coniferous saw/veneer log production. Figure 1 shows the trends in log production, consumption and trade from 1989-93 (estimated). All African members but Togo reported significant declines in log production in 1991, as did the Philippines, Thailand and Ecuador. Most of these countries (except the Philippines and Thailand) expect log production to stabilize at 1991 levels through 1993. Figure 2 shows ITTO's major log producers through 1993. Only Brazil, Ecuador, Colombia and Papua New Guinea (PNG) expect log production to rise, while some countries (Malaysia, Côte d'Ivoire and the Philippines) forecast substantial decreases in production. Malaysia alone predicts a drop of over 5.5 million m<sup>3</sup> in log production between 1992 and 1993, from 40 million m<sup>3</sup> to 34.5 million m<sup>3</sup>, as Sarawak implements the ITTO Mission recommendations and as Sabah resources decline in availability.

Figure 2 shows that the top four log producing countries (Malaysia, Indonesia, Brazil and India) together comprise over 85 percent of ITTO production. Indonesian figures are based on total estimated removals, including conversion. Papua New Guinea was the fifth largest ITTO log producer in 1991, replacing Côte d'Ivoire where log production is dropping rapidly as forests are depleted. PNG produces substantial quantities of pulpwood for export as logs and chips; some pulpwood may be included in PNG's production figures for saw/veneer logs. Gabon, Ghana, Peru and Congo all have log production approaching or slightly exceeding 1 million m<sup>3</sup> per year.

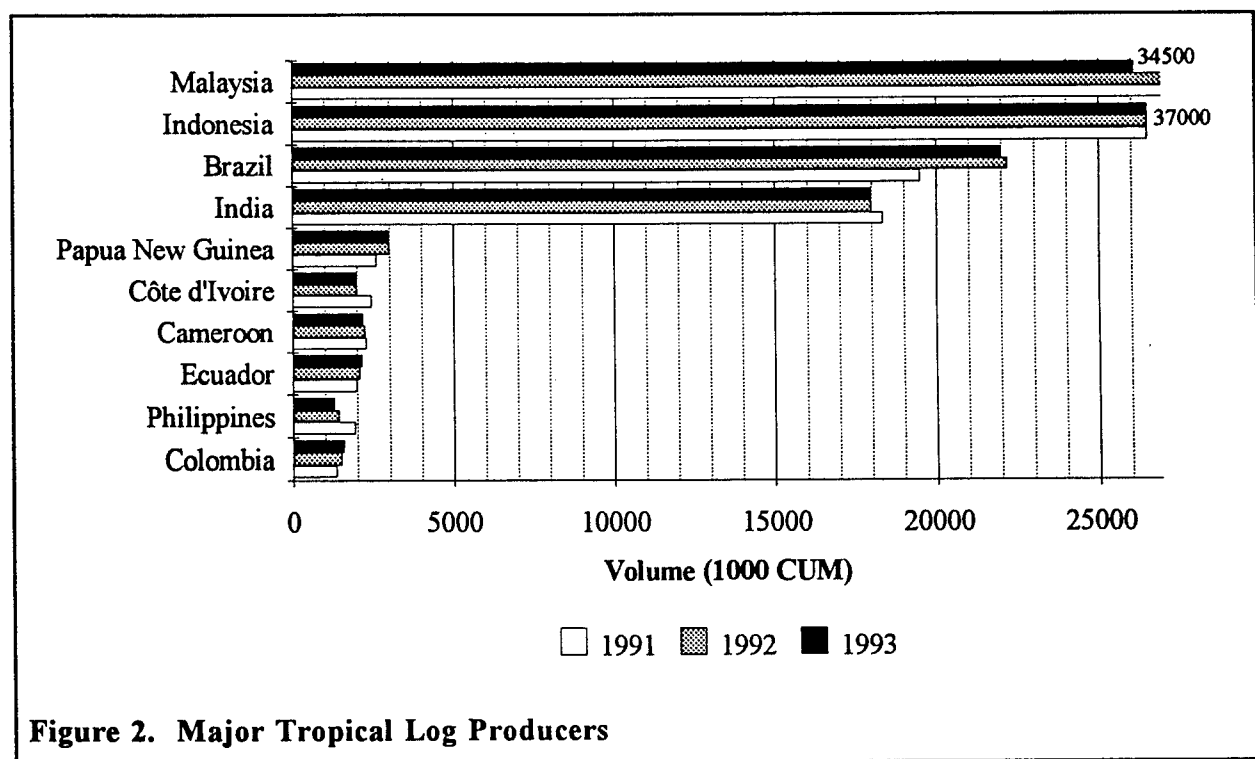
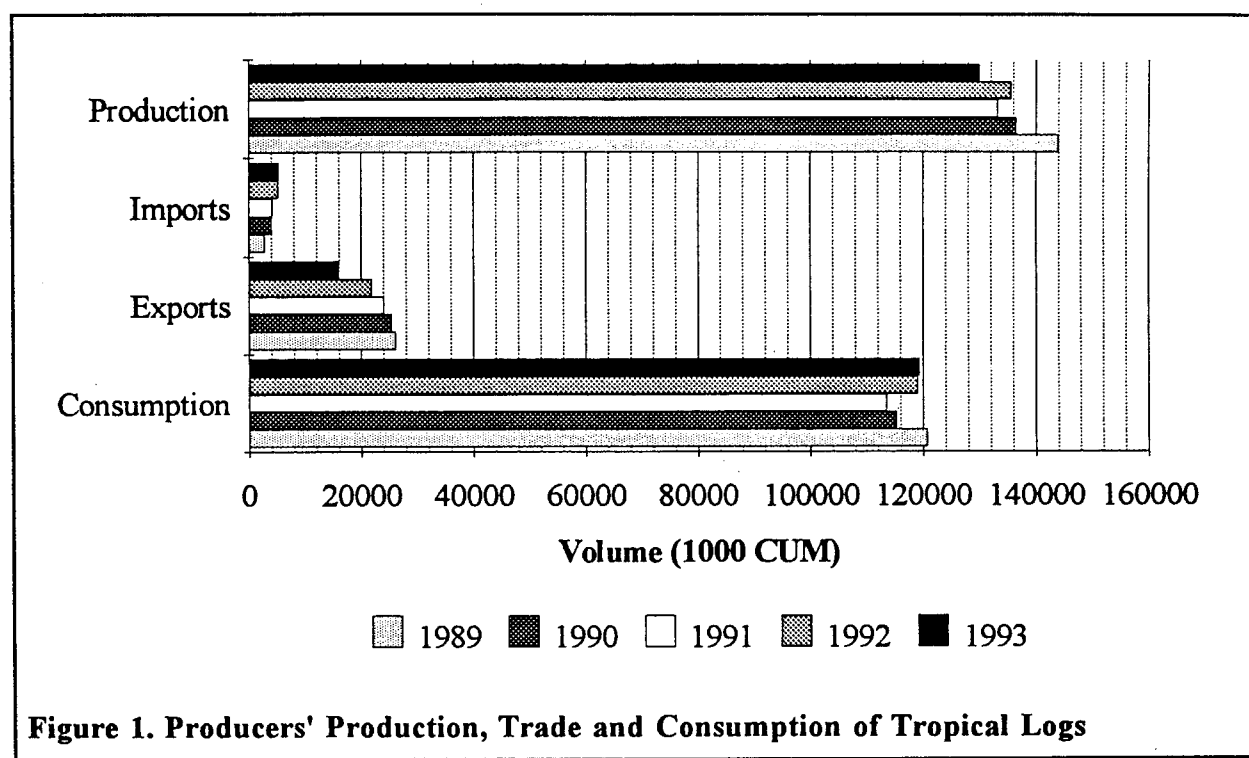


Table 5. Forest Industry Structure in ITTO Producer Countries in 1991

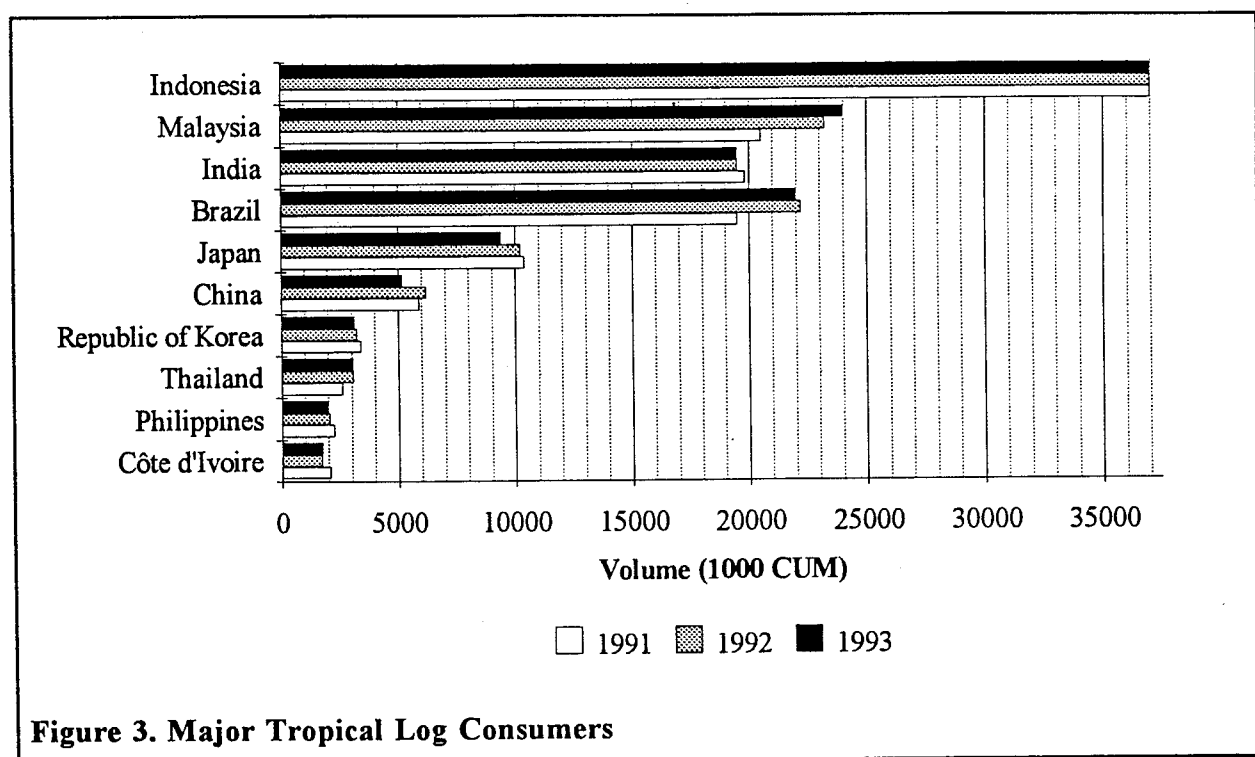
Country	Logging		Sawmills				Veneer Mills				Plywood Mills				Others		(4) Total
	(1)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(4)	
Cameroon	82		56	1600	35		2	95	45		3	100 <sup>1</sup>	40		1	8500 <sup>1</sup>	
Congo	27	4200 <sup>1</sup>	7	180	38	200 <sup>1</sup>	4	92	40	95 <sup>1</sup>	1	10		23 <sup>1</sup>	1	5000 <sup>1</sup>	
Côte d'Ivoire	571		65	2			18	600			6				16	13325	
Gabon	25	13720	22	67		2200	1	12		80	3	102		900 <sup>1</sup>		17000 <sup>1</sup>	
Ghana	200	15500	100	165	47		14	94	52		9	52	49		60	75600	
Liberia	19		26				2				2					4000 <sup>1</sup>	
Togo	2	35	2	10		35										1000 <sup>1</sup>	
Zaire			197	750			8	85			17	125			2	25000 <sup>1</sup>	
Africa	926	33455	475	2774	36*	2435	49	978	46*	175	41	289	43*	923	80	149425	
Indonesia	578		301	4025							120	8950			109	1162200 <sup>1</sup>	
Malaysia	262	87183	1100	10918	45	65257	99*	2046	60	26546*	17	600	50	7200	20	23200	
P.N.G.	40		35	50	45	12000 <sup>a</sup>					1	25	40	450	1	450	
Philippines	81	54200	125	1083	60	10070	14	468*		9200*	42				26	35000*	
Thailand	0	0	682	5500	50	14560	15	289		3649	23	166	42	6285	4	430	
Asia-Pacific	961	141383	2243	10658	47*	101887	128	2803	60*	39395	203	9741	48*	13935	160	59080	
Bolivia	271	25000														25000	
Brazil*		230000	3900			90000	130			5300	340			25000		350300	
Colombia			137	1135	45		8	13	50		7	87				5900	
Ecuador		983	265	1650 <sup>1</sup>	40	2467	1	15 <sup>1</sup>		64	8	120 <sup>1</sup>		1932	6270	11715	
Guyana	390	8095	81	170		2940					1			170		11200	
Honduras			87			7757					2			271	3000	11000	
Panama			41	194		160					4	24		248		2000 <sup>1</sup>	
Peru	1112	74500	456	892	52	9120	5	5	53	250	7	105	43	980	1000	87000	
Latin America	1773	338578	4967	2391	47*	112444	144	18	51*	5614	369	216	43*	28601	10270	505115*	
ITTO	3660	513416	7685	26741	46*	216766	321	3799	56*	45184	613	10246	44*	43459	240	69350	
																5927485	

(1) Number of enterprises. (2) Installed capacity in 1000 m<sup>3</sup>. (3) Average conversion rate in percent. (4) Number of employees.

\* - Unofficial data. a) Capacity weighted average. b) Including estimated 3800000 employees in India and 1000 in Trinidad and Tobago. The figures were estimated from responses to



Two ITTO consuming countries possess significant tropical timber resources: Australia and China. Production from these sources for 1991 was estimated at almost 750 000 m<sup>3</sup>, approximately equally distributed between the two countries (Australia's production is estimated based on reported 1991 production of tropical sawnwood). Log production from these areas is relatively small, consumed almost entirely domestically, and (especially for Australia) decreasing steadily.



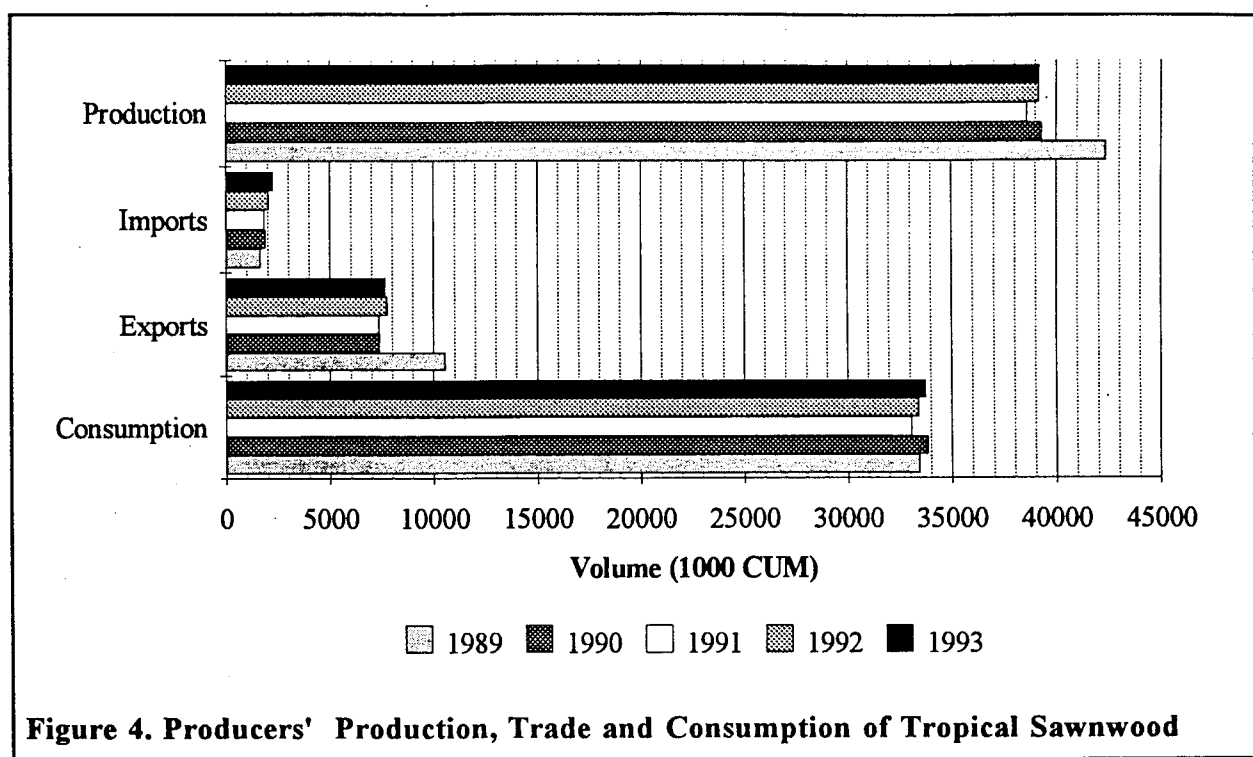
**Figure 3. Major Tropical Log Consumers**

The regional breakdown of tropical log production is given in Appendix 1; the Asia-Pacific region produced 75 percent of ITTO members' tropical hardwood logs in 1991 (99.9 million m<sup>3</sup>), up by 3 percent from 1990. Asia's share of ITTO log production will fall back to 72 percent by 1993, as Malaysian production drops dramatically. Africa's share of production will remain at 6-7 percent over the period, with Latin American production growing from 18 to 21 percent (led by increases in Brazil and Colombia). These trends will likely continue to the turn of the century and beyond, as PNG is the only Asian member with the potential to substantially increase log production and this potential is outstripped by that of Cameroon and Zaire in Africa and Brazil and Colombia in South America.

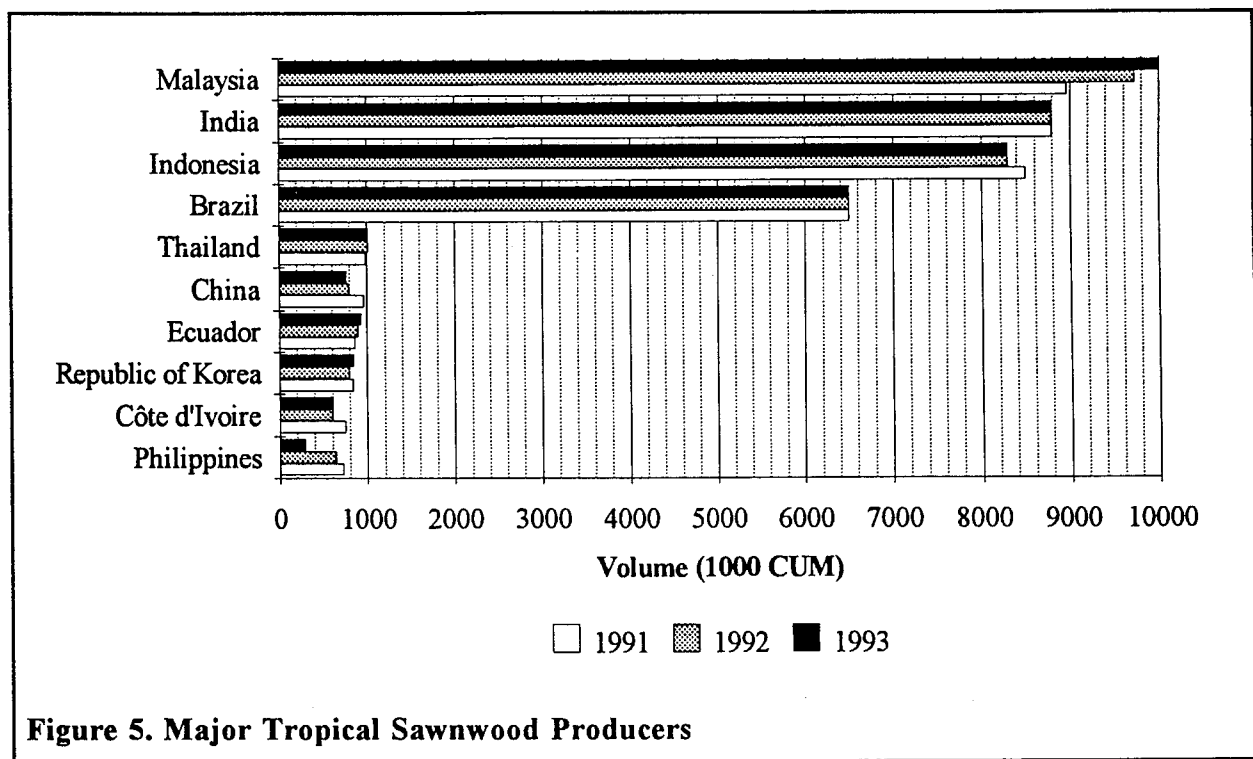
Figure 3 shows that tropical log consumption is stable or increasing in all major producing countries, and stable or decreasing in major log importing countries. This trend, identified and discussed in previous Reviews, will accelerate as tropical log supplies tighten and as increased processing capacity comes on line in producing countries. Rapid population growth in Africa (from 12 to almost 25 percent of the world total over the next 150 years according to the World Bank), and economic growth in Asia, will continue to drive domestic demand upwards. The figures in Appendix 1 show that apparent domestic log consumption decreased in Africa and Latin America in 1991 due to decreases in production. The recovery in demand and production predicted through 1993 will translate into corresponding increases in consumption during this period. Note that in this and all other charts, figures for China include those for Taiwan Province of China unless otherwise specified.

### Sawnwood

Production of sawnwood in ITTO producing countries totalled 38 631 000 m<sup>3</sup> in 1991, 84 percent of sawn hardwood produced in all tropical countries. This figure represents a 2 percent decrease from 1990 production due to the decrease in log availability discussed above. Figure 4 shows the effect of this reported decrease on production and consumption trends for all producers, as well as trade trends. Figure 5 shows the major ITTO producers of tropical sawnwood in 1991.



**Figure 4. Producers' Production, Trade and Consumption of Tropical Sawnwood**



**Figure 5. Major Tropical Sawnwood Producers**

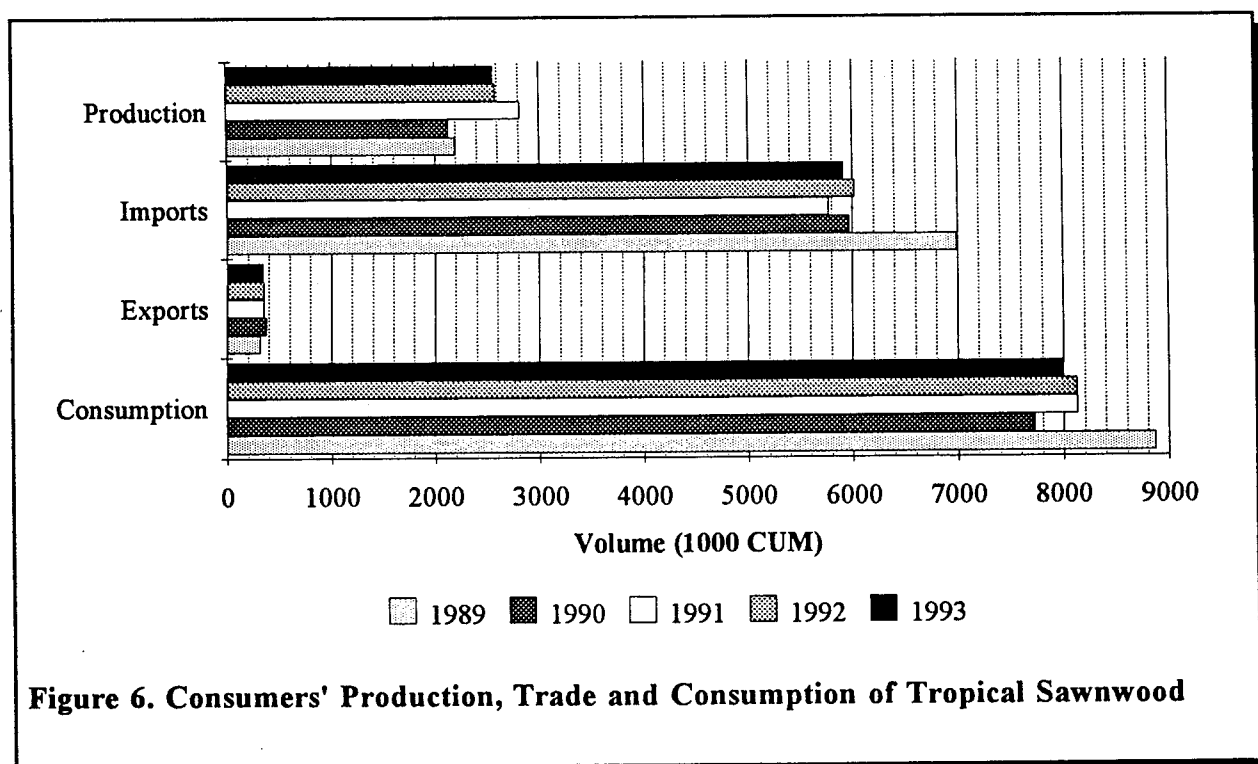
The aggregate figures for tropical log and sawnwood production and consumption should be viewed with some caution. Indonesia's official statistics do not account for timber from conversion forests, and figures have been estimated based on personal contacts and other sources. In addition, the estimates for India, which has never submitted production statistics to ITTO, are based on figures from other sources which vary widely.

Malaysia remains the major ITTO producer of tropical sawnwood, with production expected to grow from just under 9 million m<sup>3</sup> in 1991 to almost 10 million m<sup>3</sup> in 1993. Production in most

other countries will remain reasonably stable. Ghana, Peru and PNG are all producing between 300 000 m<sup>3</sup> and 500 000 m<sup>3</sup> of tropical sawnwood per year, just below production levels for the countries included in Figure 5. Both Thailand and the Philippines are producing significant quantities of sawnwood from imported tropical logs.

The Asian region accounted for over 70 percent of sawnwood production in producer countries in 1991, with this proportion predicted to remain steady through 1993. Following the 1990-91 drop in production discussed above, consumption of tropical sawnwood by ITTO producers will grow steadily through 1993 (Figure 4). This aggregate growth in consumption arises from increased Asian production and demand; Africa and Latin America will experience decreasing domestic consumption through 1993 as aggregate production is predicted to remain stable while export levels grow (see Appendix 1).

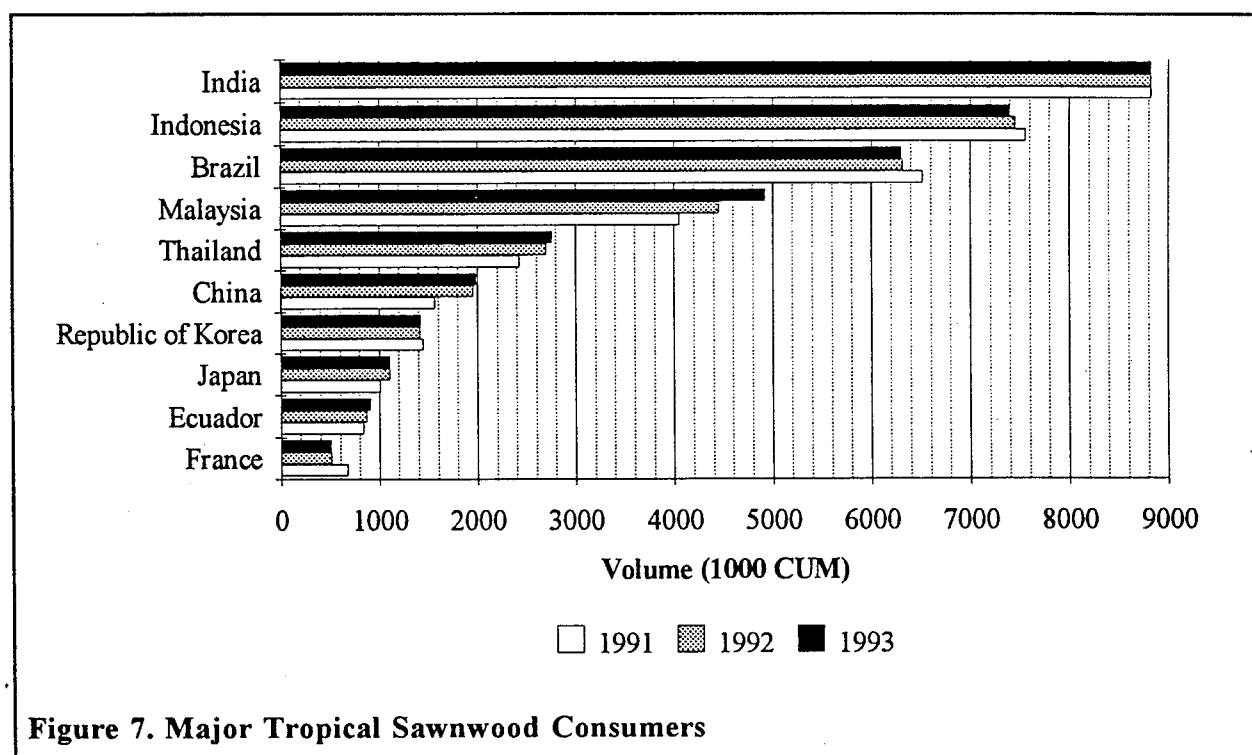
Consuming countries produced approximately 2.8 million m<sup>3</sup> of tropical sawnwood from imported logs in 1991 (Figure 6), up over 30 percent from 1990 levels. Production levels increased sharply in Taiwan Province of China in 1991, accounting for virtually all of this increase. Production in other consuming countries has been relatively stable since 1989, and is projected to remain so through 1993. Consumption of tropical sawnwood by most ITTO consumers is declining, however, as imports decrease in most major markets (see following chapter). Figure 7 shows



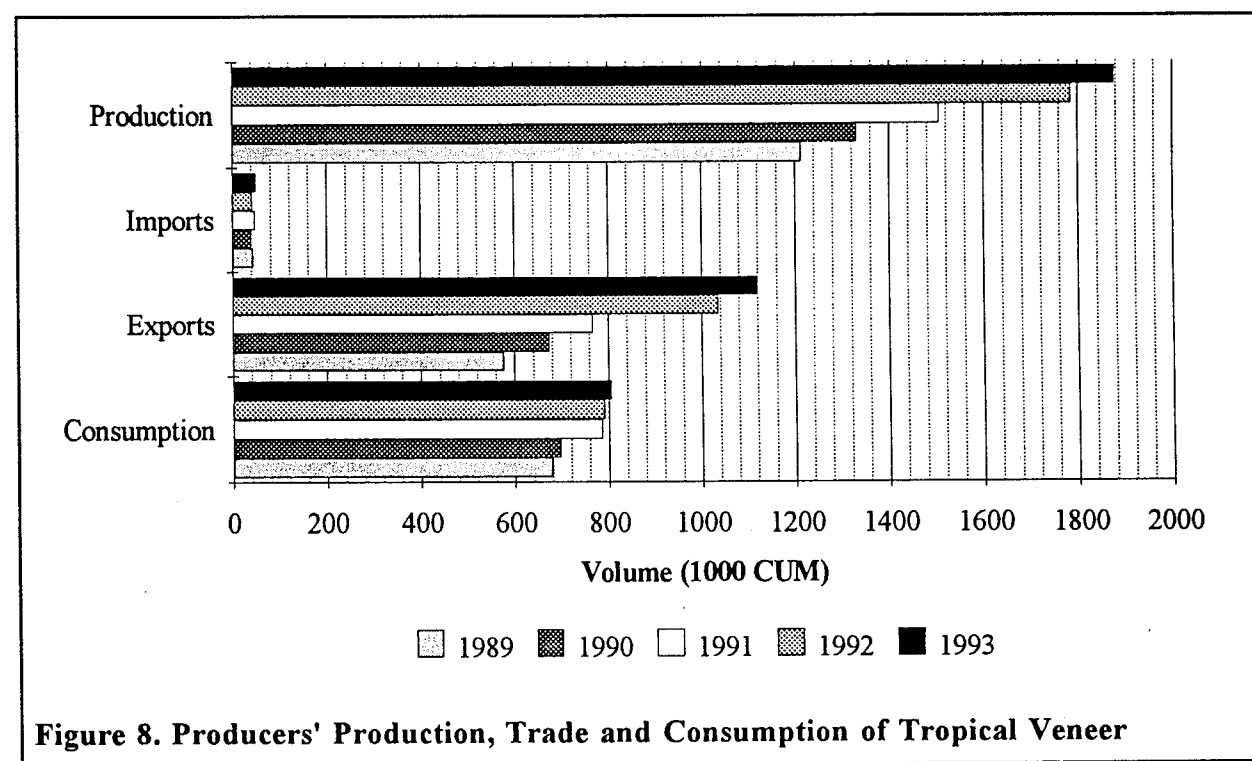
ITTO's major tropical sawnwood consumers, considering all members. The top five "consumers" are also producers and accounted for over two-thirds of ITTO members' consumption of tropical sawnwood in 1991. Korea, Japan and China (including Taiwan Province of China) are the major non-tropical consumers of tropical sawnwood.

### Veneer

Production of veneer in ITTO producing countries totalled 1 507 000 m<sup>3</sup> in 1991, 71 percent of total veneer produced in tropical countries globally, and 29 percent of global veneer production. These production figures do not include veneer used in domestic plywood production and

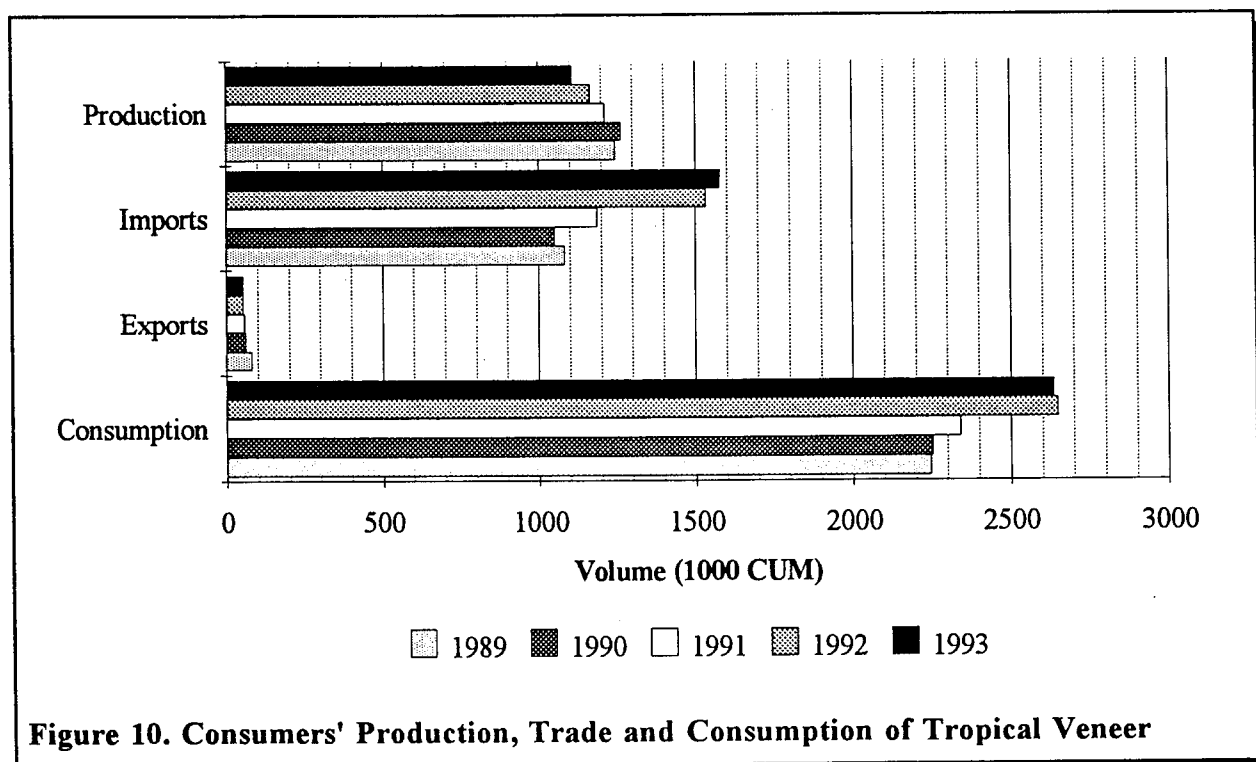
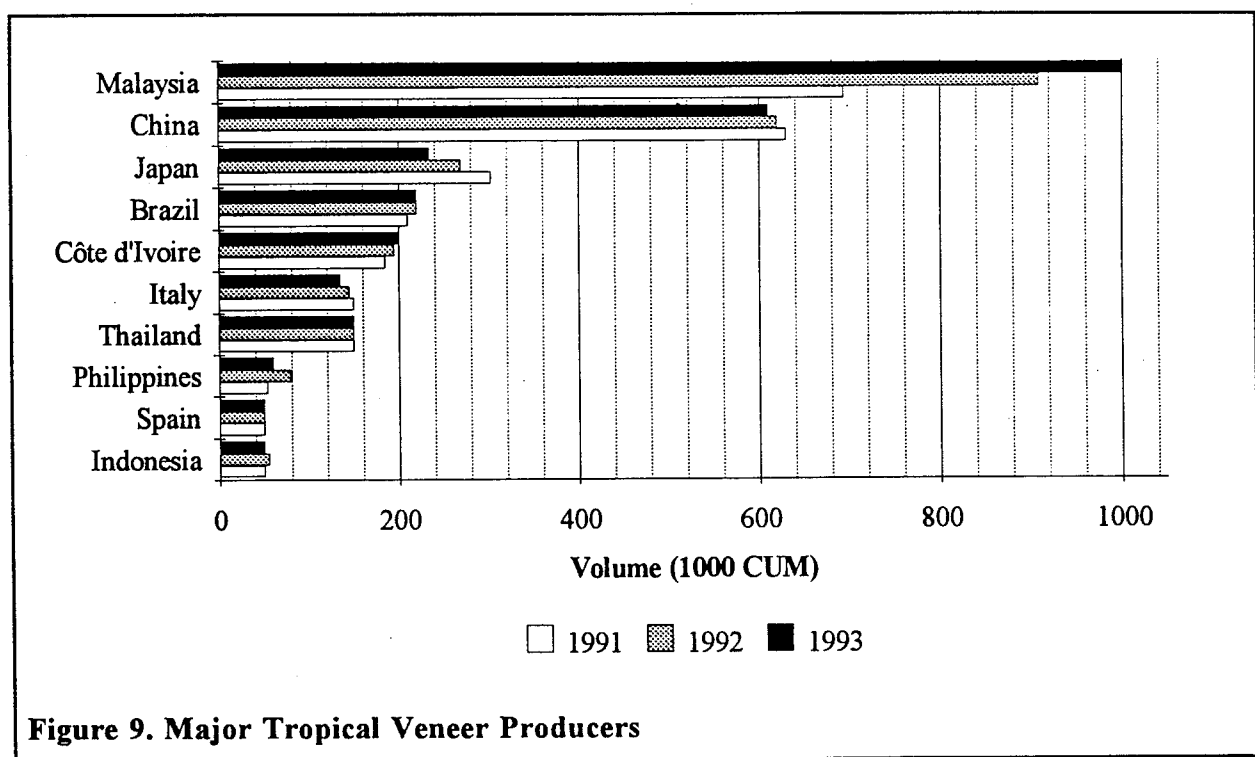


**Figure 7. Major Tropical Sawnwood Consumers**



**Figure 8. Producers' Production, Trade and Consumption of Tropical Veneer**

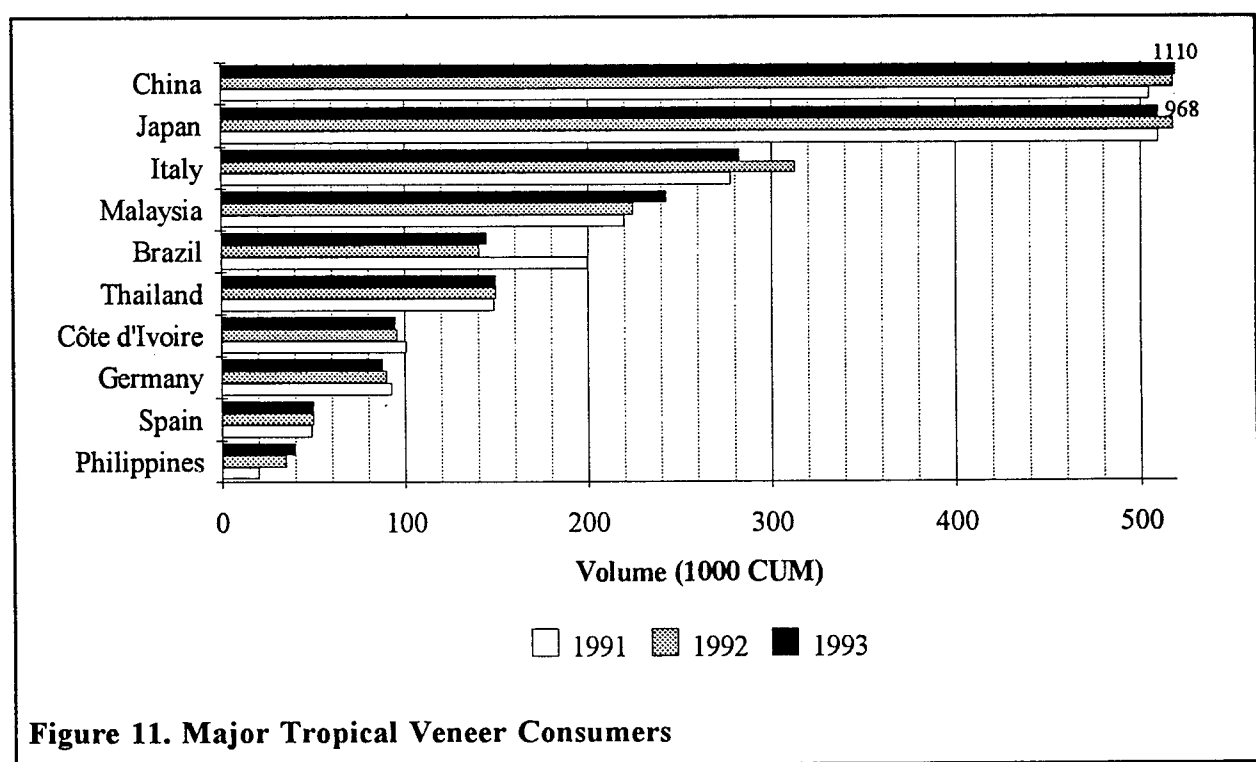
therefore represent only the production of veneer intended to be traded as such. Veneer production increased by almost 13 percent from the 1990 level, with the increase due totally to increased Malaysian production as shown in Appendix 1. Malaysia's veneer production will continue to rise through 1993 as new and existing mills reach capacity. Figure 8 shows the increasing trend in production and exports of veneer by ITTO producer countries, with the growth almost entirely due to Malaysian expansion. Consumption of veneer in the furniture and other industries of producing countries has risen steadily from 680 000 m<sup>3</sup> in 1989 to a predicted level of 807 000 m<sup>3</sup> in 1993.



The Asian region produced 952 000 m<sup>3</sup> of veneer for trade in 1991, Latin America produced 253 000 m<sup>3</sup> and Africa produced 302 000 m<sup>3</sup>. Aggregate production in all regions is expected to expand in 1992-93. The ten largest ITTO veneer producers in 1991-93 are shown in Figure 9 - Malaysia's increasingly dominant role is clear from this chart. Equally clear is the falling production in Japan, where the veneer and plywood industries are shrinking together with log availability.

ITTO consuming countries produced about 1 213 000 m<sup>3</sup> of veneer from imported logs in 1991. As for sawnwood, production in consumer countries will fall in 1992-93 as logs for peeling and slicing become scarce (Figure 10). However, imports of veneer continue to drive consumption upwards in non-tropical countries. Aggregate consumption topped 2.3 million m<sup>3</sup> in 1991 and will rise to over 2.6 million m<sup>3</sup> in 1992-93. This rapid increase is due to the efforts of the tropical plywood industries in consuming countries (Japan in particular) to adapt to decreasing tropical log supplies.

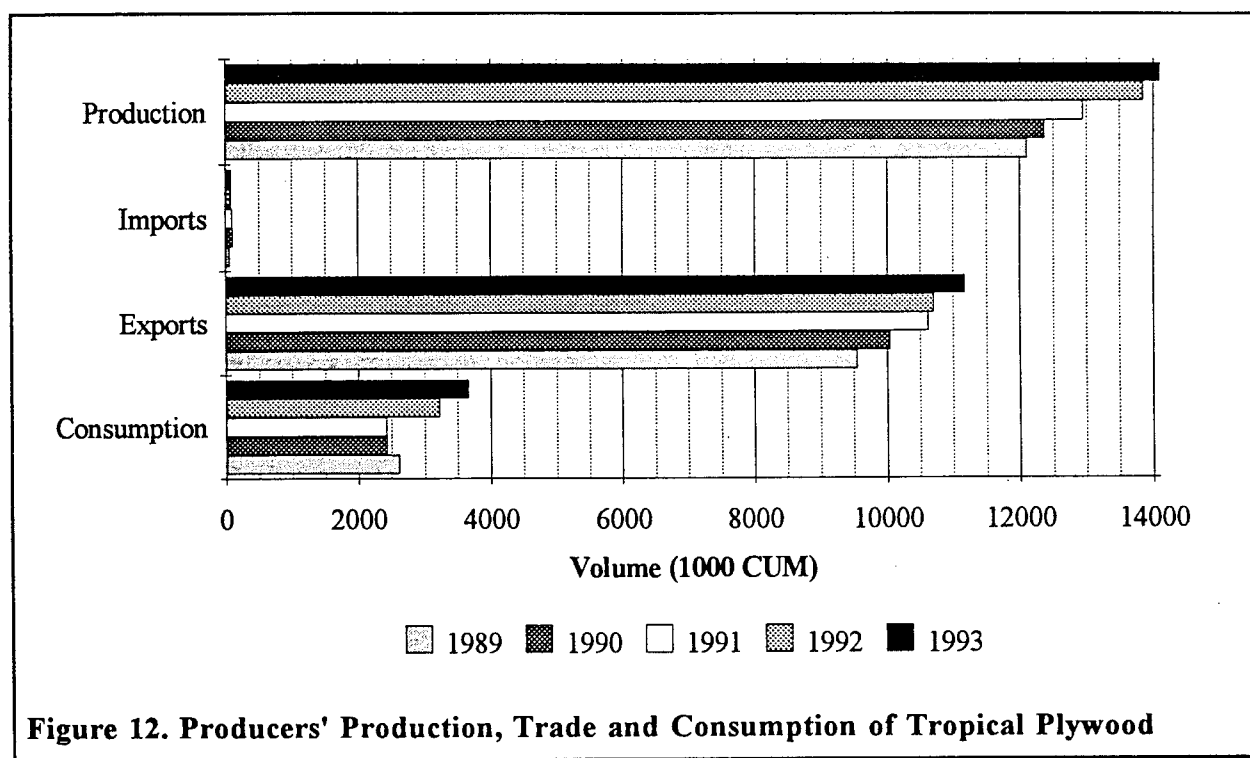
Production of veneer in consumer countries was split between Taiwan Province of China (51 percent), Japan (25 percent) and the EEC (23 percent). Japan and Taiwan Province of China consume all of the veneer they produce, however, while more than 20 percent of that produced in Europe is re-exported to other European countries (see following chapter). Figure 11 shows that both Japan and China (mainly Taiwan Province of China) consume over 3 times as much tropical veneer as Italy, the largest European market. The chart also shows that Malaysia, Thailand, Brazil and Côte d'Ivoire consume substantial quantities of veneer domestically.



## Plywood

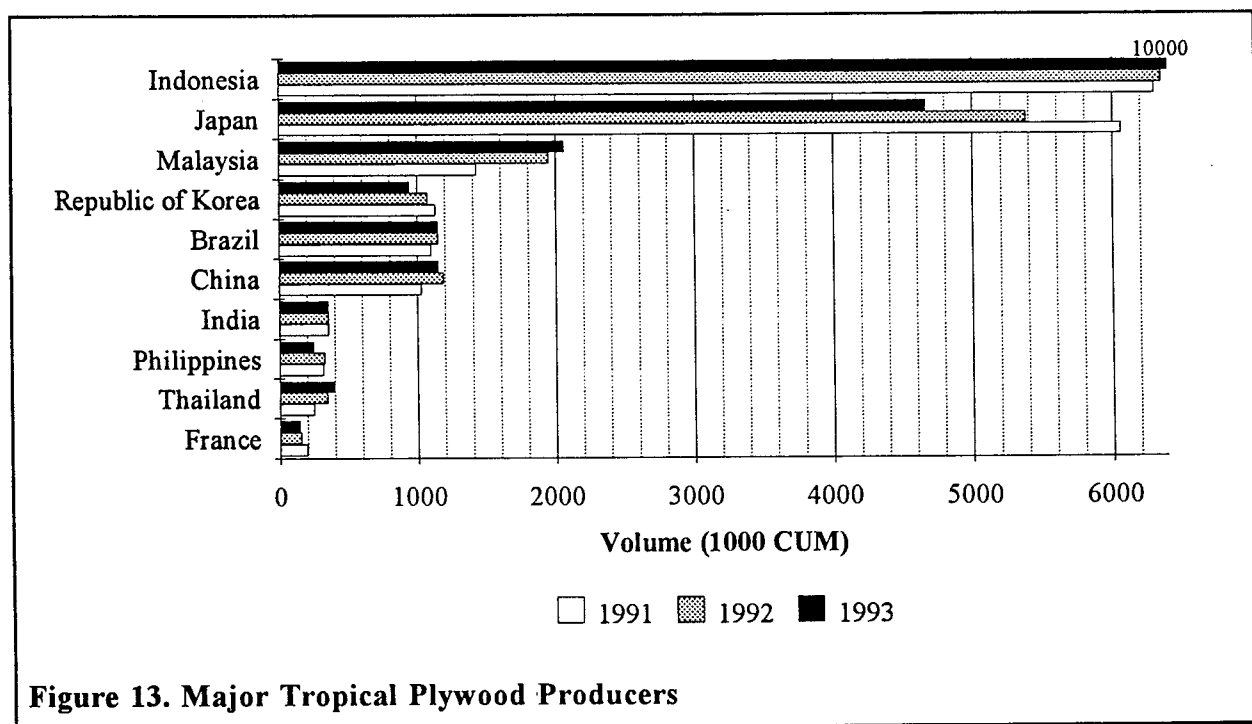
Production of plywood in ITTO producing countries totalled 12 949 000 m<sup>3</sup> in 1991, 89 percent of plywood production in all tropical countries and 27 percent of global plywood production. Plywood production increased by almost 5 percent from the 1990 level, with the increase due to rising Malaysian and Indonesian production as shown in Appendix 1. Indonesian growth in production is slowing after the spectacular increases (averaging almost 1 million m<sup>3</sup> per year) throughout the 1980's. The Indonesian plywood industry is now operating at close to capacity and no new mills are planned due to limits on the annual allowable cut. Malaysia's plywood production, in contrast, will continue to rise through 1993 to exceed 2 million m<sup>3</sup> per year, a rise of 100 percent from 1989 production. Malaysia plans to divert a substantial part of current log exports from Sabah and Sarawak to new and existing plywood mills. Figure 12 shows the increasing trend in production and exports of plywood by ITTO producer countries. Aggregate consumption of plywood in producing countries fell slightly in 1991 due primarily to production





decreases reported by Brazil and Ecuador accompanying slow economic growth. Consumption is predicted to grow rapidly through 1993, driven by rapid growth in Asian economies.

The Asian region produced 11 375 000 m<sup>3</sup> of plywood for trade in 1991, Latin America produced 1 322 000 m<sup>3</sup> and Africa produced 252 000 m<sup>3</sup>. The three regions utilized 11, 71 and 69 percent of their production domestically, respectively. Asia's low consumption/production ratio is due to the export led industries of Malaysia and Indonesia. The proportion of aggregate production utilized domestically for all other products and regions exceeded 40 percent in 1991.



The ten largest ITTO plywood producers in 1991-93 are shown in Figure 13 - Indonesia's dominant role is clear from this chart. As noted for other products, plywood production in major tropical countries is stable or growing, while production in major "consuming" countries is falling. The decreases are particularly pronounced in Japan, which accounts for over 90 percent of the 1.5 million m<sup>3</sup> drop in plywood production in ITTO consuming countries between 1991 and 1993. Figure 14 shows the aggregate decreasing production trend in these countries and the resulting decrease in consumption.

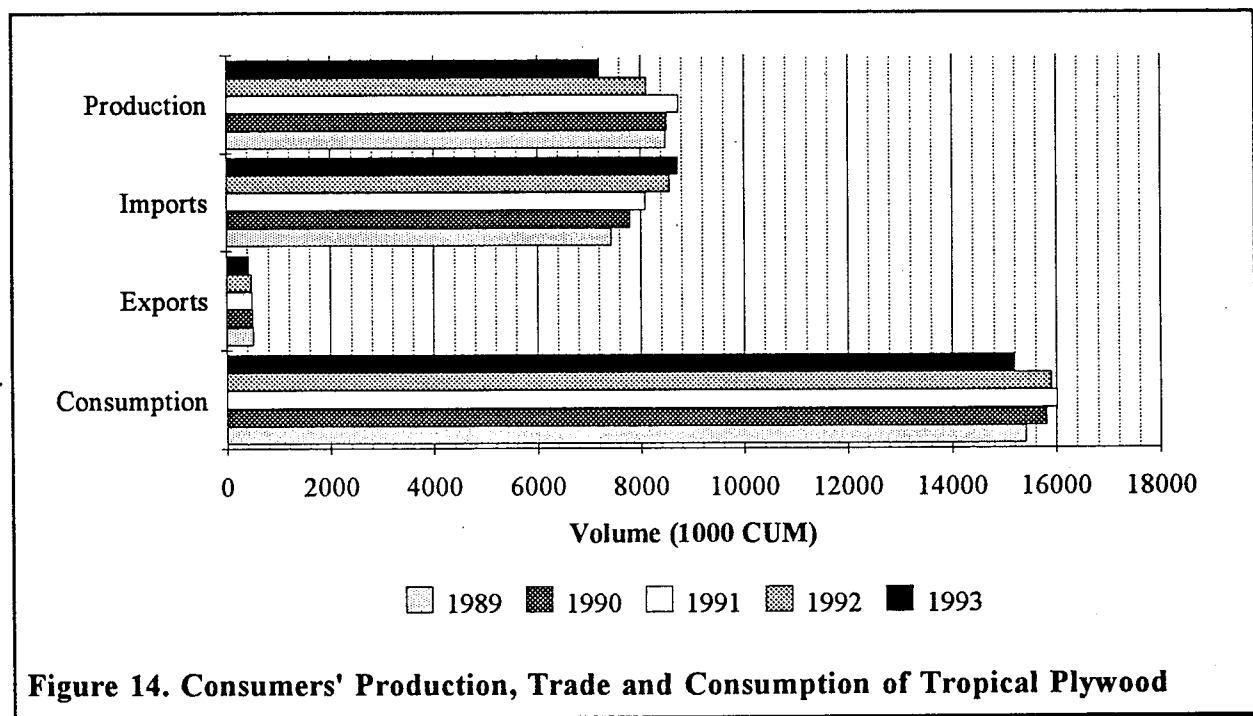


Figure 14. Consumers' Production, Trade and Consumption of Tropical Plywood

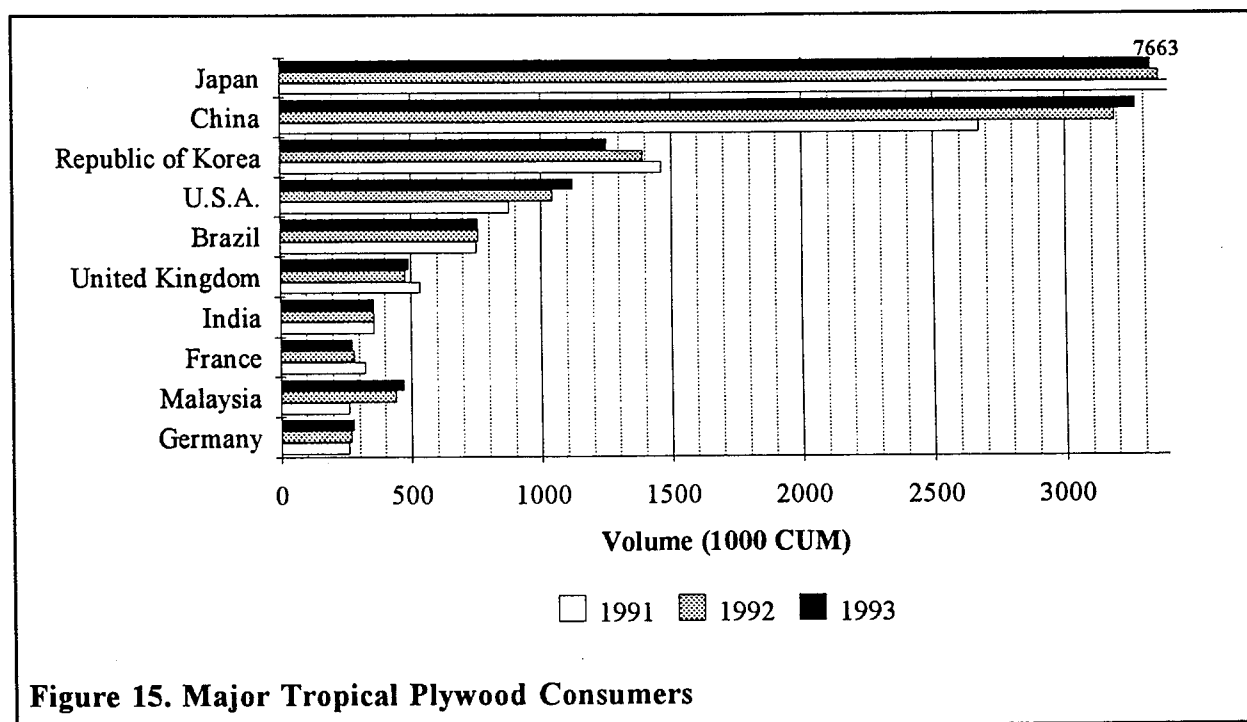


Figure 15. Major Tropical Plywood Consumers

ITTO consuming countries produced almost 8.8 million m<sup>3</sup> of plywood from imported logs and/or veneer in 1991, a 3 percent increase from figures for the previous two years. Unlike veneer, however, plywood imports will not keep pace with the magnitude of predicted production decreases through 1993. The resulting decrease in aggregate consumption is shown in Figure 14. Aggregate consumption totalled 16 million m<sup>3</sup> in 1991, falling to 15.2 million m<sup>3</sup> in 1993. Tropical plywood consumption in traditional markets may continue to decrease in future as substitutes and more efficient uses are developed. As mentioned in last year's Review, Japanese plywood manufacturers are increasing the proportion of softwoods used in plywood production, as well as investigating lamination and other techniques to allow re-use of concrete form-ply. Japan remains by far the largest consumer of tropical plywood, however, as shown in Figure 15. Brazil, Malaysia and India are major "producing" country plywood consumers, with domestic consumption in Malaysia predicted to grow rapidly as a result of increased production and economic development through 1993. The Netherlands is also a substantial tropical plywood consumer, with consumption averaging just over 250 000 m<sup>3</sup> per year, just below that of Germany.

## Markets, Trade and Prices

This chapter focuses on developments in the markets for and trade of tropical forest products as well as an analysis of general price trends. The first section presents a brief overview of relevant market developments in 1991-92, based on country market reports submitted by members, IMF and OECD forecasts and a review of other available literature. The following sections report on the export, import and prices of each of the four primary products covered by the ITTA. Detailed trade statistics are presented in Appendices 1, 2 and 3, with data sources given in the notes preceding the Appendices. Price trends for logs and sawnwood were prepared from the ITTO/ITC Market News Service (MNS) database. Average 1991-92 price levels are also presented for these products and for veneer and plywood (prices of which are not yet included in the MNS database) based on various sources identified in the text.

### Market Developments

Economic performance of major markets for tropical timber was mixed during the 1991-92 period. The IMF reported that global output (real GDP) grew by 1.4 percent in 1992, after contracting by 0.3 percent in 1991. The IMF predicts growth of 3.6 percent in the world economy in 1993, although this projection does not incorporate the contracting economy of the former USSR, which shrank by 17 percent in both 1991 and 1992. World trade volume grew by 5 percent in 1992, up from 3.3 percent growth in 1991. World trade is projected to grow a further 6.3 percent in 1993, but this growth will depend to some extent on the successful conclusion of the Uruguay Round.

Interest rates and exchange rates fluctuated markedly in many major markets, affecting consumer confidence, construction activity and demand in general. Most major European currencies fell in value against the U.S. dollar in 1992, at least partially due to lower interest rates in the U.S. In late 1992 a combination of speculation and interest rate differentials between European countries led to re-alignment of currencies in the Exchange Rate Mechanism (ERM) and the withdrawal of sterling. The Japanese yen decreased in value against the U.S. dollar during the first quarter of 1992, but strengthened to close the year at a high of ¥122 to the dollar. Currency fluctuations are expected to continue throughout 1993 due to increasingly divergent economic performance and policies in the major markets.

Western European economies performed poorly in aggregate in 1992, with growth in Gross Domestic Product (GDP) of only 1 percent. Growth may be even lower in 1993, as major European markets cope with recession. In Germany, the costs of reunification are reflected in growth projections of 0-1 percent in 1993. The U.K. economy, in the grips of its longest recession since the 1930s, will likely grow by only 1.3 percent in 1993. In France, the OECD predicts growth in GDP of 1.6 percent in 1993. Slower growth translates into increased unemployment in many European countries and decreased activity in construction sectors and housing starts. Continuing uncertainty over ratification of the Maastricht treaty and the implementation of monetary union will also contribute to depressed growth in Europe during 1993. The poor prospects for growth in most countries, together with increasingly stringent environmental policies, will continue to erode the European market for tropical timbers throughout 1993. The only positive prospect for tropical timber exports to Europe is the rapidly increasing price of Canadian and U.S. softwood timber.

In North America, the U.S. economy grew by 1.75 percent in 1992, after contracting by 0.7 percent in 1991. The OECD expects GDP to expand by 2.5 percent in 1993 and a further 3 percent in 1994. Expansion in the U.S. will be passed on to its major trading partner, Canada.

Both countries experienced increased housing starts in 1992, recovering from substantial decreases the previous year. U.S. housing starts, which slumped to a 50 year low of 1.05 million units in 1991, are expected to recover to 1.3 million units in 1993. Negotiations to establish the North America Free Trade Area (NAFTA), grouping Canada, the U.S. and Mexico, were concluded in 1992. The regional free trade treaty, which should further boost long-term regional growth, is expected to be approved by the three participating governments in 1993.

Protection of the northern spotted owl since 1990 has resulted in harvest reductions of about 80 percent from average 1980s levels in government owned forests of the U.S. Pacific North-west. As environmental pressures in Canada have also curtailed production, and as economic recovery (and increased housing starts) boost demand for wood, softwood prices have begun to rise dramatically. Prices for standard construction timber rose by almost 50 percent in the last quarter of 1992, and have continued to climb in early 1993. Despite windfall profits, timber suppliers are worried that builders will start to look for non-wood substitutes as timber becomes increasingly uncompetitive, hurting long-term market prospects. Decreasing wood supplies in the Pacific North-west have had major social impacts as well: over 130 mills in the region have closed in 1991-92. A summit meeting has been proposed for early 1993 by the U.S. government to try to find a workable compromise between jobs and conservation in the region. While market prospects for tropical timbers in the U.S. are unlikely to be affected, the diversion of Canadian softwood timbers to the increasingly lucrative U.S. market may create opportunities in Europe for tropical timber exporters during 1993.

The Japanese economy continued to grow faster than other developed economies in 1992, although the gap is shrinking. Japan's GDP grew by only 1.8 percent in 1992, the smallest increase since 1974 (when the economy last shrank). The unsustainable growth of around 5 percent a year in 1987-91, driven by rapid monetary growth, record low interest rates, and high stock and property prices, has given way to recession. Consumer spending and housing starts decreased during 1992, with further decreases forecast for 1993. The Real Estate Institute of Japan predicts fiscal 1993 housing starts of 1.41 million units, down from 1.43 million units in fiscal 1992. The government announced an economic stimulus package worth ¥10.7 trillion in 1992, but consumer debt and decreasing property prices will continue to depress growth in the world's second largest economy. Taking into account the proposed stimulus package, the OECD predicts real growth of 2.2 percent in Japanese GDP for 1993. The slowdown in the world's largest market for tropical timber will have global implications for the trade.

In contrast to the traditional developed markets, many developing or newly industrialized Asian economies will enjoy high growth in 1993. This development will also have a profound impact on regional trading patterns for tropical timber. China's growth is most spectacular, with real GDP predicted to rise by 12.2 percent in 1993 following an 11.3 percent increase in 1992. The market based reforms implemented by the government of China have given rise to this rapid expansion, which is focused on the southern provinces. Accompanying this growth is higher inflation, however, with consumer prices expected to rise by 12 percent in 1993. Malaysia, Thailand and Indonesia are all expected to grow by 7-8 percent in 1993, following equally strong growth rates in 1992. Inflation is predicted to remain relatively low in these countries (from 3.6 percent in Malaysia to 5.9 percent in Indonesia), leading to good prospects for sustained growth. Domestic markets for timber products will grow and become increasingly sophisticated in these countries as their economies expand.

## Trade

The direction of trade tables contained in Appendix 2 were derived from responses to the 1992 Forecasting and Statistical Enquiry and other sources listed in the notes accompanying the

Appendices. Most countries provided information on volumes traded with each trading partner, but value figures (if given) were not generally broken down by individual partners. Total export values by product for those countries which did report are summarized in Appendix 3. As data availability improves, trade flows by value will be summarized in future Reviews.

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. If available, other data sources were used for these cases. Entries in the tables of Appendix 2 consist of exporters' reports and importers' reports (italicized). The discrepancies which are illustrated by many of these entries are due to a number of factors. 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 (some countries report weights and/or surface area instead of volumes) can explain some discrepancies. Also, different scaling or measurement systems are sometimes used in different countries. 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, and (re-)exports of tropical timber from non-tropical countries may not be recognized as tropical by the importing country. 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. TRAFFIC, 1992). It is clear that if ITTO is to fulfil its mandate to monitor the trade in tropical timbers, major improvements in the collection and reporting of statistics are still required, in both producing and consuming countries. The following discussion on exports uses exporters reports unless stated otherwise; that on imports uses importers reports.

### Exports

The \$7.89 billion of exports reported by FAO for ITTO producers in 1991 amounts to over 50 percent of total global exports of non-coniferous saw/veneer logs and sawnwood, veneer and plywood (Table 1). 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

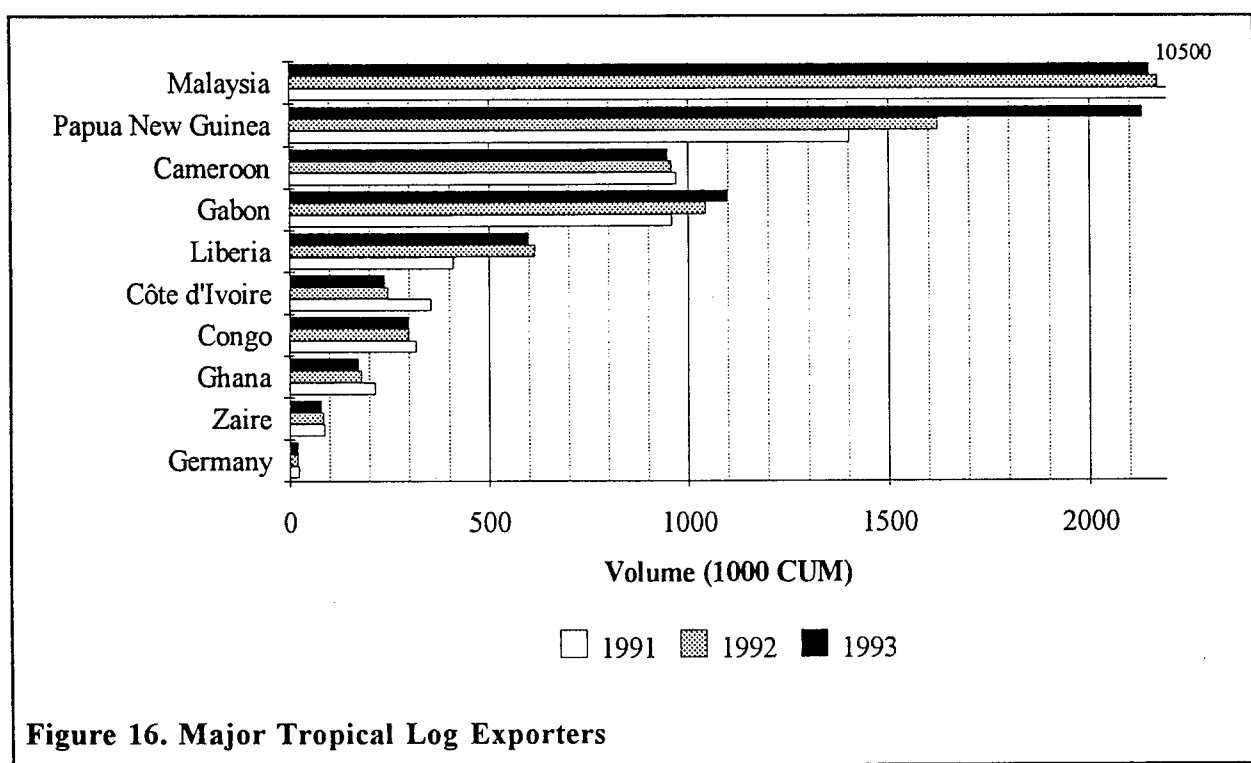
The composition of exports from the ITTO producing regions is shown in Table 6. The contribution of logs to total exports (in terms of both value and roundwood equivalent volume converted using FAO factors) has been steadily dropping. Only Africa continues to export a higher volume equivalent of logs than processed products, with logs making up 59 percent of total export volume in 1991. This proportion increases to 66 percent based on the projections for 1993 exports in Appendix 1. The Asia-Pacific region is replacing log exports with the export of processed products more quickly, spurred by Indonesian plywood exports and Malaysian exports of sawnwood, veneer and plywood. Asian log exports made up 37 percent of total export volume in 1991 but are expected to drop sharply to 25 percent of total exports in 1993. Total roundwood equivalent export volume as a percentage of production will increase slightly in Africa and Latin America over the period, while the proportion of Asia's log production which is ultimately exported will shrink slightly with decreasing log exports and increasing domestic demand.

Figure 16 shows the top ten ITTO tropical log exporters in 1991-93, ranked by 1991 export volume. Total ITTO producer member exports of 24.1 million m<sup>3</sup> (see Appendix 1) comprised 93 percent of global tropical hardwood log exports by volume and 90 percent by value (Table 2). Malaysia continues to dominate the trade in tropical logs, with the 19.3 million m<sup>3</sup> exported

in 1991 constituting 80 percent of ITTO producer member exports. Malaysia's log trade decreased in volume by 5 percent from 1990 levels, with a near halving of exports (to 10.5 million m<sup>3</sup>) expected by 1993. These reductions are due to sharply decreased exports from Sarawak and Sabah, which will fall from 15.7 and 3.6 million m<sup>3</sup> respectively in 1991 to projected levels of 10 and 0.5 million m<sup>3</sup> in 1993.

**Table 6. Composition of Exports by Region, 1991-93 (1000 m<sup>3</sup> rwe)**

Region	Log Production			Log Exports			Processed Exports			Total Exports		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Africa	8842	8914	9020	3320	3435	3443	2345	2433	2521	5665	5868	5964
Asia-Pacific	99943	99560	93880	20732	18429	12637	35316	36277	37182	56048	54709	49819
Latin America	24551	27367	27379	4	0	1	1690	2079	2139	1694	2079	2140
Total	133336	135841	130279	24056	21864	16081	39351	40789	41842	63407	62653	57923



**Figure 16. Major Tropical Log Exporters**

The reductions in Sarawak will bring the state in line with the recommendations of the ITTO Mission, which concluded that a sustainable level of production would be about 9.2 million m<sup>3</sup> per year from a PFE of 4.5 million ha. Log production in Sarawak will fall from 19.4 to 16.5 million m<sup>3</sup> by 1993, including production of about 8 million m<sup>3</sup> from conversion forests. Appendix 2 shows that Malaysia's major log customers are Japan, China (including Taiwan Province of China) and Republic of Korea. These three countries accounted for 89 percent of Malaysia's reported log export volume in 1991. Malaysia's log exports were worth over \$1.5 billion to the country in 1991 (Appendix 3).

Papua New Guinea is the second largest tropical log exporter, with 1991 exports of 1.4 million m<sup>3</sup>. Appendix 2 shows the bulk of PNG's log exports go to Japan and the Republic

of Korea. Exports from PNG grow rapidly to over 2 million m<sup>3</sup> in 1993 as Malaysian supplies grow tighter. The reported value of 1991 log exports from PNG was \$97 million.

The majority of the remainder of world tropical hardwood log exports comes from Africa, directed primarily to European markets. The seven African countries shown in Figure 16 account for all of Africa's (and 13.8 percent of ITTO producers') tropical log exports. Log exports will decline from most African countries through 1993. Indonesia replaced log export bans with levies in 1992, but their magnitude (\$500 to \$4500/m<sup>3</sup>) will continue to ensure that no logs are legally exported.

Re-exports of logs by consumers reached approximately 109 000 m<sup>3</sup> in 1991, 68 percent of which was accounted for by an inter-European trade which is almost equivalent in size to the total log exports of Zaire. Germany, France and the Netherlands were the major log re-exporters in 1991, selling tropical logs to each other and other EEC countries. Consumer countries did not in general provide detailed breakdowns of re-exports (value or destination). The magnitude of this trade is predicted to remain stable through 1993.

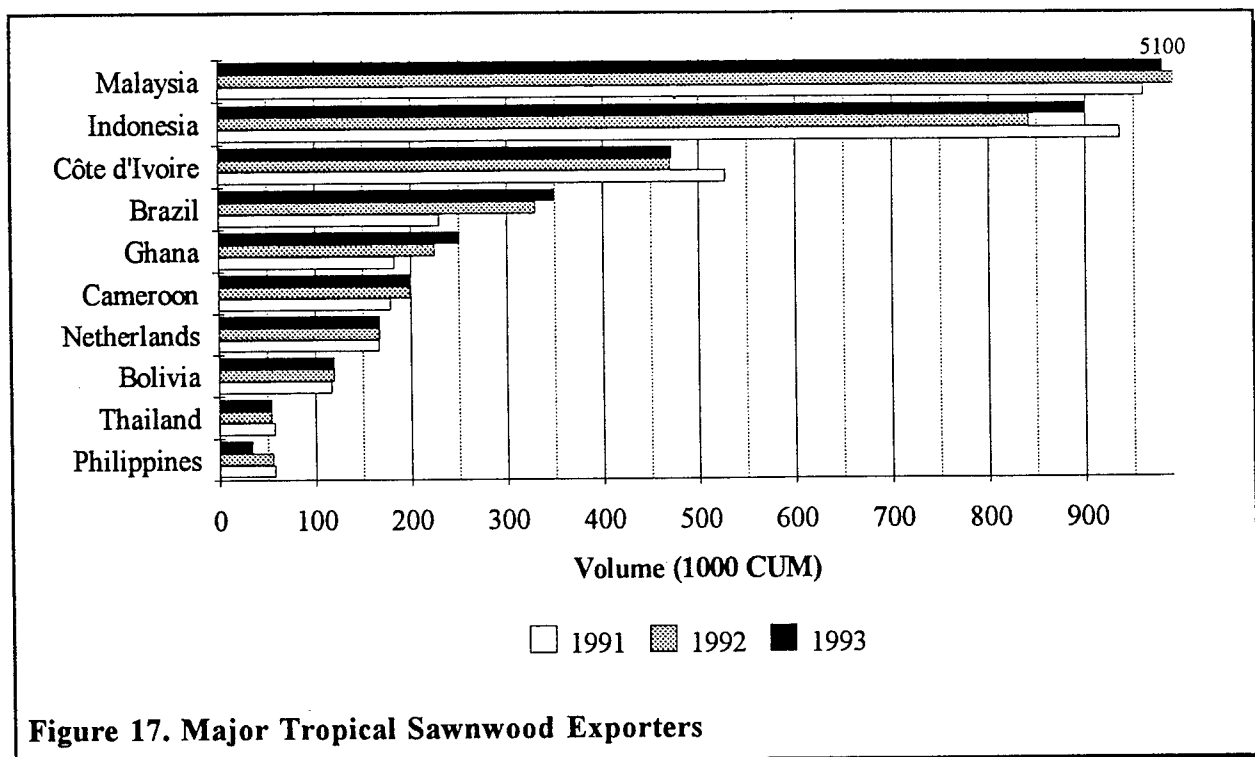
#### *Sawnwood*

Figure 17 shows the top ten ITTO tropical sawnwood exporters in 1991-93, ranked by 1991 export volume. Total ITTO producer exports of 7.4 million m<sup>3</sup> (see Appendix 1) comprised 84 percent of global tropical hardwood sawnwood exports by volume (86 percent by value - Table 2). Malaysia continues to dominate the trade in tropical sawnwood, with the 4.9 million m<sup>3</sup> exported in 1991 constituting 67 percent of total ITTO producing member exports. Malaysia's sawnwood trade increased marginally from 1990 levels, but is set to grow substantially in 1992-93, to over 5 million m<sup>3</sup> per year. Malaysian sawnwood exporters appear to have adjusted to the export levies imposed on 22 species in 1991-92. Peninsular Malaysia and Sabah accounted for 45 and 43 percent of Malaysian sawnwood exports in 1991 respectively, with Sarawak making up the remainder. Growth in sawnwood production and exports will be primarily based in Sarawak, however. Appendix 2 shows that Malaysia's major sawnwood customers are the EEC, Thailand, Japan, Korea and Taiwan Province of China. The total value of Malaysia's 1991 sawnwood exports was almost \$1.1 billion.

Indonesian exporters increased exports of sawnwood by two-thirds to 936 000 m<sup>3</sup> in 1991, as exporters avoided export levies by undertaking minimal machining of sawnwood. Exports should fall in 1992-93 as levies ranging from \$250 to \$2400/m<sup>3</sup> were imposed by the government on all sawnwood exports, including kiln dried S4S timber which had become the main Indonesian sawnwood export product. Indonesia provided only regional totals for trade flows with the exception of Japan, which absorbed about one-third of its sawnwood exports in 1991. Sawnwood exports from the Philippines fell to 54 000 m<sup>3</sup> in 1991, less than one-seventh of the volume exported just two years earlier. This is due to export bans imposed during 1990 which were in turn due to wood shortages. Both African and Latin American sawnwood exports will grow slowly through 1993.

Over 350 000 m<sup>3</sup> of tropical sawnwood was exported by ITTO consumers in 1991, primarily by countries in the EEC. EEC exports of tropical sawnwood (produced from imported logs) totalled 309 000 m<sup>3</sup> in 1991, with similar levels expected in 1992-93. This trade is almost equal to the 1991 sawnwood exports of all Latin American members. The Netherlands, now a larger tropical sawnwood exporter than many producing countries, was the main EEC sawnwood exporter. Appendix 2 shows that sawnwood re-exports are absorbed almost wholly within Europe.

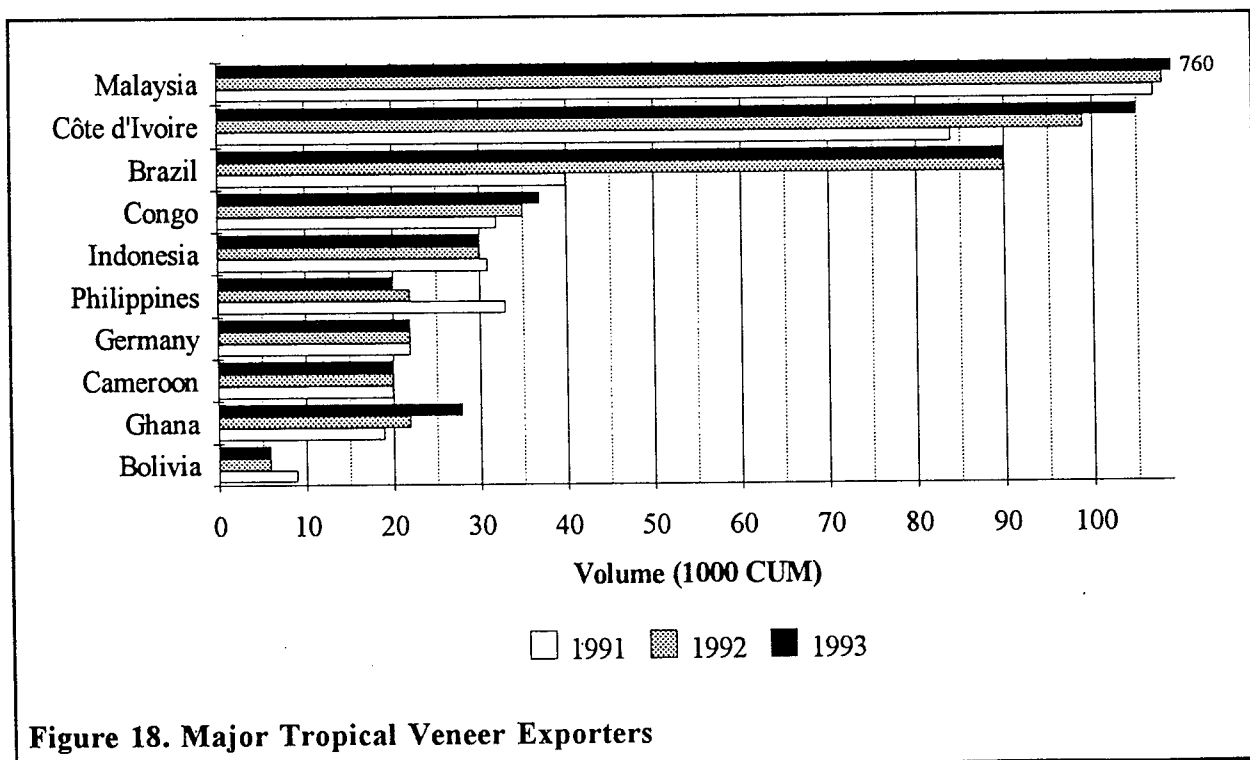




**Figure 17. Major Tropical Sawnwood Exporters**

#### Veneer

Figure 18 shows the top ten ITTO tropical veneer exporters in 1991-93, ranked in order of 1991 export volume. Total ITTO producing member exports of 768 000 m<sup>3</sup> (see Appendix 1) were up by 14 percent from 1990 levels and comprised 89 percent of the volume of veneer exports from all tropical countries (91 percent of value - Table 2). Total exports by producers will continue to rise significantly through 1993. Malaysia continues to drive the growth in tropical veneer exports with its 477 000 m<sup>3</sup> exported in 1991 constituting 62 percent of total ITTO producer

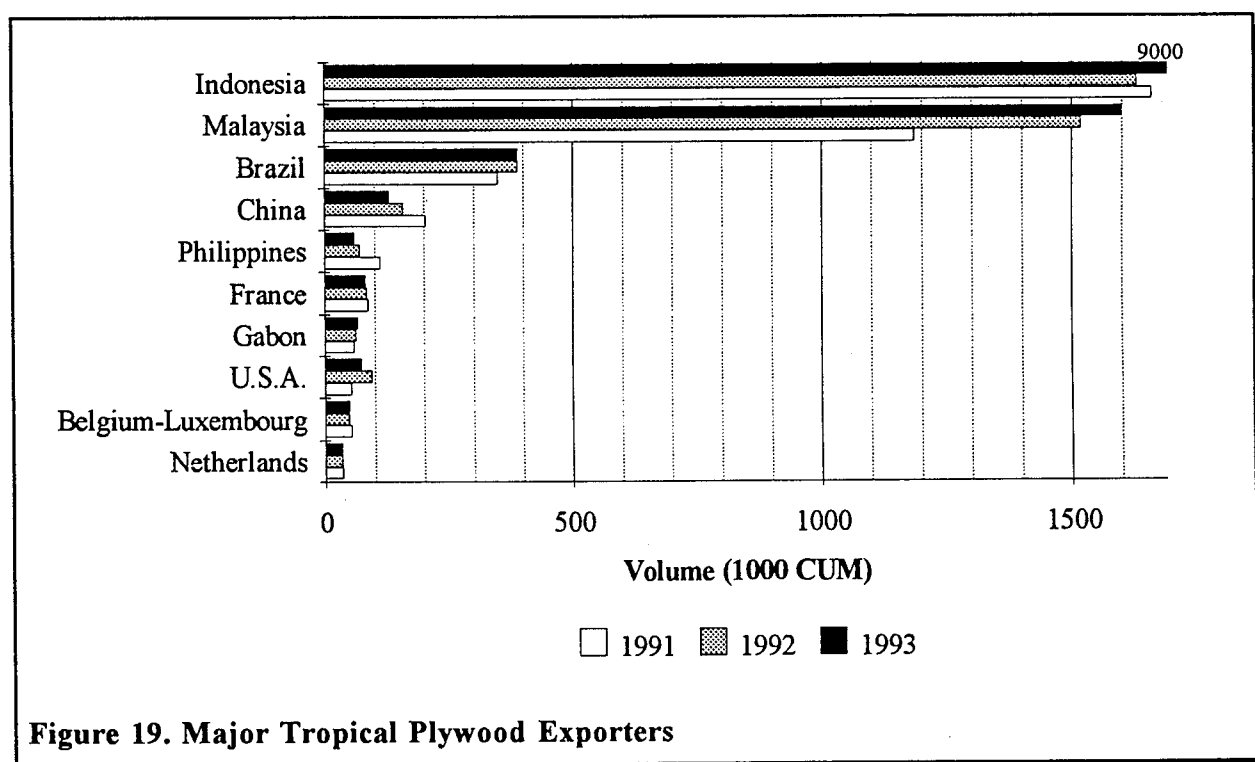


**Figure 18. Major Tropical Veneer Exporters**

member exports. Most of these exports (91 percent) were from Sabah. Malaysia's veneer trade increased in volume by almost 45 percent from 1990 levels, reflecting increased capacity. These increases will continue in 1992-93, as new export veneer mills reach their production capacities. Malaysian exports, worth \$112 million in 1991, are mainly directed (over 50 percent) to Japan.

Côte d'Ivoire is the second largest tropical veneer exporter, but its 1991 exports of 84 000 m<sup>3</sup> are well below Malaysia's. Most of this veneer was directed to Europe and Africa. Côte d'Ivoire reported aggregate export figures for veneer and plywood in 1991. These were disaggregated using data from previous years as a guide. Several other countries (Brazil, Congo and Ghana) predict substantial growth in veneer exports through 1993.

The EEC accounted for 95 percent of consumer country tropical veneer exports of 55 000 m<sup>3</sup> in 1991, with 1992-93 levels predicted to drop slightly. Germany, at 22 000 m<sup>3</sup> in 1991, is the largest EEC tropical veneer exporter. Only the Netherlands, Portugal and Denmark provided details on the destination of tropical veneer exports (Appendix 2).



**Figure 19. Major Tropical Plywood Exporters**

### *Plywood*

Figure 19 shows the top ten ITTO tropical plywood exporters in 1991-93. Total ITTO producing member exports of 10.6 million m<sup>3</sup> (see Appendix 1) increased by 6 percent over 1990 levels and comprised 91 percent of all tropical country plywood exports by volume and value. ITTO members account for over 70 percent of global trade in all types of plywood, the only forest product for which tropical countries have captured a majority of the global market. Indonesia continues to dominate the trade in tropical plywood with the 8.86 million m<sup>3</sup> exported in 1991 constituting 83 percent of total ITTO producer member exports. Indonesia's plywood trade increased in volume by 4 percent from 1990 levels. 1992 exports will decrease slightly, as capacity and wood supplies become limiting. Indonesia earned almost \$3.2 billion from plywood exports alone in 1991, second only to its exports of petroleum products. Although detailed trade flows were not provided by Indonesia, it reports that 79 percent of plywood exports are to other Asian countries.

Malaysia is Indonesia's major competitor in tropical plywood trade. Exports from Malaysia are expected to grow by almost 50 percent to 1.6 million m<sup>3</sup> in 1993. This rapid growth is due to the construction of new plywood mills in Sabah and Sarawak to process peeler log volumes formerly exported. In 1991 Malaysia exported \$371 million of plywood, mainly to Singapore and China. African and Latin American plywood exports, led by Gabon and Brazil, are expected to increase slowly through 1993. Africa's plywood exports (and production) are minor.

ITTO consumers exported 491 000 m<sup>3</sup> of tropical plywood in 1991. Taiwan Province of China accounted for 204 000 m<sup>3</sup> (to Japan and other Asia), the EEC (primarily from France, Belgium and the Netherlands to the EEC) for 222 000 m<sup>3</sup> and the U.S. for 54 000 m<sup>3</sup> (to Latin America, Japan and Canada). Exports from all of these sources but the U.S. will drop in 1992-93 as log supplies grow tighter.

## Imports

### Logs

Total imports of tropical hardwood logs by ITTO members (consumers and producers) fell slightly to 27.3 million m<sup>3</sup> in 1991. This exceeded total log exports by ITTO members by about 3 million m<sup>3</sup>. This difference was probably made up by legitimate log exports from Myanmar, Indochina, the Solomon Islands and non-member tropical African countries, plus unrecorded exports from both members and non-members. The gap between predicted imports and exports in 1993 grows to almost 10 million m<sup>3</sup>, however, which is beyond the capability of member and non-member tropical countries to provide, legitimately or otherwise. This gap illustrates that many consumers are unprepared for decreasing log supplies, expecting supplies to remain at 1991 levels for at least the next two years. The decrease in log availability will have profound implications on exports of other tropical products, discussed in the previous section, and on prices, discussed in the next.

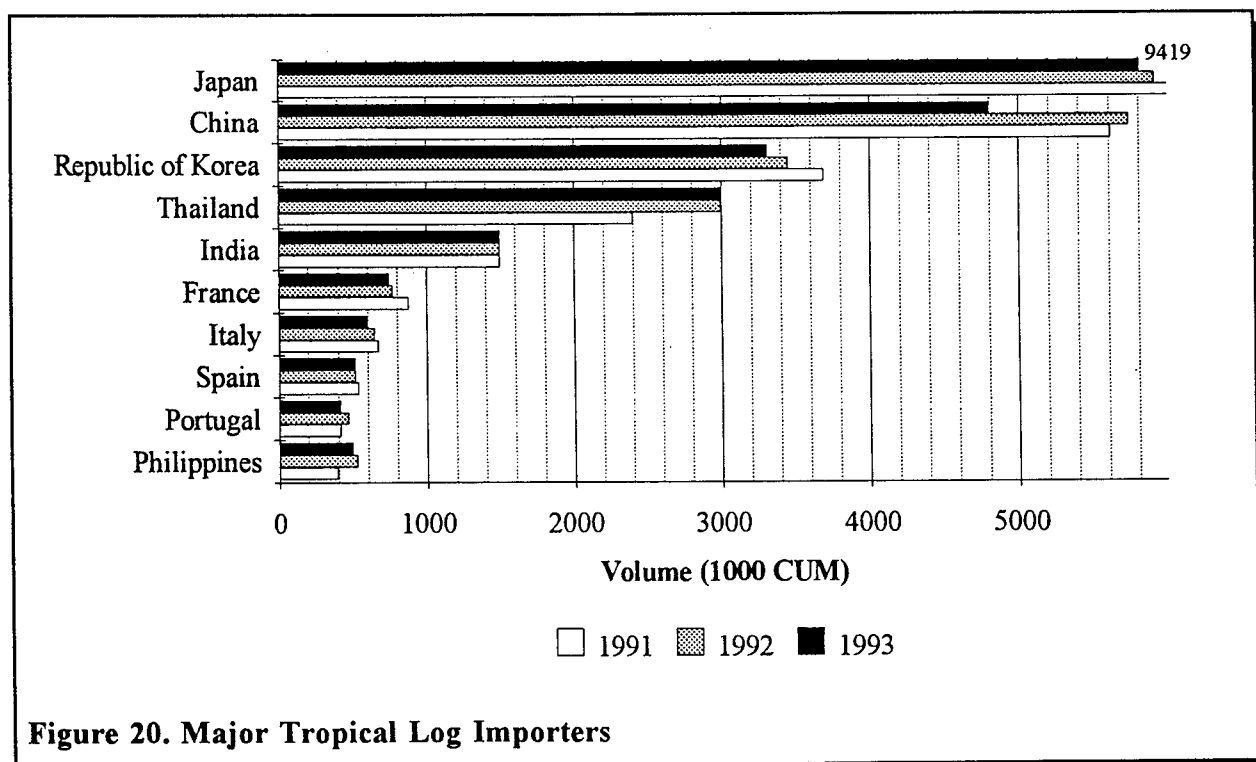


Figure 20 shows the top ten ITTO log importers in 1991-93, ranked by order of import volume in 1991. Despite steady declines in imports averaging about 5 percent per year, Japan still dominates the global tropical log market, with just over 10.4 million m<sup>3</sup> imported in 1991, primarily from Sarawak and Sabah. These imports were reported to be worth \$1.58 billion, slightly above the value of all Malaysian log exports of 19.3 million m<sup>3</sup> (Appendix 3). The resulting discrepancy in unit prices is too large to be explained by freight and insurance charges; one or both partners appears to have made an error in log trade values. Japanese log imports dropped by nearly 1 million m<sup>3</sup> in 1991, following a similar drop in 1990. The decreasing levels of log imports are in response to environmental pressures and to the economic slowdown in Japan 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 will result in a greater diversity of suppliers to the Japanese market, including softwood and temperate hardwood suppliers. Japan is reported to be increasing tropical log imports from other regions and is already involved in development of Siberian resources. The discrepancy between Japanese and Malaysian figures for log imports/exports shown in Appendix 2 is primarily due to the different log scaling procedures employed in the two countries.

China is the second largest ITTO tropical log importer, led by Taiwan Province of China's imports of 4.2 million m<sup>3</sup> in 1991. All Chinese log imports will rise through 1993, leading to total predicted aggregate imports of 5 million m<sup>3</sup>. Official Chinese statistics do not include Taiwan Province of China; nor do they include imports of logs to joint venture plants which will export the products made from them. The figures given for China are estimates based on available sources and should be viewed with this in mind. These factors may underlie some of the inconsistencies between export and import reports shown in Appendix 2 for China.

The Republic of Korea is also a major ITTO log consumer, absorbing 3.69 million m<sup>3</sup> in 1991, from Malaysia (83 percent) and PNG (13 percent). This is a slight increase from 1990 levels, but imports are expected to decrease significantly to 3.31 million m<sup>3</sup> in 1993 as log supplies tighten. Korea, like Japan and some other Asian consumers (Singapore, Taiwan Province of China, etc.), is undertaking to shift some of its processing capacity to producing countries, closer to resources and cheaper labour.

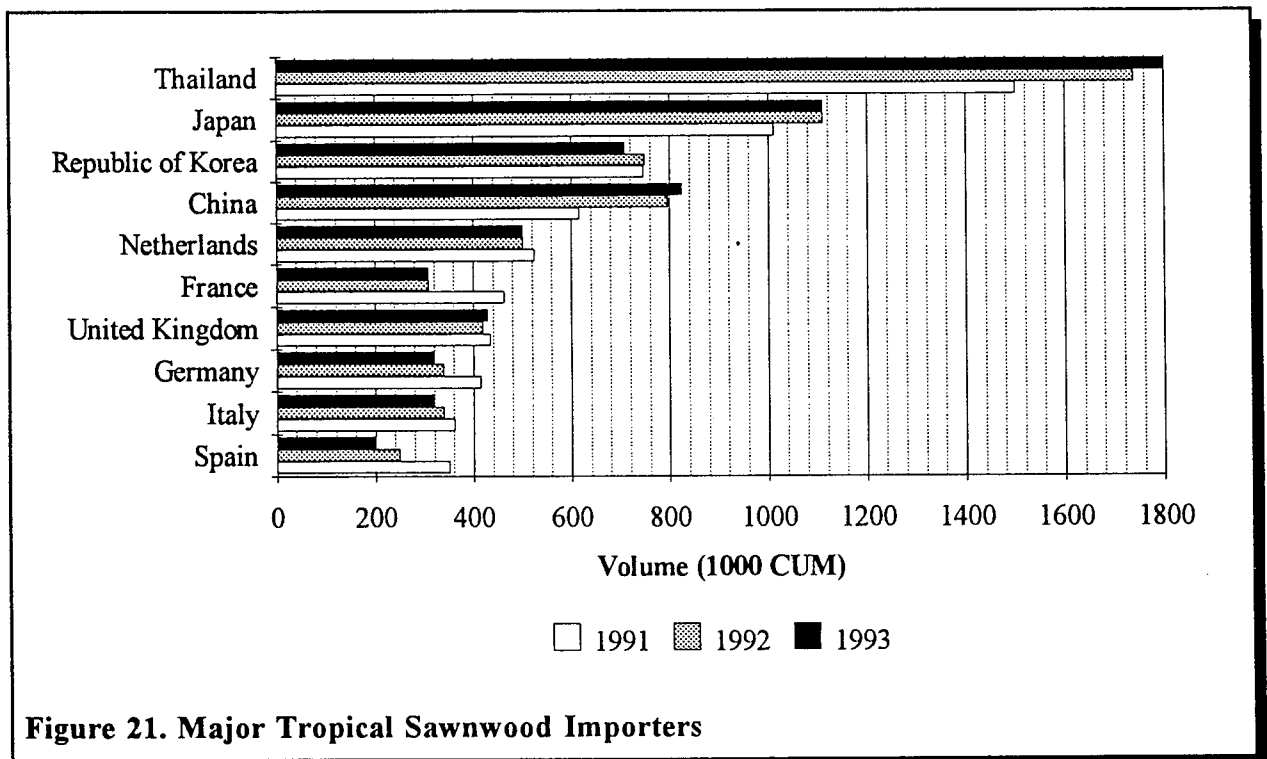
The EEC countries imported over 3.17 million m<sup>3</sup> of tropical logs in 1991, most of which came from African producers. France remains the largest of the EEC log importers, with the bulk of its supplies coming from Gabon, Cameroon, and Liberia. Italy, Spain and Portugal are also major European log importers, with Greece and the Netherlands reporting 170 000 and 117 000 m<sup>3</sup>/year respectively, just under the levels shown in Figure 20. European log imports will decline to less than 3 million m<sup>3</sup> in 1993, due to depressed economies and demand.

As indicated in Figure 20, several ITTO producing countries have become net importers of logs, indicating the extent of depletion in their domestic forest resources. Thailand (2.4 million m<sup>3</sup> rising to 3 million m<sup>3</sup> in 1993), India (estimated 1.5 million m<sup>3</sup>/year) and the Philippines (357 000 m<sup>3</sup> rising to 500 000 m<sup>3</sup> in 1993) all reported substantial tropical log imports in 1991, reflecting resource scarcity in these countries. Total imports of tropical logs by ITTO producing members were stable in 1991, at just over 4.3 million m<sup>3</sup>. Total imports will rise to over 5 million m<sup>3</sup> in 1993. 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. Careful regulation of log exports is required in these countries to ensure that the tightening supply situation does not exacerbate problems in their forest sectors. The new "consumer" countries must also attempt to uphold ITTO's principles on sustainability when sourcing log supplies.

### Sawnwood

Total ITTO imports of tropical sawn hardwood fell to 7.65 million m<sup>3</sup> in 1991, 1 percent below total exports which fell to 7.75 million m<sup>3</sup>. Figure 21 shows the ten major ITTO sawnwood importers in 1991-93, ranked by order of 1991 import volume. Thailand remained the top sawnwood importer at 1.5 million m<sup>3</sup>, an slight increase from 1990 levels. Thailand's imports are expected to rise to 1.8 million m<sup>3</sup> in 1993, well above those of Japan which was the major tropical sawnwood import market up to 1990. The logging ban in Thailand, together with its growing economy and large furniture and secondary processing industries (see next chapter) are responsible for growing sawnwood imports. Thailand's imports of tropical sawnwood, worth almost \$363 million in 1991, are sourced primarily (68 percent) from Malaysia.

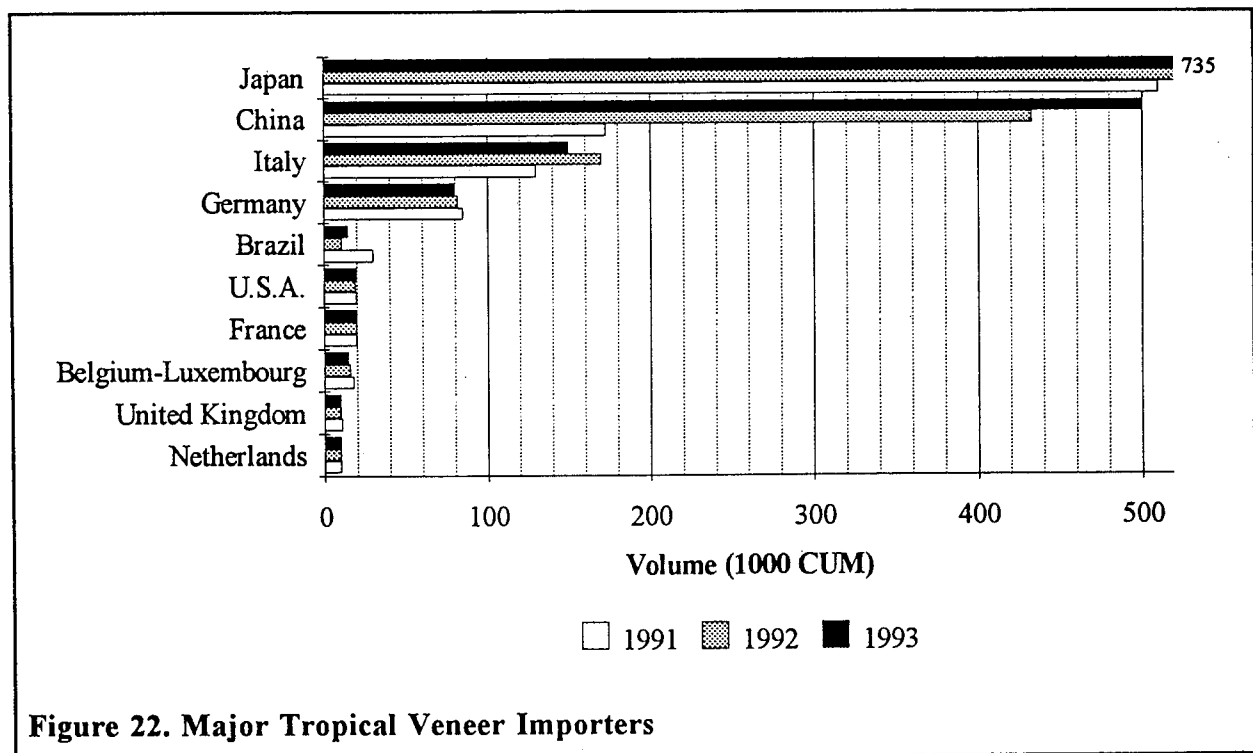
Japanese imports fell over 26 percent to 1.01 million m<sup>3</sup> in 1991. The large drop in reported Japanese imports was due at least partially to the slowing economy, and was partially offset by increased imports of softwoods. Japan also imported the bulk of its tropical sawnwood from Malaysia. Japan's imports increased slightly to 1.11 million m<sup>3</sup> in 1992-93 as housing starts picked up. However, Japanese imports are unlikely to return to levels reported in the boom years of the 1980's. Korea and China are also major Asian sawnwood importers but imports by both countries are relatively stable through 1993 when they will total 710 000 m<sup>3</sup> and 825 000 m<sup>3</sup> respectively.



Tropical sawnwood imports by EEC countries in 1991 fell 9 percent to 2.9 million m<sup>3</sup>, with the bulk of this total supplied by Asian producers, principally Malaysia. Côte d'Ivoire, Ghana, Gabon, Cameroon and Brazil supplied virtually all of the remainder of European imports. Slowdowns in the economies of many Western European countries together with growing environmental concern will contribute to a continuing decline in European consumption of tropical timbers in 1992-93. The Netherlands remains the largest importer of tropical sawnwood in the EEC, although 1991 imports of 525 000 m<sup>3</sup> have fallen by more than 38 percent in just two years. The Netherlands' policy to only import sustainably produced tropical timbers after 1995 will lead to further import reductions.

### 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. Some countries report trade in all veneers and panels (tropical and non-tropical) while others aggregate veneer and plywood into a single category. 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 measurement system for panel products and veneer is a priority if improvements in the accuracy of these statistics are to be achieved.



**Figure 22. Major Tropical Veneer Importers**

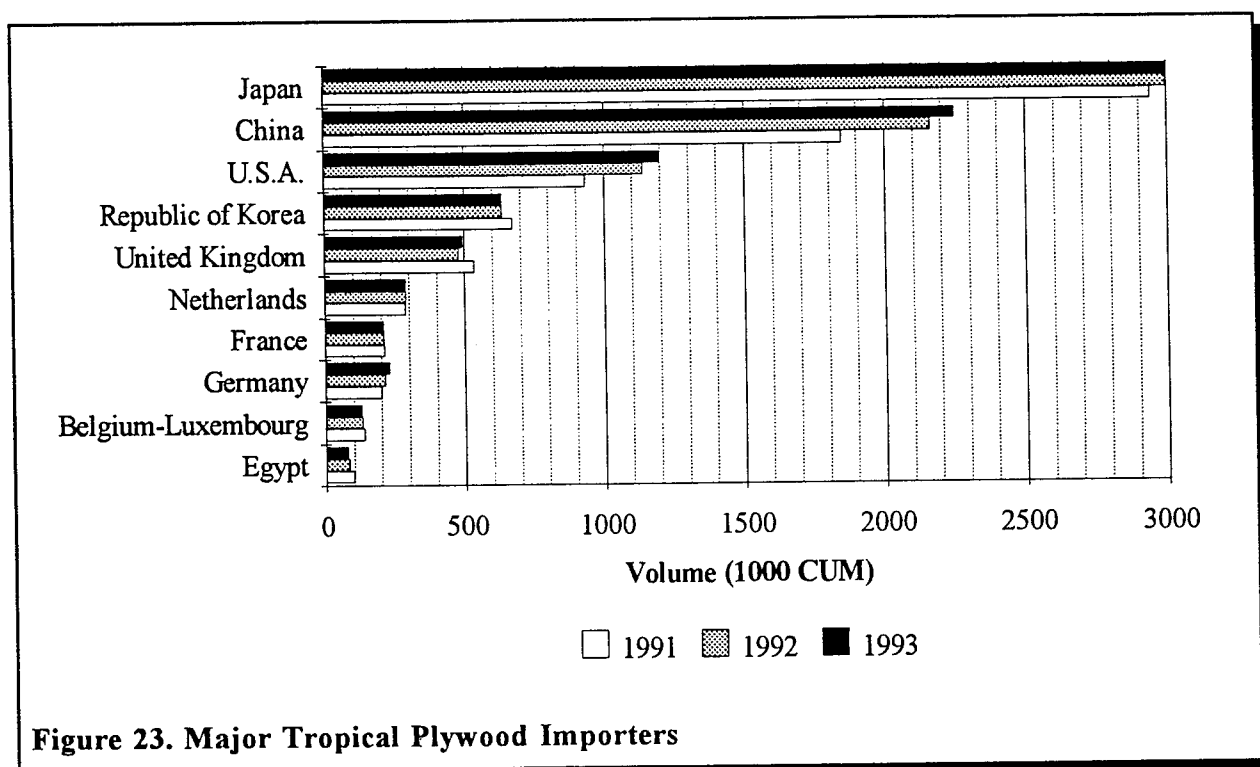
Figure 22 shows the ten major ITTO veneer importers in 1991-93. Total ITTO imports of veneer reached 1.24 million m<sup>3</sup> in 1991, up 13 percent from 1990. Japan accounted for 55 percent of these imports, with members of the EEC (led by Italy and Germany) accounting for another 23 percent and China (mainly Taiwan Province of China) for 14 percent. Imports to all of these destinations (especially to China where veneer logs are increasingly scarce) will increase through 1993, bringing total ITTO imports to 1.64 million m<sup>3</sup>. Japanese and Chinese imports are primarily sourced from Malaysia, while the majority of European imports are from African producers. The large discrepancy between the Malaysian and Japanese reports in Appendix 2 may be at least partially due to different assumptions regarding veneer thickness. Japanese veneer imports were valued at over \$105 million in 1991, giving a unit price of about \$155/m<sup>3</sup>, somewhat low. Japan's import figures may therefore be overstated but this has been impossible to verify. The increasing imports of Gabon, though small in absolute magnitude (25 000 m<sup>3</sup> in 1993), also seem unlikely given the country's resources and processing capacity and may be a reporting error. This has also been impossible to confirm.

### Plywood

Figure 23 shows the ten largest ITTO plywood importers in 1991-93, ranked by import volume in 1991. Total ITTO imports of tropical plywood rose 2 percent to 8.21 million m<sup>3</sup> in 1991 and

will continue to increase steadily to 8.83 million m<sup>3</sup> in 1993. Exports of plywood by ITTO members continue to substantially exceed aggregate imports by members, the only product for which this is true. Plywood is also the only tropical forest product for which aggregate ITTO imports have steadily increased over the past 5 years. The majority of all plywood imports came from Indonesia (almost 100 percent in the top importer, Japan), with small but increasing volumes being sourced from Malaysia by some Asian importers (China, Singapore, Hong Kong, etc.). The EEC (primarily the U.K.) and the U.S. also import significant quantities of tropical plywood from Brazil.

EEC imports of tropical plywood totalled 1.49 million m<sup>3</sup> in 1991, with most of this amount coming from Indonesia, Malaysia, and the Philippines. Cameroon, Brazil and inter-European trade provided the bulk of the remainder of European imports. European demand for tropical plywood will remain relatively stable through 1993.



**Figure 23. Major Tropical Plywood Importers**

The Republic of Korea (673 000 m<sup>3</sup>) and China (1.85 million m<sup>3</sup>) were both substantial tropical plywood importers in 1991. The bulk of China's imports, predicted to grow to just over 2 million m<sup>3</sup> in 1993, are directed to the booming construction industry in the southern provinces. In Korea, a slowing economy will depress demand for plywood, with imports expected to drop to 636 000 m<sup>3</sup> in 1993. Indonesia supplies virtually all of Korea's plywood imports and about 70 percent of China's.

### Prices

Export price trends from May 1990 through to the end of 1992 for major log and sawnwood species from each exporting region are examined in this section. The graphs were derived from ITTO/ITC MNS data and as such reflect inflation and exchange rate fluctuations as well as real changes in price. The relative differences between the species groups within a region are representative of real price differentials, however. As not all species are reported in each issue of the MNS, some graphs only portray partial price series. An attempt was made to prepare price

trend charts for all species identified as important by importers/exporters. However, the charts only include species for which at least 6 months of consecutive data were available. Species are identified by internationally accepted pilot and scientific names; the local names of timber species used by producer countries, where they differ from pilot names, are summarized in Appendix 4. High and low prices for major species are given where these differ significantly for at least six consecutive months. High and low prices were averaged to create a single price trend for species not meeting these criteria. High and low prices result from differences in grade, quality, markets, etc.

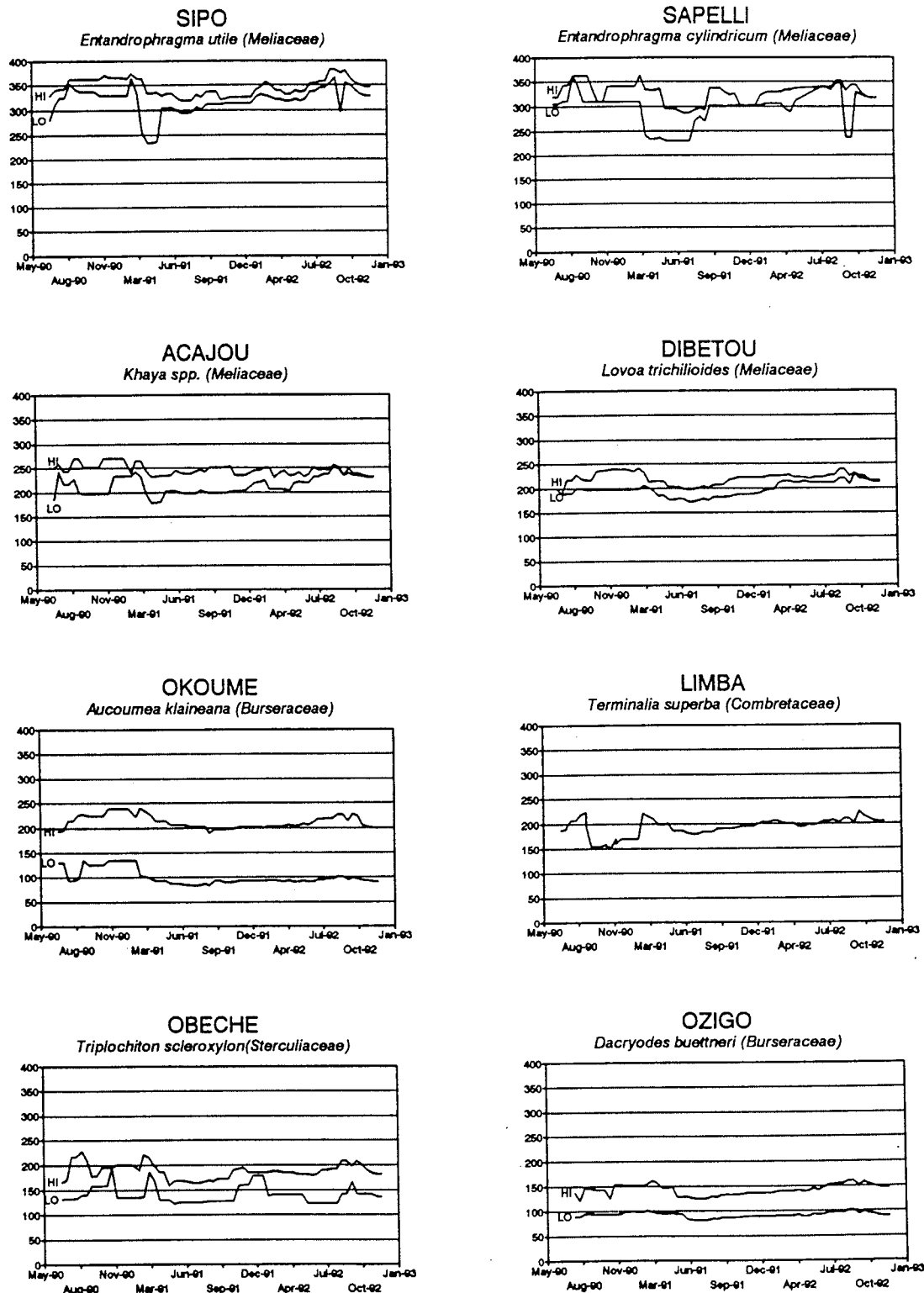
The price trends are aggregated across countries within a region (when more than one country exported a given species) and across size/quality/grade categories when differences between these were found to be insignificant, for each period reported. Destinations of sawnwood exports are given in the MNS database, but exports to a given destination occur intermittently and no attempt was made to further disaggregate the price data. The MNS data are shown here to indicate recent trends in regional prices, given the importance of the price factor in tropical timber markets. Average export prices for 1990-92 have also been derived and presented for each product and region where possible, using sources identified in the text. The price figures presented here are indicative only of trends during the period under review; actual prices paid by merchants or received by producers may vary considerably with quantity traded, specifications, port of shipment and quality within grade.

### *Logs*

Figures 24 and 25 show indicative nominal FOB price trends for major species of African and Asian log exports from 1990 to 1992. Nominal FOB prices for some species of African log exports are also provided in the FAO/ECE monthly price series. 1990, 1991 and 1992 (first quarter) average prices per m<sup>3</sup> are listed following each species' name: acajou - \$241, \$227, \$224; dibetou - \$224, \$219, \$216; sapelli - \$318, \$293, \$289; and sipo - \$341, \$324, \$326. These price trends are comparable to those shown in Figure 24, although nominal prices for all four of these species recovered in the latter part of 1992. The World Bank reviews commodity markets on a quarterly basis and reports prices; according to this data nominal FOB prices for Cameroon sapelli averaged \$344/m<sup>3</sup> in 1990, falling to \$316 in 1991 and rising to \$337 in 1992. These figures correspond closely with the price trend shown in Figure 24 for sapelli. The decline in real prices for most species of African logs is primarily due to the economic slowdown in much of Europe during the period, the availability of storm-damaged European timber in 1990-91 and the decline in value of the French franc (all African log prices but Ghana's are reported in francs) vis-a-vis the dollar. In 1993, African log prices should benefit from increased softwood and Asian timber prices in Europe, but increases will be tempered by the continuing low level of economic activity in many European countries. Increasing interest in African logs by Asian consumers, coupled with plans by some countries to ban log exports, will also have a positive effect on nominal prices in 1993, although real prices are unlikely to increase.

The World Bank also reports Japanese wholesale prices for Sabah meranti logs; the average for 1990 was \$210/m<sup>3</sup>, rising to \$222 in 1991 and to \$251 in 1992. This increase is due to a sharp increase in log prices towards the end of 1992 when Sarawak imposed a one-month moratorium on logging and rumours of a 1993 ban on Sabah log exports circulated, pushing up Japanese (and other Asian) demand. The difference between these figures and those shown for dark red meranti in Figure 25 reflect transport costs and mark-up. Figure 25 shows convincingly the effect of impending shortages at the end of 1992 on Asian log prices, including the relatively low quality category of mixed logs. This trend is strengthening in 1993 as log supplies continue to tighten. Given the unstable situation in the Asian log market, it is impossible to predict the magnitude of 1993 price increases. As of April 1993, however, all Asian log prices were at least double those shown in Figure 25, although this is partially due to a weakening dollar. Increases of this





**Figure 24. Prices for Major African Log Species (\$/m<sup>3</sup> FOB)**

magnitude are sure to result in major repercussions throughout the trade, as major consumers attempt to diversify to other tropical suppliers, non-tropical timbers, and non-wood substitutes. Given the modest decreases in Japanese demand and the booming Asian economies discussed in the previous section, it is however unlikely that demand for south-seas logs will be dramatically decreased in the short term, with the consequent prospect of sustained high prices. While higher prices can help to offset the costs of sustainable management in Asian tropical forests, the

perception of price instability may also encourage unsustainable practises as operators attempt to reap windfall profits.

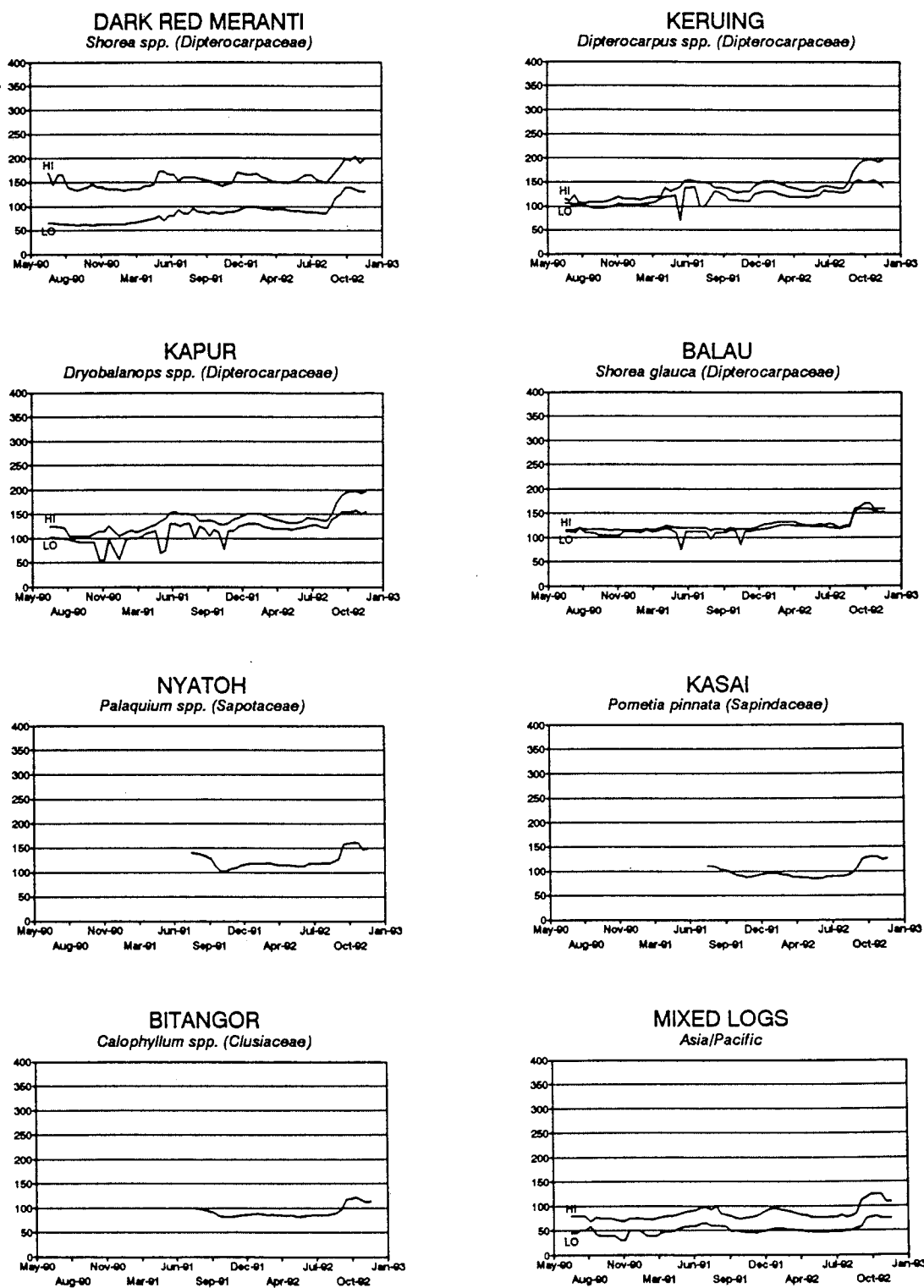


Figure 25. Prices for Major Asian Log Species (\$/m³ FOB)

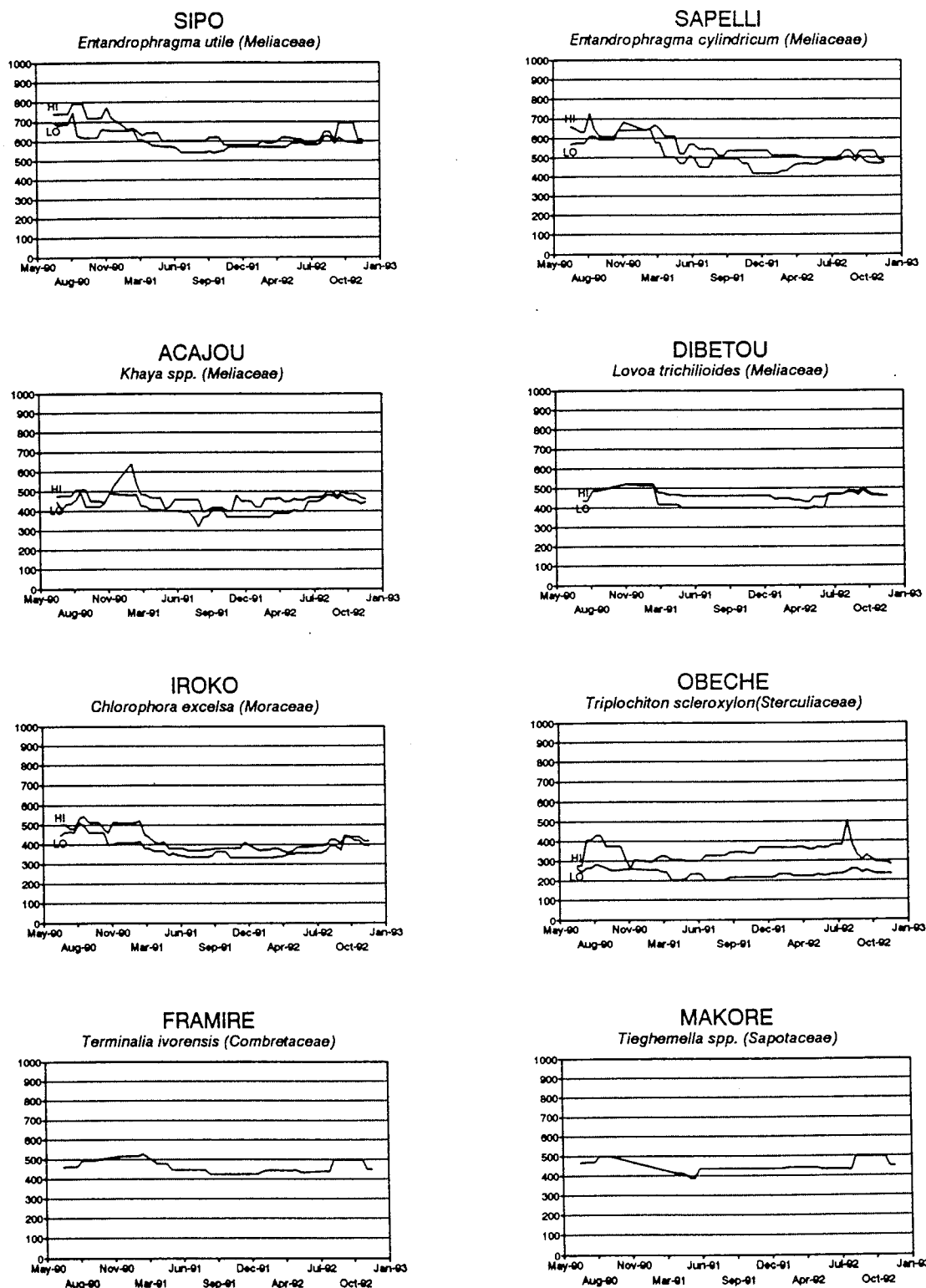


Figure 26. Prices for Major African Sawnwood Species (\$/m<sup>3</sup> FOB)

### Sawnwood

Nominal sawnwood price trends (FOB) for major species in the three ITTO producing regions are plotted in Figures 26, 27 and 28. Figure 26 shows prices for African species. For comparison, FAO/ECE averages for African sawnwood in 1990, 1991 and 1992 (first quarter) are as follows: mahogany (acajou) - \$417, \$396, \$397; obeche - \$254, \$228, \$228; sapelli - \$628, \$547, \$542; sipo - \$719, \$623, \$594. These trends correspond closely to those shown for these species in

Figure 26, although African sawnwood prices (as for logs) firmed slightly in the latter half of 1992. The small increases in nominal prices, which translate into real price decreases for all species, are due to the same factors listed in the discussion on African logs. African sawnwood price trends should increase slightly in 1993 due to the increasing prices of other timbers.

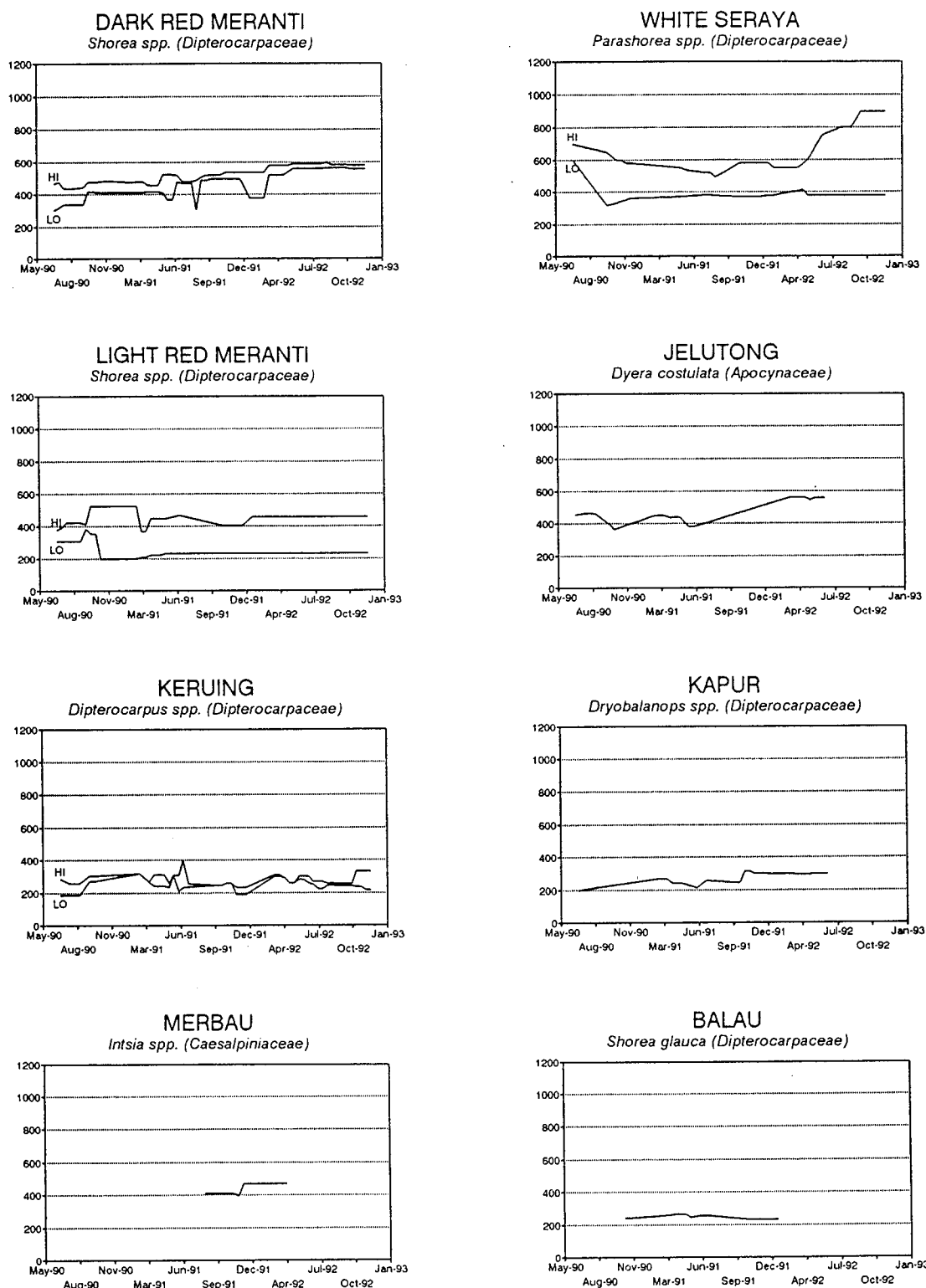
Asian sawnwood price trends are shown in Figure 27. Only three species of Asian sawnwood (dark and light red meranti and keruing) have complete price series in the MNS database. Hopefully this situation can be improved as the project continues. Up to mid-1992, white seraya prices had been steadily decreasing, jelutong had been increasing relatively quickly before leveling off, and kapur had been stable for about 6 months. The only Asian timber showing a marked increase in price in 1992 was dark red meranti, with some MNS correspondents reporting prices up to \$900/m<sup>3</sup> in December 1992. This is no doubt due to worries over timber shortages in Asia. This concern does not seem to have affected prices for light red meranti or keruing as spectacularly, however. All species except dark red meranti and jelutong experienced real declines in prices in 1990-92.

The FAO/ECE price figures for Asian sawnwood represent average domestic prices per m<sup>3</sup> in Malaysia (ex-mill) for 1990-91, or CIF prices to the UK for 1990-92(first quarter); as such they are not directly comparable with the MNS figures. They are reported here to allow comparison of trends: dark red meranti (domestic) - \$787, \$806; (UK) - \$552, \$564, \$586; light red meranti (domestic) - \$673, \$655; jelutong (domestic) - \$652, \$643; keruing (UK) - \$287, \$311, \$326; kapur (UK) - \$300, \$315, \$326; merbau (domestic) - \$805, \$793. The CIF figures follow the trends in Figure 27 reasonably well, with the exception of the sharp rise in dark red meranti prices which occurred in the latter part of 1992 and as such is not reflected in the FAO/ECE first quarter figure. Domestic sawnwood prices in Malaysia were 50 to 100 percent above FOB export prices in 1990-91 but appear to follow export price trends. The World Bank reports 1990-92 prices per m<sup>3</sup> for Malaysian dark red meranti CIF to French ports as follows: \$524, \$472, \$514. The decrease in prices in 1991 agrees with the trends shown for meranti and almost all other species shown in Figure 27. This was due to European economic slowdown, the strengthening dollar, and to the diversion of Malaysian sawnwood exports from Gulf states to Europe (increasing supply) during the Gulf war. High log prices have pushed Asian sawnwood prices further upwards in early 1993, with white seraya (grade A) exports to Japan at over \$1000/m<sup>3</sup> in early April. Increases in prices of other species are smaller but still significant. Sawnwood prices will likely stabilize by the end of 1993 as it appears from the figures in Appendix 1 that supply (predicted exports) will remain in excess of demand (predicted imports).

Only three of the Latin American sawnwood species reported in the MNS are traded in substantial volumes (mahogany, cedro and virola). Figure 28 shows the general downward trend in nominal prices for all Latin American sawnwood species in 1990-92, with the most pronounced decrease in the highest value species: mahogany. These decreases reflect the strengthening of the dollar against Latin American currencies and also the effects of recessions in the major markets for Latin American timbers (the U.S. and U.K./Europe) during the period. The average prices per m<sup>3</sup> quoted by the FAO/ECE for Brazilian mahogany (FAS-KD, C&F to the U.S.) in 1990-92(first quarter) were: \$980, \$909, \$852. This trend is comparable with that shown in Figure 28. No other sources for Latin American sawnwood prices were available. Prices of major Latin American sawnwood exports are expected to stabilize in 1993 in response to improved economic performance in the U.S. and the general market trend of increasing demand and prices for timber products.

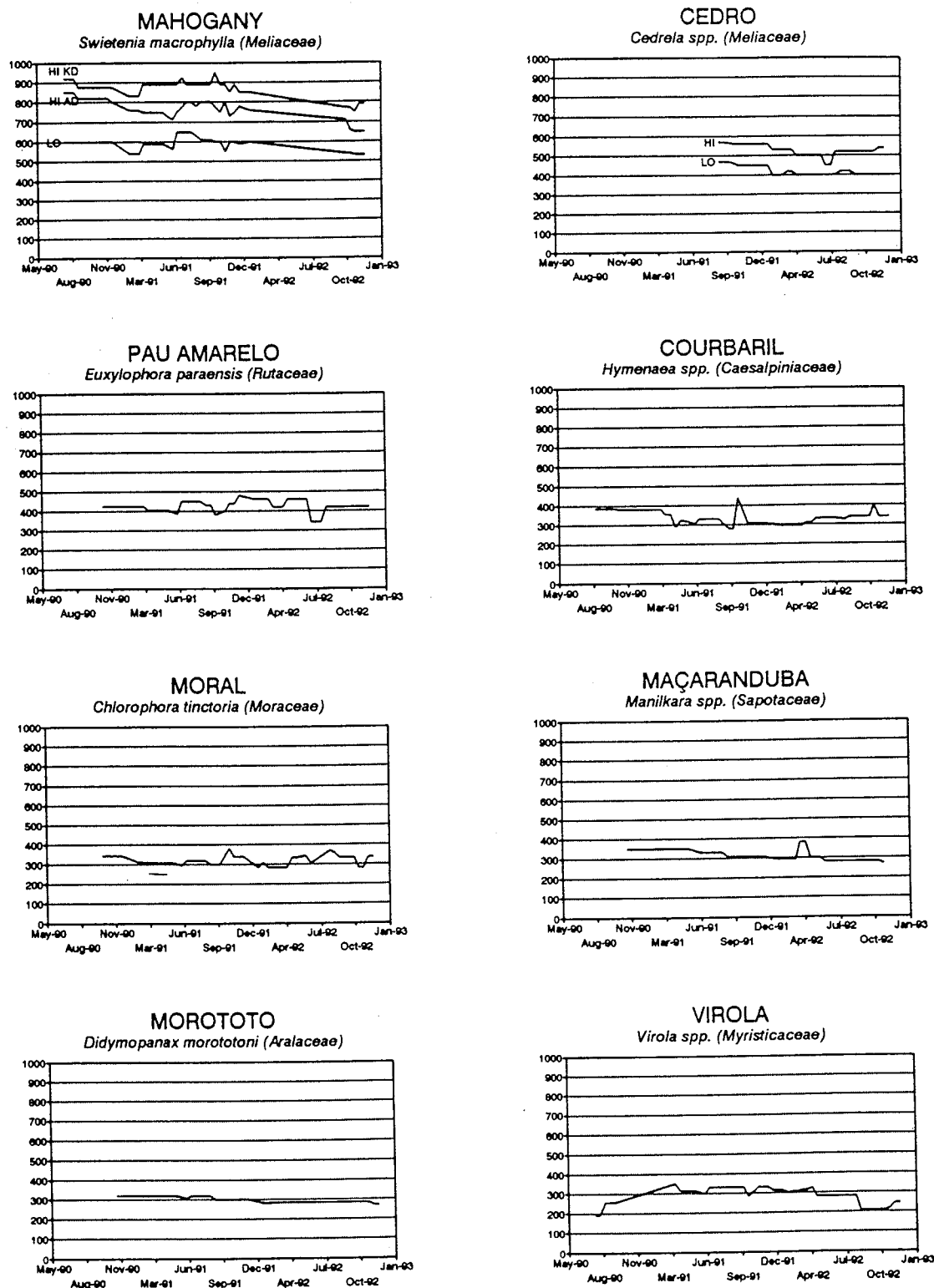
#### *Veneer*

Veneer prices are not reported at this stage in the ITTO/ITC Market News Service. It is hoped that this will be rectified in upcoming phases of the project, particularly as several producers are



**Figure 27. Prices for Major Asian Sawnwood Species (\$/m³ FOB)**

now exporting substantial quantities of veneer. No veneer prices are quoted in any of the other sources which have been referred to. Based on the export value data in Appendix 3, the unit FOB price of Malaysian veneer exports was \$235/m³ in 1991. African unit values for veneer exports are much higher, but the export values and/or volumes reported by some of the African countries may not be reliable. Figures for Ghana suggest a unit price of \$718/m³ in 1991. Brazil's unit value for veneer exports in 1991 was \$364/m³. The regional price differences reflect species and



**Figure 28. Prices for Major Latin American Sawnwood Species (\$/m<sup>3</sup> FOB)**

market differences, as well as price differentials for sliced decorative and peeled core veneers. Although little data is available on veneer prices, it is reasonable to assume that prices will increase as major plywood manufacturers like Japan, Korea, China and the EEC increasingly seek to supplement dwindling tropical log supplies with veneer imports.

*Plywood*

Although Asian plywood prices in major markets are often reported in the ITTO/ITC Market News Service, a price database corresponding to those for logs and sawnwood has not yet been established. Export prices are generally regulated by price lists issued by trade associations (APKINDO - INDO; Malaysia - M88), with prices quoted as the list price plus a given percentage (e.g. M88 plus 20). The MNS reports some FOB prices, but the bulk of the coverage is for wholesale prices in the major markets of Japan and Korea. The unit FOB values of Asian plywood reported here (based on Appendix 3) are averaged for all thicknesses and qualities and are indicative of general levels only. Prices for Latin American plywood are not generally reported by the MNS; unit values are therefore also given for Brazil. As discussed in the previous section, African plywood exports remain minimal.

The unit FOB price for Indonesian plywood in 1991 was \$365/m<sup>3</sup>, while that for Malaysian exports was \$313/m<sup>3</sup>. Brazil's unit export price was similar, at \$314/m<sup>3</sup>. Average Japanese wholesale prices in 1991 were ¥900/sheet (12 mm plyform). As for all other products, prices have increased through 1992 and continue to do so in 1993. Current (April 1993) wholesale prices for 12 mm plyform range from ¥1350-¥1430/sheet, with the lower price quoted by APKINDO's distributor in Japan and the higher by local manufacturers.

## Secondary Processed Wood Products

Although secondary processed wood products (SPWP) are not explicitly included in the products to be considered under the ITTA, their importance is evident from the Agreement's objective of promoting further processing of tropical timbers and the inclusion of this objective in the ITTO Action Plan. The data presented here were provided by the International Trade Centre, which prepares an annual overview of world markets. Although 1992 data is not yet available, 1991 data for OECD countries were extracted from the UNSO Comtrade data base by ITC. This data also includes exports by major developing countries (most of which are ITTO members) to the OECD. This chapter is based on these data (1988-91), the 1992 ITC annual report (1990 data) and any information on further processing provided by members in their response to the ITTO Enquiry.

### Major Importers

Table 7 shows the top ten OECD importers of SPWP from developing countries in 1991. Figures for the preceding three years (nominal values) are also provided, as are total import levels from all countries. The bottom part of Table 7 shows the breakdown of total OECD imports from developed countries, eastern Europe, newly industrialized economies (NIEs) and other developing countries. Definitions of the countries included in these categories, where necessary, are given in the footnotes to the table. All ITTO producing countries are included in other developing countries. Note that the values quoted here are subject to the same caveats regarding exchange rate fluctuations given in the previous chapter.

OECD imports of SPWP from all developing countries (including NIEs) were 20.6 percent of total imports of these products from all sources in 1991. Although the value of such imports has increased by almost \$0.9 billion since 1988 (\$0.7 billion in real terms given annual average inflation in the OECD of about 5 percent during the period), the share of total imports has fallen from 22 percent as imports from developed countries have grown more rapidly. The share of total OECD imports from other developing countries has however increased from 8.7 percent in 1988 to 12 percent in 1991, illustrating the rapid development of secondary processing capacity in these countries, many of them ITTO producers. The figures in Table 7 also clearly point out the declining market share of the NIEs, due largely to increasing wood, labour and capital costs.

The top ten OECD importers, all ITTO members, accounted for almost 95 percent of all OECD imports of SPWP from developing countries (including China and Taiwan Province of China) in 1991, down slightly from 97 percent in 1988. The United States is by far the largest importer of SPWP from developing countries, with 47 percent of the OECD total in 1991. Its share in 1988 was 58 percent, however, showing the stagnation of the U.S. market during this period. U.S. imports declined by almost \$0.2 billion in real terms over the period, given an average inflation rate of about 3 percent. By contrast, several European importers (Germany, the Netherlands, Italy and Spain) more than doubled the real value of their imports of SPWP from developing countries during the period. However, as Figure 29 shows, the European countries import a relatively small proportion of their SPWP from developing countries. In Germany, where imports of SPWP from all sources exceeded those of the U.S. for the first time ever in 1991, only 7 percent of a massive \$4.3 billion market is captured by developing countries. The figure for Europe as a whole improves slightly to 10 percent, but this is still tiny compared to Japan, Australia and the U.S. where developing countries have over half the market for SPWP. Transportation costs and regional marketing relationships play a role in these discrepancies but there is clearly a substantial opportunity for developing countries to increase their share of the \$11.25 billion European market.

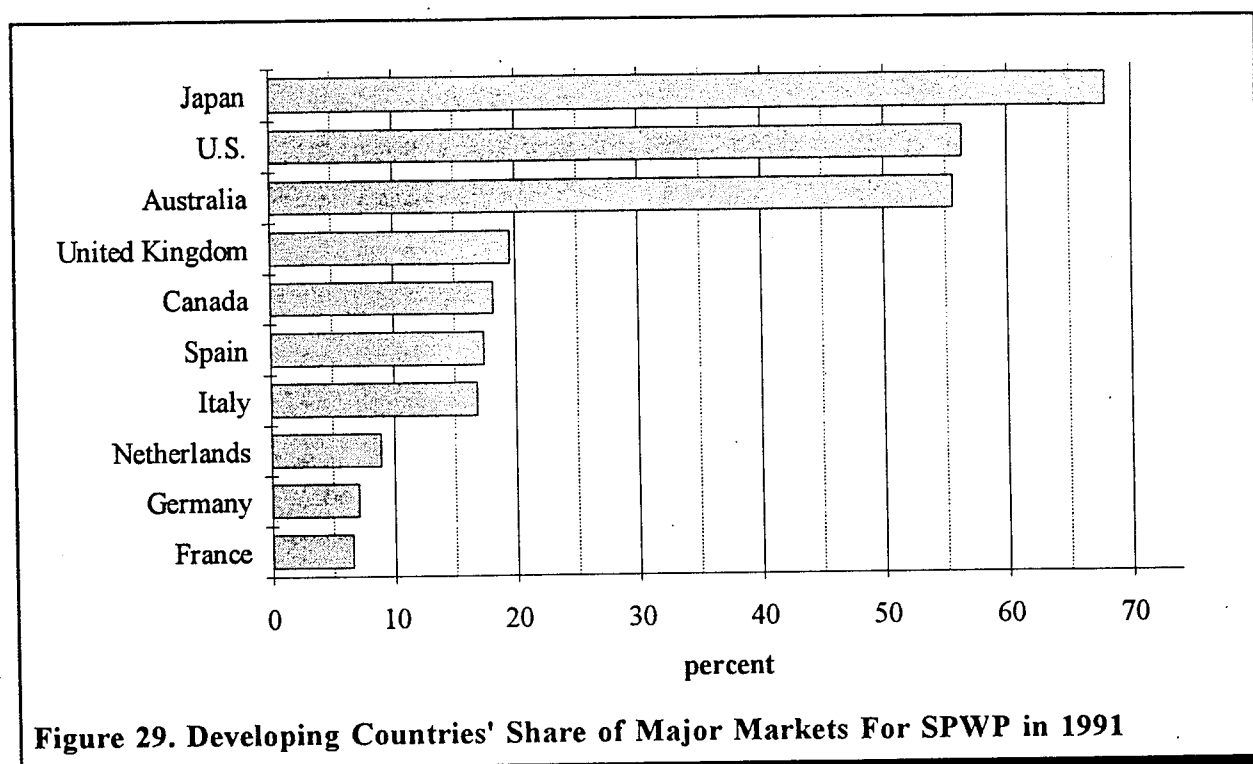


Table 7. Major OECD Importers of SPWP, 1988-1991 (million \$)

Major Importers	1988 Imports from:		1989 Imports from:		1990 Imports from:		1991 Imports from:	
	Developing Countries & China	World	Developing Countries & China	World	Developing Countries & China	World	Developing Countries & China	World
Australia	73.18	153.41	105.81	211.87	95.40	197.55	101.59	182.41
Canada	96.30	408.86	114.98	530.83	106.89	599.62	126.72	695.31
France	123.64	1985.12	119.65	2020.49	133.18	2509.94	158.10	2393.12
Germany	112.76	2256.39	148.21	2500.23	206.10	3434.49	304.99	4263.35
Italy	32.13	279.19	43.98	336.01	63.33	445.30	92.05	545.72
Netherlands	51.52	1046.34	56.69	1058.28	90.60	1372.10	129.30	1442.25
Spain	19.18	148.70	36.26	227.05	49.63	313.17	62.88	360.46
United Kingdom	210.27	1417.00	240.21	1463.87	261.64	1640.58	300.98	1534.15
Japan	640.24	858.00	714.98	1005.31	699.12	1104.19	821.04	1207.61
United States	2030.95	3632.08	2010.23	3762.89	1936.70	3735.22	2035.29	3606.85
Subtotal	3390.17	12185.09	3591.00	13116.83	3642.59	15352.16	4132.94	16231.23
OECD imports from:								
Developed Countries		11461.30		12359.24		15349.71		15669.65
Eastern Europe <sup>a</sup>		942.68		952.79		1123.24		1219.51
NIEs <sup>b</sup>		2115.50		2031.20		1757.03		1823.02
Other Developing Countries		1388.25		1716.80		2089.17		2553.01
Total OECD Imports	3503.75	15907.73	3748.00	17078.35	3846.20	20339.21	4376.03	21265.19

a) Including former U.S.S.R. b) Singapore, Hong Kong, Republic of Korea and Taiwan Province of China.

Source: UNO Comtrade Data Base, ITC



The primary categories of SPWP in trade are wooden furniture, builder's woodwork, products for domestic/decorative use (table/kitchenware, ornaments picture frames, etc.), packaging/pallets, coopers' products (casks, barrels, etc.) and other manufactured products (tools, handles, brooms, shoe lasts, etc.). Table 8 shows total OECD imports over the four year period by these categories. Wooden furniture clearly dominates, accounting for 60 percent of total imports from developing countries in 1991. This share has fallen slightly since 1988, with the shares of packaging, joinery and domestic products increasing slightly during the period. Overall, furniture makes up 72 percent of OECD imports. Developed countries are therefore selling proportionally more furniture to the OECD than developing countries. The proportion of furniture in OECD imports of SPWP from developing countries will rise as new capacity comes on stream in these countries. Plans for construction of reconstituted board mills in several developing countries over the next five years will lead to increased furniture production, as will the increasing utilization of rubberwood and other plantation species. These developments, together with improvements in veneer lamination technology, allow the use of a wider range of tropical wood species in furniture production and consequent increases in production and exports. As stated in previous chapters, domestic markets in many producing countries will become increasingly important as economies grow, particularly in Asia. Indonesia has recently launched a campaign to increase domestic consumption of furniture, partially to protect itself against unfavourable developments in export prices and markets.

Developing countries accounted for only 17 percent of the value of all wooden furniture imported by the OECD in 1991, down from 18.5 percent in 1988. This decrease in market share is primarily due to the slowing U.S. market, which, as discussed above, absorbs a disproportionately large share of developing country exports. Developing country exports of packaging and coopers' products account for only 5 and 1 percent of total OECD imports of these products in 1991, respectively. However packaging is the fastest growing product category in developing country exports to the OECD, more than doubling in value since 1988. Developing countries' share of OECD imports of builders' joinery in 1991 was similar to that for furniture at about 15 percent, unchanged from 1988.

Table 8. OECD Imports of SPWP by Category, 1988-1991 (million \$)

Origin/Product Category	1988 Imports		1989 Imports		1990 Imports		1991 Imports	
	Value	%	Value	%	Value	%	Value	%
From Developing Countries and China								
Packaging, Cable drums, Box Pallets	12.39	0.35	17.98	0.48	25.27	0.66	28.85	0.66
Coopers' Products and Parts	0.86	0.02	1.20	0.03	2.39	0.06	1.45	0.03
Builders' Joinery and Carpentry	283.80	8.10	302.97	8.08	344.33	8.95	397.42	9.08
Products for Domestic/Decorative Use	622.58	17.77	669.58	17.87	693.01	18.02	804.19	18.38
Other Manufactured Products	424.29	12.11	431.31	11.51	475.41	12.36	512.78	11.72
Wooden Furniture	2159.81	61.64	2324.93	62.03	2305.76	59.95	2631.30	60.13
Total	3503.75		3748.00		3846.20		4376.03	
Total Imports								
Packaging, Cable drums, Box Pallets	298.54	1.87	349.24	2.04	511.26	2.51	547.47	2.57
Coopers' Products and Parts	62.25	0.39	76.60	0.45	115.19	0.57	121.13	0.57
Builders' Joinery and Carpentry	1939.05	12.18	2096.33	12.27	2562.64	12.60	2670.27	12.56
Products for Domestic/Decorative Use	930.58	5.84	979.96	5.74	1073.27	5.28	1199.63	5.64
Other Manufactured Products	1022.58	6.42	1074.58	6.29	1307.68	6.43	1398.31	6.58
Wooden Furniture	11670.48	73.29	12501.62	73.20	14769.17	72.61	15328.38	72.08
Total	15923.93		17078.35		20339.21		21265.19	

Source: UNSO Comtrade Data Base, ITC

In contrast to the products just listed, developing countries account for a substantial share of OECD imports of domestic and other manufactured products. Developing countries accounted for two-thirds of all OECD imports of domestic wooden products in 1991, the same proportion as in 1988. However, their share of total OECD imports of other wooden products (tools, etc.) fell from 41 percent in 1988 to 37 percent in 1991. Developing countries (including ITTO members) will need to maintain aggressive marketing policies in the major markets for SPWP in order to maintain their dominant market share in these categories and to improve their position in the large and lucrative furniture and builders' joinery markets.

### Major Exporters

Table 9 shows the top ten developing country exporters of SPWP to the OECD ranked by value of 1991 exports. Indonesia, Thailand, the Philippines, Malaysia and Brazil are the major ITTO producers exporting SPWP to the OECD. Although export values are still low compared to the countries in Table 9, Ecuador is the fastest growing developing country exporter of SPWP with 1991 exports of \$11.5 million, a ten-fold increase on 1988 levels. The other major exporters in Table 9 are either ITTO consumer countries (Korea and China, including Taiwan Province of China) or non-member tropical countries (Mexico, Singapore and Hong Kong). Although developing countries enjoy some degree of tariff relief under the Generalized System of Preferences (GSP) or other schemes for these products in many of the major markets, tariffs remain high compared to those for primary products. This is one reason why the contribution of developing countries to total imports of such products by OECD consumers is still below their potential.

The newly industrialized economies (NIEs) of Taiwan Province of China, Hong Kong, Republic of Korea and Singapore have traditionally accounted for the bulk of the exports listed in Table 9. Rising labour costs associated with growing economies together with decreasing log supplies will result in increased imports of finished goods by these producers, leading to the development of a lucrative market for and/or joint ventures with other producers in the Asian region. Total exports of the NIEs fell from 60 percent of developing country exports to the OECD in 1988 to just over 40 percent in 1991. In addition to increasing costs, all of the NIEs have had their GSP privileges curtailed since 1989-1990, due largely to the healthy state of their economies. This will further enhance export opportunities for Asian (and other) ITTO producers. Almost 89 percent of total 1991 OECD SPWP imports from developing countries were from the Asian region, with Latin America (primarily Mexico and Brazil) providing the bulk of the remainder. High value processing in the African region is still minimal, due largely to a lack of capital, infrastructure and raw materials. This breakdown between the main tropical regions is unlikely to change significantly through the 1990s, as countries in all three regions express desires to expand downstream processing capacity. Table 5 (Production and Consumption) shows the extent of downstream processing currently installed in most ITTO producing countries as "other" mills. Although no data was provided by Latin American members, Table 5 indicates the importance of downstream processing in Asia, especially in terms of employment.

Indonesia's development of downstream processing has been remarkable, with exports of furniture and mouldings increasing by a factor of four since 1988. Indonesia is now the largest ITTO producing country exporter of SPWP, accounting for 12 percent of all developing country exports in 1991. The major categories of Indonesian exports are mouldings and dowels and rattan and wooden furniture. An embargo on the export of raw or semi-finished cane and rattan in 1988 was followed by rapid growth in the rattan furniture sector, with export earnings rising from \$4.5 million in 1986 to \$242.5 million in 1991. Wooden furniture export earnings rose similarly following the log export ban in 1985, from \$4.8 million in 1986 to \$139.9 million in 1991. There are currently over 500 furniture companies/factories in Indonesia, providing employment for an

Table 9. Major Exporters of SPWP, 1988-1991 (million \$)

Major Exporters	1988 Exports		1989 Exports		1990 Exports		1991 Exports	
	Value	%	Value	%	Value	%	Value	%
China	232.08	6.62	295.78	7.89	372.81	9.69	513.15	11.7
(Taiwan Province of China)	1709.64	48.79	1651.77	44.07	1372.79	35.69	1462.28	33.42
Indonesia	130.11	3.71	233.17	6.22	390.28	10.15	527.32	12.05
Thailand	274.14	7.82	316.36	8.44	347.39	9.03	418.10	9.55
Philippines	291.18	8.31	301.83	8.05	292.94	7.62	293.45	6.71
Mexico	163.69	4.67	212.97	5.68	242.99	6.32	257.73	5.89
Malaysia	87.00	2.48	125.53	3.35	172.54	4.49	244.21	5.58
Singapore	157.32	4.49	161.96	4.32	165.70	4.31	170.30	3.89
Republic of Korea	161.42	4.61	138.91	3.71	133.93	3.48	110.44	2.52
Brazil	70.07	2.00	82.65	2.21	91.45	2.38	104.97	2.40
Hong Kong	87.04	2.48	78.55	2.10	84.59	2.20	80.00	1.83
Subtotal	3363.69	95.98	3599.48	96.04	3667.41	95.36	4181.95	95.57
Exports by Developing Region								
NIEs	2115.50	60.38	2031.20	54.19	1757.03	45.68	1823.02	41.66
Other Developing Asia <sup>a</sup>	1058.78	30.22	1319.75	35.21	1632.19	42.44	2063.75	47.16
Latin America	298.43	8.52	372.31	9.93	420.59	10.94	456.22	10.43
Africa	21.07	0.60	23.15	0.62	33.82	0.88	31.13	0.71
Pacific	1.28	0.04	1.53	0.04	2.49	0.06	1.85	0.04
Other Developing Countries	8.59	0.25	0.06	0.00	0.08	0.00	0.06	0.00
Total	3503.75	100.00	3748.00	100.00	3846.20	100.00	4376.03	100.00

a) Including Middle East.

Source: UNSO Comtrade Data Base, ITC

estimated 200 000 people. As mentioned in the previous chapter, Indonesia has recently replaced its bans on logs and rattan with substantial export levies. Due to the magnitude of these levies, no effect on downstream processing is foreseen.

Thailand and Malaysia have also experienced relatively rapid growth in their exports of SPWP to OECD countries from 1988 to 1991, although not as spectacular as that of Indonesia. Malaysia reported 240 furniture factories, 177 dowel/moulding factories, and 30 laminated board factories in 1991. Furniture has been identified in the Malaysian Industrial Master Plan (IMP) as a priority sector for the country's growth, with a 1995 export target of \$220 million already exceeded. About 70 percent of Malaysian wooden furniture exports are manufactured from rubberwood. Thailand has also linked the development of its furniture industry to its rubberwood resources, with 206 sawmills processing rubberwood in 1991. Thailand reported the addition of a further 27 rubberwood mills in 1992. The ban on logging in Thailand's native forests imposed in 1990 increases its dependence on its former rubber plantations as wood resources. 80 percent of Thailand's 1991 wooden furniture exports are manufactured from rubberwood. Both Thailand and Malaysia are attempting to penetrate high value markets with their rubberwood furniture, particularly in Japan. Regulations in both countries favour further processing, restricting exports of raw rubberwood.

The Philippines and Brazil, the only other major ITTO producing country exporters of SPWP, have seen little or no growth in exports of these products. Diminishing wood supplies in the Philippines and large domestic and regional markets in Brazil account for this. China, however, is experiencing a growth in exports of these products to rival Indonesia's. This trend will continue, as many companies from Taiwan Province of China, Hong Kong and other traditional Asian producers establish furniture and other SPWP joint ventures in southern China because of its low wages and favourable investment climate. China's imports of primary tropical timber products can be expected to grow accordingly, as shown in Appendix 1.



## Country Notes

The following notes provide details of relevant developments in ITTO producing countries during 1992, including information on new or increased processing capacity, trade barriers and domestic economic trends solicited through the ITTO Enquiry. Information from other sources was included where relevant and available. The notes, grouped by producing region, are not meant to be comprehensive country reports. They provide a synopsis of some of the relevant forest sector and related developments in ITTO producing nations during the period under review. More detailed reports are contained in the Country Market Statements submitted by members for the Annual Market Discussions.

### *Cameroon*

Cameroon currently has no specific plans to increase domestic processing capacity; however, it is currently considering financial and tax incentives to promote further processing of value-added products. It is also considering restrictions on the export of unprocessed wood, although specific policies have not been developed.

Cameroon's economy has been in recession the past two years due to the slump in sales of various commodities (coffee, cocoa, etc.) on the international market. Housing starts have decreased and the domestic consumption of wood is low.

### *Congo*

Secondary wood-processing facilities exist only on a small scale and are mostly composed of small joinery factories. Although the government is generally in favour of increasing the number of wood processing units, there are no specific plans to expand capacity.

The government has several policies to encourage an increase in the value-added to timber. At least 60 percent of logs harvested must be processed domestically. Free trade is allowed in less developed northern parts of the country to encourage investment in this area. Tax concessions are given for many timber exporting and processing activities. Infrastructure improvements will be necessary as forest exploitation areas now extend more than 1 000 km from export ports.

The use of wood in housing construction is declining, as preferred materials such as aluminum, fibreglass, plastics and steel are substituting for timber.

### *Côte d'Ivoire*

Log production and exports are declining and will continue to fall due to reduced domestic log processing, lower government export quotas, and increasing scarcity of important timber species. Further processing of logs into lumber and veneer is also falling, along with exports of these value-added products, but plywood production is on the rise due to plant renovations and the relatively high supply of raw materials suitable for plywood production.

In 1988 SODEFOR (The Society for the Development of Forest Plantations) made arrangements with three private industrial firms to participate in and share the cost of pilot forest management and utilization programs. The firms have harvest licenses and are also involved in first and second level processing. The pilot programs are expected to produce guidelines for future forest utilization. Over the next five years, temporary harvesting licenses will progressively be replaced by contracts of this type and logging operators with no processing factories will be phased out.

A new system involving monthly auction of export quotas began in 1991 with the aim of limiting the export volume of logs and encouraging exports of value-added products. This system has



improved transparency in quota sales. Only approved exporters are allowed to tender and quotas not purchased are not automatically transferred to the next auction.

The government increased the list of important log species that are banned from export in early 1992, but it is unknown when the new list will come into effect. Local consumption of wood declined in 1990-91 due to economic recession. Building companies increasingly prefer aluminum over wood.

#### *Gabon*

As the nation's second largest employer and second largest contributor to GNP, the forestry sector plays an important role in Gabon's economy. A law stipulates that 75 percent of logs harvested should be processed domestically, but this target has never been met. Economic recovery predicted for 1993 should increase domestic consumption slightly.

#### *Ghana*

The government is currently encouraging the upgrading of wood processing facilities to promote increased production of value-added products. The acquisition of new processing technologies and an expansion in existing kiln capacity, combined with phasing out the use of green/air dried lumber by 1994, will improve the quality of lumber available to wood processing facilities and increase processing efficiency. Total production capacity is expected to expand. Additionally, several training programmes have been planned on kiln drying, timber processing production engineering, and maintenance; and a Wood Industry Training Center is expected to be completed by the end of 1994. A national Management Audit involving a technical and financial assessment of all timber processing mills is also being conducted in an attempt to rationalize the operations of the timber industry.

Ghana plans to tighten its system for allocating logging concessions to facilitate more efficient forest industry development. Such new policies as granting concessions and forest reserves to firms on the basis of production capacity, export performance, and competence in responsible forest management have recently been approved by the government.

As of November 1992, 17 timber species had been banned for export in log form. All exports of logs are expected to be banned by the end of 1993. The government has instituted export levies which range from 8.5 to 50 percent of F.O.B. value on selected species in log and lumber forms. These levies will be used to support afforestation and reforestation programmes.

Domestic building activity and housing starts are still increasing due to a current government policy to provide housing for all by the year 2000. Interest rates have been reduced and several other forms of support have been implemented to encourage construction.

Ghana is currently implementing a forest resources project funded by a \$65 million loan from the World Bank and other sources. The project promotes planting, protection and management of trees on land outside forest reserves through the development of village woodlots and agro-forestry projects.

#### *Togo*

Further processing capacity is currently being expanded through the installation of a chemical treatment unit for wood poles, a modern sawmill, and several mobile sawmill units. Additionally, a new forestry code is being formulated.

### *India*

The government has launched a plan to preserve the northern Himalayan range by reducing the rate of tree cutting and increasing the forest area. Although logging has been banned, it still continues and has prompted the government to adopt more stringent measures. Under the "Himalayan Action Plan," special volunteer brigades financed by the Ministry of Environment will serve as environmental watchdogs and report on any incidence of tree felling or poaching.

### *Indonesia*

In June 1991 Indonesia increased the export tax on sawnwood, more than doubling it for some species. In May 1992 it lifted the export ban on logs, green veneer and rattan in favour of export levies which were described in the chapter on Trade. It also imposed an export levy on the previously duty-free kiln-dried S4S components used for door and window sections and frames.

To rehabilitate degraded forest areas and counter the affects of transmigration, particularly slash-and-burn agriculture, the government has embarked on the establishment of timber estates which are linked to its transmigration program. Under the program, the Ministry of Forestry has assigned 100 forest concession holders who operate their own wood plants to involve transmigrants in the development of timber estates in provinces throughout the country. In addition to providing a livelihood to people who are being resettled under the transmigration program, the estates will provide timber for plywood products, thereby saving stocks of higher quality wood from concession areas.

### *Malaysia*

Sarawak is implementing a number of measures to promote further processing. It has increased its log quota for local processing from 10 to 30 percent in line with increased investment in the forest industry sector, and offers a 80 percent reduction in the royalty fee for logs destined for further processing. Additionally, the Investment Act of 1986 provides a number of tax incentives to encourage investment in wood-based and other industries. It also provides in-service training, seminars and workshops for both technical and managerial personnel. Growth in the Sarawak building industry and housing starts is modest. Utilization of timber in construction is low, as numerous other materials substitute for wood. There has been no noticeable substitution by non-tropical wood.

Sabah has encouraged downstream processing by decreasing the royalty rate for logs utilized locally and waiving an export cess on value-added products. The domestic consumption of sawn timber for building is very small, so substitution by non-wood materials will not likely affect the current domestic consumption pattern of tropical timber.

Malaysia is expanding measures to crack down on illegal logging, such as increasing surveillance of forest areas with the use of helicopters and army personnel, tightening the issuance of timber concessions and imposing stiffer penalties for violation of concession terms and conditions.

### *Papua New Guinea*

PNG favours a reduction in logging activities for export, an expansion in downstream processing, and promotion of lesser-known species, as expressed in the new National Forest Policy (1990). The country continues to seek a more even balance of trade in hopes that it can increase its processing capacity and enter the export market for value-added goods. To promote housing construction, the government has taken measures to reduce mortgage/interest rates and land tax.

### *Philippines*

Due to a logging ban on the remaining virgin forests and a subsequent shift to logging residual forests, there is no planned expansion of domestic processing capacity. An excess of mill capacity

currently exists and the government is now concerned with increasing the efficiency and competitiveness of local wood processors in the world market.

The shift from virgin to residual forests has drastically reduced the annual allowable cuts of timber licenses. The export of all logs and sawnwood is banned, with exceptions for wood from forest plantations or imported logs. There is no tariff imposed on imported logs.

A depressed performance by the construction sector in the Philippines has been noted during the last three years due to worldwide recession and constraints in the local economy. Residential construction and government infrastructure projects are decreasing.

#### *Thailand*

Increased capacity in existing sawmills is not expected because the industry has to rely heavily on imported raw material. However, there is an increase in the number of sawmills intended specifically for the processing of *Hevea brasiliensis* (rubberwood). A 1991 government policy restricts the re-export of imported logs.

Demand for housing is growing due to increasing population. However, the scarcity of wood necessitates non-wood substitutes in construction. The trend is toward using wood in only minor housing components.

#### *Brazil*

Brazil is negotiating with the Group of Seven industrialized countries (G-7) for \$270 million in aid to conserve the Amazon forest. The funds will be used to set up zones in the Amazon for Indians, environmental conservation, and economic development.

In 1992 Brazil entered into its first debt-for-nature swap with the U.S.-based NGO "The Nature Conservancy". The NGO will use \$850,000 in private donations to buy \$2.2 million of discounted Brazilian government debt. The debt will be donated to Fundacao Pro-Natureza, a private Brazilian conservation group that will exchange it for long-term Brazilian "Environmental Government Bonds". The bonds will be used to establish an endowment fund. Interest income will fund conservation, management, and environmental education activities in and around the Grande Sertao Veredas National Park in the northern state of Minas Gerais.

A pulp plant on the coast of the state of Espirito Santo, owned by Aracruz Celulose S.A., has won Sweden's Wallenberg Prize for its pioneering forestry research and been praised by the Geneva-based Business Council for Sustainable Development. The company meets all of its pulp wood needs using its own managed eucalyptus plantations or by purchasing eucalyptus from local growers. The plantations are established on open land deforested years earlier by shifting cultivators, taking measures to preserve any pockets of natural forest which remain.

Government decrees require that any forest operation consuming more than 12 000 m<sup>3</sup> of roundwood per annum must have a management plan and by 1995 must obtain all timber from sustainably managed resources. Those utilizing the forest to a lesser extent must pay a tax, which will help to fund forest management programs. In a move to combat illegal harvesting, all transport of timber in any form must now be registered and checked at road blocks on all major roads.

#### *Colombia*

Two projects are currently being implemented under the Colombian Forestry Action Plan: a wood-cement board mill and modernization of the country's major sawmills. A law has also been

passed (The Forest Incentive Certificate) to promote the establishment of plantations for industrial timber production.

Building activity increased by 7.2 percent in 1990-91; housing starts accounted for three quarters of this increase. Tropical timbers are being replaced by conifers in housing and other industries (i.e. pulp).

#### *Ecuador*

Current policies aim at using idle installed capacity as well as utilization of raw materials from tropical forests under sustainable management. Ecuadorian timber production and trade will be significantly affected by the entry into force of all agreements and tariffs imposed by the Cartagena Agreement. Ecuador is using *Guadua angustifolia* in the construction industry to reduce the costs of housing.

#### *Guyana*

Guyana plans to increase plywood production over seven-fold over the next four years, from 12 500 m<sup>3</sup> in 1993 to 45 900 m<sup>3</sup> in 1994, 82 800 m<sup>3</sup> in 1995, and 90 000 m<sup>3</sup> in 1996. These increases result from the construction of a new plymill in Guyana, to begin production in 1994. Over this same period sawn timber production is expected to increase from 242 500 m<sup>3</sup> to 252 000 m<sup>3</sup>.

Timber in Guyana is generally too expensive for housing construction for low-income groups and is being replaced by concrete. Interest rates are high but falling, with construction activity expected to increase as rates decrease.

#### *Panama*

At present Panama has no specific plans to expand processing capacity. In November 1992 the Reforestation Incentive Act was passed and is expected to increase the area under plantations of rapid growth species.

The building industry is the sector of the economy with the highest annual growth rate. The use of imported forest products accounts for 28 percent of apparent consumption. Sawnwood imports are expected to increase as a result of tariff reductions. The contribution of forests to Panama's economy is underestimated by the country's national accounting system, according to the Panamanian correspondent.

#### *Peru*

Producers are showing an increasing tendency to add value to timber. Several commercial missions have travelled to Europe, Southeast Asia and the U.S. to identify markets and study possibilities for joint ventures. Several new potentially useful species are currently being utilized by Peruvian timber industries through the assistance of ITTO Project PD 37/88 "Industrial Utilization of New Forest Species in Peru."

Peru currently bans the export of logs, but all other trade in timber is free and the country does not anticipate any changes in timber trade policies. However, the government forestry administration has recently been reorganized. In November 1992 the National Institute of Renewable Resources (INRENA - Instituto Nacional de Recursos Naturales) was created to replace the now defunct General Directorate of Forestry and Wildlife of the Ministry of Agriculture. INRENA is accountable to a board of directors which consists of representatives of environmental, forest industry and timber trade NGOs as well as government officials. The Institute's first major undertaking is the drafting of a new Forest Act based on country-wide consultations with local governments, community representatives, and NGOs. The proposals

submitted by these groups are currently being evaluated by INRENA for possible inclusion in the new Forest Act. The new legislation will likely propose that up to 6 million ha of natural tropical forest be gazetted as permanent timber production forest, with these forests to be located near to the country's main forest industry centres. Harvest rights will be granted on either a concession basis (convertible to ownership after a given period of verifiable sustainable management), or via bids on standing timber submitted to an administrative office in charge of sustainably managing a given forest area. A trial of the latter practice is being undertaken as part of PD 95/90 (F), "Forest Management in the Alexander von Humboldt National Forest".

The Peruvian housing industry is currently experiencing a recession; however, interest rates are decreasing and residential construction is expected to improve in 1993. The National Forestry Chamber is holding seminars and workshops to provide information and discuss options for using timber in construction in combination with brick and cement, in an effort to boost domestic demand for timber products.

## References

The following reference texts, periodicals, etc. were consulted in the preparation of the Review:

ATIBT. 1982. *Tropical Timber General Nomenclature*. Paris.

ECE/FAO Timber Bulletin. 1992(a). *Monthly Prices for Forest Products*. Volume XLV, No. 1. Geneva.

*Ibid.* 1992(b). *Annual Forest Products Market Review 1991-1992*. Volume XLV, No. 3. Geneva.

*Ibid.* 1992(c). *Forest Products Markets in 1992 and Prospects for 1993*. Volume XLV, No. 5. Geneva.

FAO. 1988. *An Interim Report on the State of the Forest Resources in the Developing Countries*. Rome.

*Ibid.* 1992. *Monthly Bulletin: Tropical Forest Products in World Timber Trade. 1991 Annual Totals*. Rome.

*Ibid.* 1993(a). *PC Agrostat: Forest Products (1991)*. Rome.

*Ibid.* 1993(b). *1991 Forest Products Yearbook*. Rome.

ITC. 1992. *Secondary Processed Wood Products*. Geneva.

OECD. 1992. *Economic Outlook*. Paris.

TRAFFIC. 1992. *Illegal Tropical Timber Trade: Asia-Pacific*. Sydney.

World Bank. 1992. *Market Outlook for Major Primary Commodities*. Washington D.C.

Various 1991-93 issues of the following publications were also consulted:

Asian Timber	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
Financial Times	World Bank Quarterly Review of Commodity Markets
Japan Times	Japan Forest Products Journal

The following data bases were utilized in preparing the Review:

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

The following organizations were consulted during preparation of the Review:

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



## Appendices

The following Appendices contain data on production, trade and consumption by country (Appendix 1), trade flows by product (Appendix 2), value of trade by producers and consumers (Appendix 3) and major species traded by country (Appendix 4). In Appendix 1, separate figures for China and Taiwan Province of China are given. In the trade flows presented in Appendix 2, however, the figures given for China do not include Taiwan Province of China as most exporters grouped exports to Taiwan Province of China within the "others" category. A separate entry for Taiwan Province of China will be included in the 1993 Forecasting and Statistical Enquiry to allow these important trade flows to be more easily distinguished in future. China's import and export values given in Appendix 3 do not include Taiwan Province of China.

In Appendix 2, figures reported by exporters are shown in normal typeface while those corresponding to import reports are in italics. Only major trading relationships are singled out in Appendix 2; minor trade flows are aggregated as "others" with countries reporting these exports and/or imports and their destinations/sources identified in footnotes where possible. Totals may not sum due to rounding, incomplete data or (in Appendix 1) the existence of stock changes.

The sources indicated below are applicable to all tables. The notes are of relevance to one or more tables.

**Sources:** ITTO Forecasting and Statistical Enquiry for 1992. Other sources are indicated by the superscripts after the figures (I: ITTO estimate; F: FAO/ECE Timber Bulletin; M: FAO Monthly Bulletin; P: FAO PC AGROSTAT; \* : Other unofficial data including statistical reports, ITTO project reports, USDA Foreign Agricultural Service reports, etc.).

**Notes:** Apparent Domestic Consumption = Production + Imports - Exports +/- Stock Change (if reported).

The following countries reported realistic levels of stock changes for one or more products which are reflected in Apparent Domestic Consumption figures: The Netherlands, Republic of Korea and United Kingdom.

The superscript "A" indicates adjustment from veneer area to volume assuming an average veneer sheet thickness of 1 mm.

The superscript "D" indicates adjustment to calendar year figures from figures provided for portions of a calendar year or for a non-calendar fiscal year.

The superscript "R" indicates a figure rounded down to 0.

The superscript "W" indicates adjustment from weight to volume assuming the following factors: logs - 1.37 m<sup>3</sup>/ton; sawnwood - 1.43 m<sup>3</sup>/ton; veneer - 1.33 m<sup>3</sup>/ton; plywood - 1.54 m<sup>3</sup>/ton.

Blanks in tables imply no data available and impossible to reliably estimate.

Figures for Germany are for the former FRG for 1989 and 1990; figures for the Russian Federation are for the former USSR for 1989 and 1990.

Export values in Appendix 3 are FOB; import values are CIF.

The following member countries did not respond to the 1992 ITTO Forecasting and Statistical Enquiry: Egypt, India, Nepal, Spain, Sweden, Switzerland and Trinidad and Tobago.



## Appendix 1.

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m<sup>3</sup>)

TABLE 1-1. Production, Imports and Exports of Lumber and Wood Products																				
Products	Production				Imports				Exports				Apparent Domestic Consumption							
	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1993				
Australia																				
logs	500 <sup>1</sup>	435 <sup>1</sup>	415 <sup>1</sup>	395 <sup>1</sup>	385 <sup>1</sup>	1	0	0	0	0 <sup>1</sup>	6 <sup>1</sup>	5 <sup>1</sup>	4 <sup>1</sup>	4	3 <sup>1</sup>	495	430	411	391	382
sawnwood	250 <sup>1</sup>	225 <sup>1</sup>	211	203 <sup>1</sup>	200 <sup>1</sup>	299	181	154	145	140 <sup>1</sup>	3 <sup>1</sup>	2 <sup>1</sup>	0	1	1 <sup>1</sup>	546	404	365	347	339
veneer	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0 <sup>1</sup>	14	10	2	2	2 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	1	1 <sup>1</sup>	14	10	2	1	1
plywood	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0 <sup>1</sup>	30	41	20	28	25 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	0	2	2 <sup>1</sup>	29	40	20	26	23
Austria																				
logs	0	0	0	0	0	4	4	3	2	2	0	0	0	0	0	4	4	3	2	2
sawnwood	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	64	23	19	17	15	0	0	0	1	2	66	25	21	17	14
veneer	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0	1	1	1	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0	1	1	1
plywood	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	3	2	1	2	2	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	3	2	1	2	2
Canada																				
logs	0	0	0	0	0	0	2	1	1 <sup>1</sup>	1 <sup>1</sup>	0	0	0	0	0	0	2	1	1	1
sawnwood	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	65	26	15	15 <sup>1</sup>	15 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	1	1 <sup>1</sup>	1 <sup>1</sup>	64	25	14	14	14
veneer	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	3	3	2	2 <sup>1</sup>	2 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	3	3	2	2	2
plywood	0	0	0	0	0 <sup>1</sup>	75	62	53	45	40 <sup>1</sup>	8 <sup>1</sup>	8 <sup>1</sup>	3	4 <sup>1</sup>	4 <sup>1</sup>	67	54	50	41	36
China																				
logs	200 <sup>1</sup>	250 <sup>1</sup>	300 <sup>1</sup>	400 <sup>1</sup>	400 <sup>1</sup>	337	691	1395	1776	1800 <sup>1</sup>	17 <sup>1</sup>	17 <sup>1</sup>	17	17 <sup>1</sup>	17 <sup>1</sup>	520	924	1 678	2 159	2 183
sawnwood	100 <sup>1</sup>	140 <sup>1</sup>	160 <sup>1</sup>	220 <sup>1</sup>	220 <sup>1</sup>	45	154	88	160	500 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	145	294	248	380	720
veneer	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	13	5	27	207	220 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	13	5	27	207	220
plywood	130 <sup>1</sup>	245 <sup>1</sup>	500 <sup>1</sup>	700 <sup>1</sup>	700 <sup>1</sup>	827	1302	1417	1424	1450 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	957	1 547	1 917	2 124	2 150
(Taiwan Province logs of China)																				
logs	50 <sup>1</sup>	47 <sup>1</sup>	24 <sup>1</sup>	15 <sup>1</sup>	15 <sup>1</sup>	4000 <sup>1</sup>	3945 <sup>1</sup>	4218 <sup>1</sup>	3961 <sup>1</sup>	3000 <sup>1</sup>	3 <sup>1</sup>	3 <sup>1</sup>	3 <sup>1</sup>	5 <sup>1</sup>	2 <sup>1</sup>	4 047	3 989	4 239	3 971	3 013
sawnwood	180 <sup>1</sup>	170 <sup>1</sup>	806 <sup>1</sup>	582 <sup>1</sup>	548 <sup>1</sup>	110 <sup>1</sup>	118 <sup>1</sup>	529 <sup>1</sup>	709 <sup>1</sup>	725 <sup>1</sup>	18 <sup>1</sup>	17 <sup>1</sup>	14 <sup>1</sup>	12 <sup>1</sup>	8 <sup>1</sup>	272	271	1 321	1 279	1 265
veneer	650 <sup>1</sup>	648 <sup>1</sup>	630 <sup>1</sup>	620 <sup>1</sup>	610 <sup>1</sup>	80 <sup>1</sup>	89 <sup>1</sup>	146 <sup>1</sup>	226 <sup>1</sup>	280 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	730	737	776	846	890
plywood	500 <sup>1</sup>	484 <sup>1</sup>	530 <sup>1</sup>	486 <sup>1</sup>	450 <sup>1</sup>	350 <sup>1</sup>	361 <sup>1</sup>	432 <sup>1</sup>	741 <sup>1</sup>	800 <sup>1</sup>	260 <sup>1</sup>	257 <sup>1</sup>	204 <sup>1</sup>	159 <sup>1</sup>	130 <sup>1</sup>	590	588	758	1 068	1 120
Egypt																				
logs	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0
sawnwood	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	20	27 <sup>1</sup>	30 <sup>1</sup>	35 <sup>1</sup>	35 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	20	27	30	35	35
veneer	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0
plywood	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	100 <sup>1</sup>	100 <sup>1</sup>	100 <sup>1</sup>	85 <sup>1</sup>	80 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	100	100	100	85	80
EEC																				
logs	0	0	0	0	0	3 445	3 415	3 173	3 192	2 929	92	81	78	76	79	3 353	3 334	3 095	3 026	2 839
sawnwood	854	808	783	771	740	3 881	3 197	2 919	2 528	2 416	252	317	309	310	307	4 483	3 688	3 393	2 989	2 849
veneer	280	310	280	279	267	228	237	289	323	300	80	63	55	51	51	428	484	514	551	516
plywood	577	563	526	479	457	1 378	1 469	1 490	1 435	1 462	209	203	222	210	210	1 746	1 829	1 794	1 704	1 709
Belgium/Luxembourg																				
logs	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0 <sup>1</sup>	79	60	32	80	55 <sup>1</sup>	9 <sup>1</sup>	9 <sup>1</sup>	18	17 <sup>1</sup>	20 <sup>1</sup>	70	51	14	63	35
sawnwood	14 <sup>1</sup>	15 <sup>1</sup>	10 <sup>1</sup>	20 <sup>1</sup>	15 <sup>1</sup>	329	318	250 <sup>1</sup>	210 <sup>1</sup>	180 <sup>1</sup>	67 <sup>1</sup>	58 <sup>1</sup>	53 <sup>1</sup>	62 <sup>1</sup>	62 <sup>1</sup>	276	275	207	168	133
veneer	3 <sup>1</sup>	3 <sup>1</sup>	1 <sup>1</sup>	5 <sup>1</sup>	3 <sup>1</sup>	19	20	18 <sup>1</sup>	16 <sup>1</sup>	15 <sup>1</sup>	9 <sup>1</sup>	6 <sup>1</sup>	7	5	5 <sup>1</sup>	13	17	12	16	13
plywood	20 <sup>1</sup>	7 <sup>1</sup>	4 <sup>1</sup>	10 <sup>1</sup>	7 <sup>1</sup>	166	160	139	131	130 <sup>1</sup>	36 <sup>1</sup>	37 <sup>1</sup>	54	48	50 <sup>1</sup>	150	130	89	93	87
Denmark																				
logs	0	0	0	0	0	4	3	2	5 <sup>1</sup>	1 <sup>1</sup>	0	0	0 <sup>1</sup>	0	0	4	3	2	5	1
sawnwood	0	0	0	0	0 <sup>1</sup>	30	34	16	20 <sup>1</sup>	20 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	4	9 <sup>1</sup>	5 <sup>1</sup>	26	30	12	11	15
veneer	0	0	0	0	0 <sup>1</sup>	37	7	8	8 <sup>1</sup>	8 <sup>1</sup>	3 <sup>1</sup>	3 <sup>1</sup>	2	2 <sup>1</sup>	3 <sup>1</sup>	34	4	6	6	5
plywood	2 <sup>1</sup>	2 <sup>1</sup>	3 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	23	23	40	30 <sup>1</sup>	28 <sup>1</sup>	5 <sup>1</sup>	5 <sup>1</sup>	7	6 <sup>1</sup>	6 <sup>1</sup>	20	20	36	26	24

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m<sup>3</sup>)

Table 1-1. Production, Imports and Exports of Wood and Wood Products, 1989-1993																				
Products	Production					Imports					Exports					Apparent Domestic Consumption				
	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993
France																				
logs	0	0	0	0	0	882	937	878	770 <sup>F</sup>	750 <sup>F</sup>	25 <sup>1</sup>	24 <sup>1</sup>	14	15 <sup>F</sup>	15 <sup>F</sup>	857	913	864	755	735
sawnwood	240 <sup>*</sup>	245 <sup>1</sup>	240 <sup>1</sup>	230 <sup>1</sup>	220 <sup>1</sup>	490	472	464 <sup>*</sup>	310 <sup>F</sup>	310 <sup>F</sup>	15 <sup>1</sup>	17 <sup>1</sup>	21 <sup>F</sup>	20 <sup>F</sup>	20 <sup>F</sup>	715	700	683	520	510
veneer	5 <sup>*</sup>	5 <sup>1</sup>	5 <sup>1</sup>	5 <sup>1</sup>	5 <sup>1</sup>	24	20 <sup>1</sup>	20 <sup>F</sup>	20 <sup>1</sup>	20 <sup>1</sup>	3 <sup>1</sup>	3 <sup>1</sup>	3	3 <sup>1</sup>	3 <sup>1</sup>	26	22	22	22	22
plywood	200 <sup>*</sup>	210 <sup>1</sup>	200 <sup>1</sup>	160 <sup>1</sup>	150 <sup>1</sup>	207	225 <sup>1</sup>	213 <sup>*</sup>	210 <sup>1</sup>	210 <sup>1</sup>	90 <sup>1</sup>	89 <sup>1</sup>	88	85 <sup>1</sup>	83 <sup>1</sup>	317	346	325	285	277
Germany																				
logs	0	0	0	0	0	365	356	317	300 <sup>F</sup>	280 <sup>F</sup>	27 <sup>*</sup>	21 <sup>*</sup>	24	20 <sup>F</sup>	20 <sup>F</sup>	338	335	293	280	260
sawnwood	75 <sup>*</sup>	72 <sup>1</sup>	65 <sup>1</sup>	60 <sup>1</sup>	55 <sup>1</sup>	495	410	416	340 <sup>F</sup>	320 <sup>F</sup>	51 <sup>*</sup>	42 <sup>1</sup>	40	30 <sup>F</sup>	30 <sup>F</sup>	519	440	441	370	345
veneer	35 <sup>*</sup>	34 <sup>1</sup>	30 <sup>1</sup>	30 <sup>1</sup>	30 <sup>1</sup>	76	91	85	82 <sup>1</sup>	80 <sup>1</sup>	35 <sup>*</sup>	29 <sup>*</sup>	22	22 <sup>1</sup>	22 <sup>1</sup>	76	96	93	90	88
plywood	70 <sup>*</sup>	68 <sup>1</sup>	60 <sup>1</sup>	60 <sup>1</sup>	55 <sup>1</sup>	143	161	202	215 <sup>1</sup>	230 <sup>1</sup>	4 <sup>*</sup>	0	0	3 <sup>1</sup>	3 <sup>1</sup>	209	229	262	272	282
Greece																				
logs	0	0	0	0	0	186	160	170 <sup>F</sup>	170 <sup>F</sup>	170 <sup>1</sup>	0	0	0	0	0	186	160	170	170	170
sawnwood	40 <sup>*</sup>	33 <sup>1</sup>	35 <sup>1</sup>	35 <sup>1</sup>	35 <sup>1</sup>	23	28	24 <sup>F</sup>	34 <sup>F</sup>	34 <sup>F</sup>	4 <sup>1</sup>	4 <sup>1</sup>	4 <sup>F</sup>	4 <sup>F</sup>	4 <sup>F</sup>	59	57	55	65	65
veneer	7 <sup>*</sup>	6 <sup>1</sup>	7 <sup>1</sup>	8 <sup>1</sup>	8 <sup>1</sup>	2	3	4 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	0	0	0	0	0	9	9	11	12	12
plywood	43 <sup>*</sup>	38 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>	3	4	5 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	10 <sup>1</sup>	10 <sup>1</sup>	10 <sup>1</sup>	10 <sup>1</sup>	10 <sup>1</sup>	36	32	35	34	34
Ireland																				
logs	0	0	0	0	0	0	0	0 <sup>RW</sup>	1 <sup>D</sup>	1 <sup>D</sup>	0	0	0 <sup>RW</sup>	1 <sup>DW</sup>	1 <sup>DW</sup>	0	0	0	0	0
sawnwood	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	74	95	55 <sup>1</sup>	70 <sup>1</sup>	70 <sup>1</sup>	8 <sup>1</sup>	8 <sup>1</sup>	4 <sup>W</sup>	3 <sup>DW</sup>	3 <sup>DW</sup>	66	87	51	67	67
veneer	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	1 <sup>W</sup>	1 <sup>D</sup>	1 <sup>D</sup>	0	0	0 <sup>DRW</sup>	0 <sup>D</sup>	0 <sup>1</sup>	0	0	1	1	1
plywood	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	12	15	12 <sup>W</sup>	15 <sup>D</sup>	15 <sup>D</sup>	0	0	0 <sup>R</sup>	0 <sup>R</sup>	0 <sup>1</sup>	12	15	12	15	15
Italy																				
logs	0	0	0	0	0	734	802	674	650 <sup>F</sup>	600 <sup>F</sup>	0	0	0	0	0	734	802	674	650	600
sawnwood	210 <sup>*</sup>	210 <sup>1</sup>	175 <sup>1</sup>	170 <sup>1</sup>	160 <sup>1</sup>	534	399	363	340 <sup>F</sup>	320 <sup>F</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>F</sup>	0 <sup>F</sup>	0 <sup>F</sup>	744	609	538	510	480
veneer	150 <sup>*</sup>	175 <sup>1</sup>	150 <sup>1</sup>	145 <sup>1</sup>	135 <sup>1</sup>	42	70	130 <sup>1</sup>	170 <sup>1</sup>	150 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	190	243	278	313	283
plywood	10 <sup>1</sup>	15 <sup>1</sup>	10 <sup>1</sup>	8 <sup>1</sup>	5 <sup>1</sup>	33	39	47 <sup>M</sup>	50 <sup>1</sup>	50 <sup>1</sup>	10 <sup>1</sup>	9 <sup>1</sup>	9 <sup>1</sup>	9 <sup>1</sup>	9 <sup>1</sup>	33	45	48	49	46
Netherlands																				
logs	0	0	0	0	0	154	110	117	117 <sup>F</sup>	117 <sup>F</sup>	19 <sup>*</sup>	18 <sup>1</sup>	16	16 <sup>F</sup>	16 <sup>F</sup>	135	92	108	101	101
sawnwood	70 <sup>1</sup>	50 <sup>1</sup>	52	52 <sup>F</sup>	52 <sup>F</sup>	850 <sup>*</sup>	570 <sup>*</sup>	525	502 <sup>F</sup>	502 <sup>F</sup>	81 <sup>*</sup>	159 <sup>*</sup>	167	168 <sup>F</sup>	168 <sup>F</sup>	839	461	433	386	386
veneer	5 <sup>1</sup>	5 <sup>1</sup>	11	10 <sup>1</sup>	10 <sup>1</sup>	12	11	10	10 <sup>1</sup>	10 <sup>1</sup>	9 <sup>*</sup>	7 <sup>*</sup>	7	7 <sup>1</sup>	7 <sup>1</sup>	8	9	14	13	13
plywood	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	253	274	287	290 <sup>1</sup>	290 <sup>1</sup>	33 <sup>1</sup>	32 <sup>1</sup>	36	35 <sup>1</sup>	35 <sup>1</sup>	220	242	251	255	255
Portugal																				
logs	0	0	0	0	0	401	394	419	470	420	9 <sup>1</sup>	8 <sup>1</sup>	4	5	5	392	386	415	465	415
sawnwood	95 <sup>1</sup>	95 <sup>1</sup>	120	120 <sup>1</sup>	120 <sup>1</sup>	33	30	19	32	30	10 <sup>1</sup>	9 <sup>1</sup>	6	4	5	118	116	133	148	145
veneer	30 <sup>1</sup>	30 <sup>1</sup>	25 <sup>1</sup>	25 <sup>1</sup>	25 <sup>1</sup>	1	1	1	1	1	3 <sup>1</sup>	3 <sup>1</sup>	2	2	2	28	28	24	24	24
plywood	70 <sup>1</sup>	70 <sup>1</sup>	65 <sup>1</sup>	65 <sup>1</sup>	65 <sup>1</sup>	1	1	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	71	71	65	65	65
Spain																				
logs	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	583	556	540 <sup>1</sup>	520 <sup>1</sup>	520 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	583	556	539	519	519
sawnwood	100 <sup>1</sup>	80 <sup>1</sup>	80 <sup>1</sup>	80 <sup>1</sup>	80 <sup>1</sup>	320	344	352 <sup>F</sup>	250 <sup>F</sup>	200 <sup>F</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>*</sup>	0 <sup>1</sup>	420	424	432	330	280
veneer	40 <sup>1</sup>	50 <sup>1</sup>	50 <sup>1</sup>	50 <sup>1</sup>	50 <sup>1</sup>	1	1	1	1 <sup>1</sup>	1 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	2 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	41	51	49	50	50
plywood	150 <sup>1</sup>	145 <sup>*</sup>	140 <sup>*</sup>	130 <sup>*</sup>	130 <sup>1</sup>	5	7	9 <sup>*</sup>	10 <sup>*</sup>	10 <sup>1</sup>	20 <sup>1</sup>	18 <sup>*</sup>	15 <sup>*</sup>	10 <sup>*</sup>	10 <sup>1</sup>	135	134	134	130	130
United Kingdom																				
logs	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	57	37	24	19	15	3 <sup>*</sup>	1 <sup>*</sup>	1	1	1	54	36	22	19	15
sawnwood	10 <sup>1</sup>	8 <sup>1</sup>	6	4	3	703	497	435	420	430	12 <sup>*</sup>	16 <sup>*</sup>	10	10	10	701	489	432	415	418
veneer	5 <sup>1</sup>	2 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	14	13	11	10	10	16 <sup>1</sup>	10 <sup>1</sup>	8	7	6	3	5	4	4	5
plywood	12 <sup>1</sup>	8 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	3 <sup>1</sup>	532	560	536	480	495	1 <sup>1</sup>	3 <sup>1</sup>	3 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	543	565	537	480	494
Finland																				
logs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sawnwood	0	0	0	0	0	10	10	8	6	5	0	0	1	0	0	10	10	7	6	5
veneer	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1
plywood	0	0	0	0	0	1	1	1	0 <sup>R</sup>	0	0	0	0 <sup>R</sup>	0	0	1	1	1	0	0







Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m<sup>3</sup>)

TABLE 1-2. PRODUCTION, TRADE AND CONSUMPTION OF LUMBER																					
Country	Products	Production				Imports				Exports				Apparent Domestic Consumption							
		1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993					
LATIN AMERICA/CARIBBEAN																					
Bolivia	logs	287 *	342 *	419	366	350 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	287	342	419	366	350
	sawnwood	91	138	138	121	120 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	65	66	118	120 <sup>1</sup>	120 <sup>1</sup>	26	72	20	1	0
	vener	2	14	26	23	22 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	1	3	9	6	6 <sup>1</sup>	1	11	17	17	16
	plywood	2	2	15	13	12 <sup>1</sup>	0	0	0	0 <sup>R</sup>	0 <sup>1</sup>	1	1	0	0 <sup>R</sup>	1 <sup>1</sup>	1	1	15	13	11
Brazil	logs	27200	22900	19500 *	22200 *	22000 <sup>1</sup>	100	123	8 *	5 *	5 <sup>1</sup>	0	0	0 *	0 *	0 <sup>1</sup>	27300	23023	19508	22205	22005
	sawnwood	8300	7000	6500 *	6500 *	6500 <sup>1</sup>	100	280	250 *	150 *	160 <sup>1</sup>	345	446	230 *	330 *	350 <sup>1</sup>	8055	6834	6520	6320	6310
	vener	234 <sup>P</sup>	213 <sup>P</sup>	210 <sup>P</sup>	220 <sup>P</sup>	220 <sup>1</sup>	35	30	30 *	11 *	15 <sup>1</sup>	40	53	40 *	90 *	90 <sup>1</sup>	229	190	200	141	145
	plywood	1260	1200	1100 *	1150 *	1150 <sup>1</sup>	0	2	4	1 <sup>1</sup>	1 <sup>1</sup>	350	248	350 *	390 *	390 <sup>1</sup>	910	954	754	761	761
Colombia	logs	1500	1200	1350	1519	1600	0	0	0	0	0	0	0	0	0	0	1500	1200	1350	1519	1600
	sawnwood	480 <sup>1</sup>	387	521	542	564	3	6	13	13	14	1	2	9	10	11	482	391	525	545	567
	vener	7	4	6	6	6	0	0	0 <sup>R</sup>	0	0	0	0	0	0 <sup>R</sup>	0 <sup>R</sup>	7	4	6	6	6
	plywood	37	66	83	84	85	3	3	2	2	3	5	19	6	6	6	35	50	79	80	82
Ecuador	logs	2701	2626	2001	2081	2165	0	0	0	0	0	0	0	0 <sup>R</sup>	0	0	2701	2626	2001	2081	2165
	sawnwood	1490	1258	865	900	936	0	0	0 <sup>R</sup>	0 <sup>R</sup>	0 <sup>R</sup>	18	19	18	20	22	1472	1239	847	880	914
	vener	1	4	8	9	9	0	0	0	0	0	0	0	0	3	3	1	4	6	6	6
	plywood	76	165	87	91	94	0	0	0 <sup>R</sup>	0 <sup>R</sup>	0 <sup>R</sup>	13	18	23	25	28	63	147	64	66	66
Guyana	logs	125 <sup>1</sup>	125 <sup>1</sup>	129	144	180	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	4 <sup>1</sup>	4 <sup>1</sup>	4	0 <sup>R</sup>	1 <sup>1</sup>	121	121	125	144	179
	sawnwood	27 <sup>1</sup>	27 <sup>1</sup>	37 <sup>1</sup>	44 <sup>1</sup>	54 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	4 <sup>P</sup>	4 <sup>P</sup>	12	16	20	23	23	25	28	34
	vener	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0	0	0	0
	plywood	0 <sup>1</sup>	0 <sup>1</sup>	1 <sup>1</sup>	2 <sup>1</sup>	10 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0 <sup>P</sup>	0 <sup>P</sup>	0 <sup>AR</sup>	1 <sup>A</sup>	1 <sup>1</sup>	0	0	1	1	9
Honduras	logs	51 <sup>P</sup>	44 <sup>P</sup>	37	9 <sup>D</sup>	10 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	51	44	37	9	10
	sawnwood	3 <sup>P</sup>	1 <sup>P</sup>	3	1 <sup>D</sup>	1 <sup>1</sup>	0	15	0	0	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	3	16	3	1	1
	vener	0	0	0	0	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	0	0	0	0	0
	plywood	10 <sup>P</sup>	3 <sup>P</sup>	0	0	0 <sup>1</sup>	3	2	2 <sup>1</sup>	2 <sup>1</sup>	2 <sup>1</sup>	0	0	0	0	0 <sup>1</sup>	13	5	2	2	2
Panama	logs	124	140	130 <sup>1</sup>	130 <sup>1</sup>	130 <sup>1</sup>	0	1	1	1	1	1	0	0	0	0	123	141	131	131	131
	sawnwood	50	62	57	59	59	0	5	5	5	5	0	1	1	1	1	50	66	61	63	63
	vener	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	2	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0 <sup>1</sup>	0 <sup>1</sup>	2	0	0	0	0
	plywood	12	12	12	13	13	0	5	5	5	5	1	1	1	1	1	11	16	16	17	17
Peru	logs	1019	867	945	878	904	0	0	0 <sup>R</sup>	0	0	0	0	0	0	0 <sup>1</sup>	1019	867	945	878	904
	sawnwood	534	422	423	410	422	0	0	0	0	0	3	1	1	1	2	531	421	422	409	420
	vener	11	16	3	3	3	0	2	2	2	2	0	0 <sup>R</sup>	0 <sup>R</sup>	0 <sup>R</sup>	0 <sup>R</sup>	11	18	5	5	5
	plywood	35	24	24	23	24	0	0	0	1	1	0	0	0	0 <sup>R</sup>	0 <sup>R</sup>	35	24	24	24	25
Trinidad and Tobago	logs	43 <sup>1</sup>	48 <sup>P</sup>	40 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>	3	0	1 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	46	48	41	41	41
	sawnwood	23 <sup>1</sup>	23 <sup>1</sup>	20 <sup>1</sup>	20 <sup>1</sup>	20 <sup>1</sup>	12 <sup>P</sup>	15 <sup>P</sup>	15 <sup>1</sup>	15 <sup>1</sup>	15 <sup>1</sup>	8 <sup>P</sup>	5 <sup>P</sup>	5 <sup>1</sup>	5 <sup>1</sup>	5 <sup>1</sup>	27	33	30	30	30
	vener	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>P</sup>	0 <sup>P</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0	0	0
	plywood	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	29 <sup>P</sup>	42 <sup>P</sup>	40 <sup>1</sup>	40 <sup>1</sup>	40 <sup>1</sup>	2 <sup>P</sup>	1 <sup>P</sup>	1 <sup>1</sup>	1 <sup>1</sup>	1 <sup>1</sup>	27	41	39	39	39

Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m<sup>3</sup>)

Country	Products	Production				Imports				Exports				Apparent Domestic Consumption							
		1989	1990	1991	1992	1993	1989	1990	1991	1992	1993	1989	1990	1991	1992	1993					
LATIN AMERICA/ CARIBBEAN TOTAL	logs	33 050	28 292	24 551	27 367	27 379	103	124	10	7	7	5	4	4	0	1	33 148	28 412	24 557	27 374	27 385
	sawnwood	10 998	9 318	8 564	8 597	8 676	115	321	283	183	194	444	544	394	503	531	10 669	9 095	8 453	8 277	8 339
	veneer	255	251	253	261	260	37	32	32	13	17	41	56	51	99	99	251	227	234	175	178
	plywood	1 432	1 472	1 322	1 376	1 388	35	54	53	51	52	372	288	381	424	428	1 095	1 238	994	1 003	1 012
TOTAL ALL PRODUCERS	logs	144 079	136 625	133 336	135 841	130 279	2 902	4 148	4 317	5 061	5 029	26 163	25 397	24 056	21 864	16 081	120 818	115 376	113 597	119 038	119 226
	sawnwood	42 389	39 357	38 631	39 197	39 203	1 677	1 922	1 872	2 062	2 291	10 575	7 397	7 391	7 798	7 696	33 491	33 882	33 112	33 461	33 798
	veneer	1 214	1 332	1 507	1 786	1 878	44	40	48	42	50	578	674	768	1 036	1 121	680	698	787	792	807
	plywood	12 113	12 375	12 949	13 854	14 756	71	114	106	88	91	9 557	10 049	10 626	10 708	11 176	2 627	2 440	2 429	3 234	3 671
TOTAL ALL MEMBERS	logs	144 829	137 357	134 075	136 731	131 079	26 920	27 266	27 250	27 617	25 528	26 302	25 516	24 165	21 971	16 193	145 447	139 107	136 900	142 178	140 242
	sawnwood	44 587	41 492	41 453	41 785	41 773	8 673	7 896	7 649	8 087	8 212	10 893	7 776	7 747	8 152	8 044	43 367	41 612	41 247	41 593	41 806
	veneer	2 459	2 597	2 720	2 954	2 989	1 127	1 092	1 236	1 578	1 631	659	738	826	1 091	1 176	2 927	2 951	3 130	3 441	3 444
	plywood	20 610	20 897	21 701	21 982	21 982	7 519	7 925	8 212	8 663	8 825	10 073	10 560	11 117	11 189	11 609	18 056	18 262	18 455	19 140	18 872



## Appendix 2.

Table 2-1-1. Tropical Logs Exported from Africa in 1991 (m³)

Exporters	Importers	AFRICA				ASIA-PACIFIC				LATIN AMERICA	NORTH AMERICA	TOTAL LOG EXPORTS
		China	Japan	Republic of Korea	Others	Total						
Cameroun <sup>v</sup>	1892	829	23845	607	26178 <sup>e</sup>	51459				0	0	971000
			14500	1000		15500				0	0	
Congo	4571		1370		8480 <sup>e</sup>	9850			480 <sup>e</sup>		430 <sup>e</sup>	319000
	2319 <sup>d</sup>		3400			3400			0		0	
Côte d'Ivoire <sup>pw</sup>	20000				16470 <sup>e</sup>	16470			269 <sup>e</sup>		120 <sup>e</sup>	355000
	0				0	0			0		1000 <sup>e</sup>	
Gabon	97234 <sup>e</sup>		65150	14332	104427 <sup>e</sup>	223909			7502		0	960000
	0		74100	4000		78100			0		0	
Ghana	4590	0	0	0	360	360			18350		0	215000
	20 <sup>d</sup>	0	0	0	0	0			0		0	
Liberia	8000 <sup>e</sup>				38000	38000			3000 <sup>e</sup>			411000
Zaire	0		2200		0	2200			0		0	89000
Others	0				0	0			0		0	
	447 <sup>e</sup>		1600	2000	0	3600			0		0	
TOTAL LOG IMPORTS		1394000	10402000	3690000								

a) Including New Zealand (1289 m³ from Cameroon; 2050 m³ from Congo). b) All Brazil. c) All U.S. d) All Togo. e) Including India, 11822 m³. f) To Brazil, 109 m³, to Panama, 164 m³. g) Including Egypt, 7284 m³. h) Including India, 2971 m³, New Zealand, 1022 m³, Taiwan Province of China, 8105 m³. i) Including Egypt, 2000 m³. j) All India. k) All Cameroon imports.



Table 2-1-2. Tropical Logs Exported from Africa in 1991 (m³)

Exporters	Importers	EUROPE												TOTAL LOG EXPORTS	
		Belgium Luxembourg	Denmark	France	Germany	Greece	Italy	Nether- lands	Portugal	Spain	United Kingdom	Russian Federation	Others		Total
Cameroon <sup>w</sup>		17250	937	140365	45315	40952	169787	103993	75975	64049	8860	6088	1077	674647	971000
		20500	500	113000	56000	36677	179000	63000	54000		5000	5790	0	533467	
Congo		340	300	51032	33990	17770	55220		104190	32430	0	5010	2930	303212	319000
		2600	200	64000	43000	13556	816000		119000		0	6443		330399	
Côte d'Ivoire <sup>pw</sup>		1300	15	78819	3482	10910	62532	538	42833	77597	10761	1584	643	291041	355000
		1500	100	86000	4000	40157	75000	1000	40000		8000	2392	1000 <sup>r</sup>	259149	
Gabon		1309	630	455489	16950	46835	19273	7384	89141	24828	2250	2397	4224	670710	960000
		4400	300	466000	22000	76949		20000	99000		6000	3681	1000	699330	
Ghana		0	0	12130	119880	1690	32090	13310	8270	4590	180	0	0	192140	215000
		200	0	14000	131000	1344	26000	8000	9000		600	0	1000	191544	
Liberia		2000	0	143000	37000	10000	43000	0	54000	16000	5000			310000	411000
		0	0	104000	27000	0	7000	1000	30000	35000 <sup>r</sup>	3000	0	0	172000	
Zaire															890000
		2000		9000	16000	55	35000		47000			12969	0	122024	
Others		0					0						0	0	
				0	12000		32700	10000	16000	0	0	0	0	70700	
TOTAL LOG IMPORTS		32000	2000	878000	317000	170000 <sup>r</sup>	674000	117000	419000	540000 <sup>r</sup>	24000	31000 <sup>r</sup>			

a) All Austria.

Table 2-1-3. Tropical Logs Exported from Asia-Pacific in 1991(m³)

Exporters	Importers	ASIA-PACIFIC							EUROPE	NORTH AMERICA	TOTAL LOG EXPORTS
		China	India	Japan	Malaysia	Philippines <sup>d</sup>	Republic of Korea	Thailand	Others	TOTAL	
China		-	0	11630		0			5190	16820	0
		-		4300		0	3500		0	7800	100 <sup>e</sup>
Indonesia				0		0	0	0		0	0
		13351		6000	1724	0	2000	0	180 <sup>f</sup>	23255	
Malaysia		1144700	625700	9268800	-	261200	3213300	652600	3948000 <sup>g</sup>	19114300	42150 <sup>h</sup>
		742260		9068200	-	356190	3086000 <sup>i</sup>	587000	190 <sup>j</sup>	13839840	10300 <sup>k</sup>
Papua New Guinea		27700	15300	813700	5100	8300	488400	10800	35100 <sup>l</sup>	1404400	
		39480		752000		0	493000	5000	0	1289480	
Others		40 <sup>m</sup>		2320 <sup>n</sup>		0	0	0	4000 <sup>o</sup>	6360	
		40042 <sup>p</sup>		233000 <sup>q</sup>				1061712 <sup>r</sup>		374754	290 <sup>s</sup>
TOTAL LOG IMPORTS		1394000	1500000 <sup>t</sup>	10402000	8000	397000	3690000	2400000 <sup>u</sup>			

a) All Russian Federation. b) All New Zealand. c) Including Taiwan Province of China, 3473000 m³. d) To France, 90 m³; Germany, 39000 m³; United Kingdom, 160 m³; Switzerland, 2900 m³. e) Belgium, 800 m³; Denmark, 300 m³; France, 3000 m³; Germany, 3000 m³; Italy, 200 m³; Netherlands, 1000 m³. f) All U.S. g) All Philippines. h) All Australia. i) Including Thailand, 2090 m³. j) Including India, 4000 m³; Philippines, 2400 m³; Thailand, 600 m³. k) Australia to Italy, 90 m³; Thailand to France, 100 m³; Philippines to United Kingdom, 100 m³.

Table 2-1-4. Tropical Logs Re-exported from Europe/Exported from Latin America/Caribbean in 1991 (m<sup>3</sup>)

Importers	EUROPE						TOTAL LOG RE-EXPORTS
	Belgium-Luxembourg	Germany	Italy	Portugal	Spain	Others	
Re-exporters							
France	6000	3000	2000	1000	1000	1000 <sup>a</sup>	14000
			100	1000			1100
Germany			300			2900 <sup>b</sup>	3200
							24000
Netherlands	1000	14000				0	15000
							16000
Portugal					4000		4000
							0
Spain				1000		0	1000
							1000 <sup>c</sup>
Others			1000 <sup>d</sup>	3 <sup>d</sup>	92 <sup>d</sup>	8688 <sup>e</sup>	41901
						149 <sup>e</sup>	149
TOTAL LOG IMPORTS	32000	317000	674000	419000	540000 <sup>f</sup>		

a) All Switzerland. b) All Netherlands. c) From Australia, 200 m<sup>3</sup>; from Belgium, 2781 m<sup>3</sup>. d) All Belgium. e) To Belgium, 8088 m<sup>3</sup>; to Denmark, 200 m<sup>3</sup>; to Ireland, 400 m<sup>3</sup>.

Minor log exports/imports from Latin America/Caribbean were reported:

- 1) Japan (100 m<sup>3</sup>), Denmark (100 m<sup>3</sup>), Ireland (49 m<sup>3</sup>), Italy (400 m<sup>3</sup>) and the U.S. (1000 m<sup>3</sup>) reported minor log imports from Brazil.
- 2) Ecuador exported 30 m<sup>3</sup> of logs to Italy; Italy reported 32510 m<sup>3</sup> from this source.
- 3) Portugal reported log imports of 2000 m<sup>3</sup> from Guyana (no corresponding Guyanan exports reported). Republic of Korea reported log imports of 2000 m<sup>3</sup> from Panama (no corresponding Panamanian exports reported).

Table 2.2-1. Tropical Sawnwood Exported from Africa in 1991 (m<sup>3</sup>)

Exporters	Importers	AFRICA	Japan	ASIA-PACIFIC Others	Total	LATIN AMERICA	Canada	U.S.	Total	TOTAL SAWNWOOD EXPORTS
Cameroun <sup>w</sup>		1523 <sup>a</sup>	1624	126 <sup>b</sup>	1750	97	1018	1391	2409	179000
Côte d'Ivoire <sup>pw</sup>			2000	0	2000	0				
		62577 <sup>c</sup>	31	17722 <sup>d</sup>	17751	531 <sup>e</sup>	94	1279	1373	528000
			0	0	0	0	0	1000	1000	
Ghana		24320 <sup>f</sup>	20	4580 <sup>g</sup>	4600	14510		3560	3560	183000
		18210 <sup>h</sup>	100	261 <sup>i</sup>	361	0		3000	3000	
Others		0	0	0	0					
		60 <sup>j</sup>	1000 <sup>k</sup>		1000					
TOTAL SAWNWOOD IMPORTS			1013000				15000	196000		

a) Including Congo, 1 m<sup>3</sup>; Egypt, 1 m<sup>3</sup>; Gabon 14 m<sup>3</sup>. b) Including Indonesia, 92 m<sup>3</sup>; Korea, 30 m<sup>3</sup>. c) Including Egypt, 577 m<sup>3</sup>. d) Including Australia, 16 m<sup>3</sup>; New Zealand, 31 m<sup>3</sup>. e) All Panama. f) Including Côte d'Ivoire, 840 m<sup>3</sup>; Togo, 590 m<sup>3</sup>. g) Including Australia, 20 m<sup>3</sup>; Malaysia, 120 m<sup>3</sup>; New Zealand, 380 m<sup>3</sup>. h) All Togo. i) All Malaysia. j) All Cameroon. k) Including Liberia, 100 m<sup>3</sup>.

Table 2-2-2. Tropical Sawwood Exported from Africa in 1991 (m<sup>3</sup>)

Exporters	Importers	EUROPE												TOTAL SAWNWOOD EXPORTS	
		Belgium Luxembourg	Denmark	France	Germany	Greece	Ireland	Italy	Nether- lands	Portugal	Spain	United Kingdom	Others		Total
Cameroon <sup>w</sup>		10978	1496	21298	3775	1622	1236	13758	22854	3975	85378	4729	2130 <sup>a</sup>	173229	179000
		7000	500	9000	4000	1792	269	16000	16000	0	79239	5000	2300 <sup>a</sup>	141100	
Congo		1000		1000	1000			1000	200 <sup>u</sup>		17143 <sup>a</sup>	1000	200 <sup>a</sup>	22543	27000
Côte d'Ivoire <sup>bw</sup>		999	4778	65052	3775	19172	18143	139012	3682	23837	100994	15538	6818 <sup>d</sup>	401800	528000
		6400	3300	55000	5000	19900	15700	145000	6000	16000	88948 <sup>a</sup>	14000	3600 <sup>a</sup>	378848	
Gabon		0		26444	0	0	0	0						26444	55000
				0	1000	345		20	500	0		1000	2000 <sup>a</sup>	4865	
Ghana		8430	70	3290	43760	710	18010	5100	20590	870	10370	24160	330 <sup>a</sup>	135690	183000
		4700	200	2000	51000	61	20628	4000	12000	0	9423 <sup>a</sup>	26000	300 <sup>a</sup>	130312	
Liberia		0		5000	1000		0	1000		2000	2000	1000		12000	15000
		0		1000	500 <sup>f</sup>		14	30		0	0	0	2000	3544	
Zaire		1200	0	300 <sup>u</sup>	4000			11000	21000	1000		7000		45500	23000
Others				0										0	
		1100 <sup>u</sup>		6700 <sup>u</sup>	6000		70	24700 <sup>u</sup>	5000	1000		4000		48570	
TOTAL SAWNWOOD IMPORTS		250000 <sup>i</sup>	16000	464000 <sup>a</sup>	416000	24000 <sup>f</sup>	55000 <sup>i</sup>	363000	525000	19000	352000 <sup>f</sup>	435000			

a) To Austria, 1 m<sup>3</sup>; Finland, 1998 m<sup>3</sup>; Sweden, 130 m<sup>3</sup>; Switzerland 1 m<sup>3</sup>. b) Austria, 1000 m<sup>3</sup>; Finland, 1300 m<sup>3</sup>; Norway, 100m<sup>3</sup>. c) Including Finland, 78 m<sup>3</sup>; Sweden, 484 m<sup>3</sup>. d) All Austria. e) To Finland, 100 m<sup>3</sup>; Sweden, 230 m<sup>3</sup>. f) Including Togo, 9000 m<sup>3</sup>.



Table 2-2-3. Tropical Sawnwood Exported from Asia-Pacific in 1991 (m³)

Exporters	Importers	AFRICA	ASIA-PACIFIC							LATIN AMERICA	NORTH AMERICA	TOTAL SAWNWOOD EXPORTS
			Australia	China	Japan	Malaysia	New Zealand	Philippines	Republic of Korea	Thailand	Others	Total
China												0
		19 <sup>a</sup>		-	17600	0	0	222	0	1000		18822
Indonesia			0	0	289539	0	0	0	0	0	135000 <sup>b</sup>	424539
			2000	2175	255100	16121	4809	590	9000	1000	50 <sup>c</sup>	290845
Malaysia			56300	93800	496600		430	1400	715800	987900	905500 <sup>d</sup>	3257730
			134000	58850	608700	-	3840	5933	733000	1013000	500 <sup>e</sup>	2557823
Papua New Guinea			1600		20		660	330		90	400	3100
			2000		100		770	270		1000	0	4140
Philippines			20	7861	19270	0		-	80		11363	38594
			1000	0	36700	41		-	2000	0		39741
Thailand			0	0	22000					-	18000	40000
			0	0	12200					-	30 <sup>f</sup>	12230
Others					12718 <sup>g</sup>	0			238 <sup>h</sup>			12956
					3000 <sup>i</sup>	193 <sup>j</sup>		270 <sup>k</sup>	500 <sup>l</sup>		20	3783
											10 <sup>m</sup>	
TOTAL SAWNWOOD IMPORTS			154000	88000	1013000	20000	9000	10000	747000	1500000		

a) All Cameroon. b) All Asia-Pacific except Japan. c) All U.S. d) All Papua New Guinea e) Including Cameroon, 1300 m³; Egypt, 3400 m³. f) Including India, 2500 m³. g) Canada, 970 m³; U.S., 16400 m³. h) Canada, 1000 m³; U.S., 23000 m³. i) Canada, 1000 m³; U.S., 11000 m³. j) Canada, 1000 m³; U.S., 7000 m³. k) Taiwan Province of China, 10718 m³; Korea, 2000 m³. l) All Taiwan Province of China. m) Australia, 600 m³; India, 400 m³; Korea, 2000 m³; New Zealand, 200 m³. n) Japan, 10 m³; New Zealand, 261 m³. o) All Indonesia. p) All Ecuador.

Table 2-2-4. Tropical Sawnwood Exported from Asia-Pacific in 1991 (m<sup>3</sup>)

Exporters	Importers	EUROPE										TOTAL SAWNWOOD EXPORTS	
		Belgium Luxembourg	Denmark	France	Germany	Italy	Nether- lands	Spain	United Kingdom	Austria	Others		Total
Indonesia												192677	936000
		11000	400	13000	14000	52000	16000		25000	2000	624 <sup>a</sup>	134024	
Malaysia		154400	1200	116900	69800	69000	451300	12700	181700	20	5420 <sup>b</sup>	1062440	4932000
		150400	2200	120000	212000	90000	394000	17323	202000	6000	4730 <sup>c</sup>	1198653	
Papua New Guinea					140				140			280	3000
					0				0			0	
Philippines		60	30	40			310	9590	9130	0	0	19160	58000
		300	0	2000	100		500 <sup>d</sup>	8255 <sup>e</sup>	27000	0	0	38155	
Thailand		0	1000		2000	2000	1000		2000		1000	9000	58000
		100	700				0		1000		300 <sup>d</sup>	2100	
Others											0	0	
			5324	4800	29000	2912	26082		11000		148 <sup>e</sup>	79266	
TOTAL SAWNWOOD IMPORTS		250000 <sup>f</sup>	16000	464000 <sup>g</sup>	416000	363000	525000	352000 <sup>h</sup>	435000	19000			

a) Finland, 100 m<sup>3</sup>; Greece, 41 m<sup>3</sup>; Ireland, 483 m<sup>3</sup>. b) Including Greece, 200 m<sup>3</sup>; Ireland, 100 m<sup>3</sup>; Norway, 1300 m<sup>3</sup>; Portugal, 3100 m<sup>3</sup>; Sweden, 160 m<sup>3</sup>; Switzerland, 510 m<sup>3</sup>. c) Finland, 400 m<sup>3</sup>; Greece, 101 m<sup>3</sup>; Ireland, 2229 m<sup>3</sup>. d) All Finland. e) Russia from India.

Table 2-2-5. Tropical Sawnwood Exported from Latin America/Caribbean and North America in 1991 (m³)

Exporters	Importers	AFRICA		ASIA-PACIFIC		EUROPE					LATIN AMERICA	NORTH AMERICA		TOTAL SAWNWOOD EXPORTS
		Japan	Others	Total	Germany	Nether-lands	Spain	United Kingdom	Others	Total		Canada	U.S.	
LATIN AMERICA	Bolivia													
		280	1010 <sup>a</sup>	1290			70	30	410 <sup>b</sup>	510	69660 <sup>c</sup>	46160	48000	118000
Brazil		0	300	300					106 <sup>d</sup>	106				
										165000		66681		230000 <sup>e</sup>
Colombia	0	2800	1002 <sup>f</sup>	3802	31000	14000	44091 <sup>g</sup>	60000	29461 <sup>h</sup>	178552		6000	70000	
Ecuador	0				20		0		50	70	6570	120	2120	9000
										0			0	
Guyana	0													
Panama	0	278	646 <sup>i</sup>	924	304	2	660	185	803 <sup>j</sup>	1954	3398	187	11851	18000
		0												
Others	0	1400	0	1400	1000			1000	500 <sup>k</sup>	2500	500 <sup>k</sup>		10000	
Panama	0				47	106	0	4225	6 <sup>l</sup>	4384	6137 <sup>m</sup>	17	1826	12000
								5000		5000			3000	
Others	0	370		370	340		0			340		310		1000
										0		0		
Others	0													
NORTH AMERICA	Canada	3500	6002 <sup>n</sup>	9502	32000	800 <sup>o</sup>	11620	1000	6941 <sup>p</sup>	52361	2425 <sup>q</sup>	1000 <sup>r</sup>	10000 <sup>s</sup>	
U.S.	4 <sup>t</sup>													
TOTAL SAWNWOOD IMPORTS	1 <sup>u</sup>	300	14400 <sup>v</sup>	14700	1000	0	311		1003 <sup>w</sup>	2314	2597 <sup>x</sup>	5000	196000	
		1013000			416000	525000	352000 <sup>f</sup>	435000						

a) Including Australia, 280 m³. b) Including Belgium, 160 m³; Italy, 130 m³. c) Including Peru, 140 m³. d) All Ireland. e) Australia, 1000 m³; Malaysia, 2 m³. f) Belgium, 13400 m³; Denmark, 1200 m³; Finland, 100 m³; Ireland, 5761 m³; Italy, 9000 m³. g) Including China, 230 m³. h) Including France, 220 m³; Italy, 463 m³. i) Including Colombia, 389 m³; Panama, 1229 m³. j) All Finland. k) All Colombia. l) All Italy. m) Including Trinidad & Tobago, 3138 m³. n) Australia, 100 m³; Korea, 2400 m³; Taiwan Province of China, 3502 m³. o) Belgium, 100 m³; France, 600 m³; Ireland, 11 m³; Italy, 6230 m³. p) Including Panama to Honduras, 2100 m³. q) All Peru. r) Including Peru, 3000 m³. s) All Cameroon. t) Finland, 1000 m³; France, 2000 m³. u) Including Papua New Guinea, 300 m³; Taiwan Province of China, 1993 m³; Thailand, 12000 m³. v) Belgium, 343 m³; Denmark, 400 m³; Finland 100 m³; France 160 m³. w) Including Ecuador, 93 m³; Panama, 2500 m³.



Table 2-2-6. Tropical Sawnwood Exported from Europe in 1991 (m<sup>3</sup>)

Exporters	Importers	AFRICA	ASIA PACIFIC	EUROPE								LATIN & NORTH AMERICA	TOTAL SAWNWOOD EXPORTS
				Belgium Luxembourg	Denmark	France	Germany	Ireland	United Kingdom	Austria	Russian Federation	Others	Total
Belgium Luxembourg		5	100 <sup>a</sup>	-	80	10930	6470	10	1420	100		20890 <sup>b</sup>	39880
		9 <sup>d</sup>	0	-	100	1000	1000	10	7000		36		9146
France		0	22 <sup>c</sup>	1000	0	-	2000	2000	1000			7730 <sup>f</sup>	13730
		73 <sup>e</sup>	0	1898	0	-	3000		3000		0		7869
Germany		0	0	2000 <sup>f</sup>	2000 <sup>f</sup>	2000 <sup>f</sup>	-		4000 <sup>f</sup>	8000 <sup>f</sup>		18000 <sup>h</sup>	36000
		57	220 <sup>i</sup>	2000 <sup>f</sup>	1100		-		2000	1000	3912	8800 <sup>k</sup>	18812
													7
Netherlands		0	1000 <sup>j</sup>	39000	1000	3000	81000	2000	29000	4000		3000 <sup>m</sup>	162000
		1 <sup>d</sup>	600 <sup>r</sup>	42500 <sup>f</sup>	700	2000	11000	592	15000		1259		73051
				0		0	0		1000			4000	5000
Portugal		1 <sup>d</sup>				0	0	40					40
United Kingdom													
				400 <sup>f</sup>		0	0	7	-				407
Others		0	0			65 <sup>s</sup>	800 <sup>t</sup>	0	4375 <sup>u</sup>			3077 <sup>v</sup>	8317
		21 <sup>c</sup>	276			300 <sup>w</sup>	4000 <sup>x</sup>	25	11000 <sup>y</sup>	3000 <sup>z</sup>	186 <sup>aa</sup>	700 <sup>ab</sup>	19211
TOTAL SAWNWOOD IMPORTS			276	250000 <sup>d</sup>	16000	464000 <sup>e</sup>	416000	55000 <sup>f</sup>	435000	19000	10000 <sup>g</sup>		

a) All Japan. b) Including Italy, 820 m<sup>3</sup>; Netherlands, 18720 m<sup>3</sup>; Spain, 1030 m<sup>3</sup>; Sweden, 110 m<sup>3</sup>. c) Including U.S., 100 m<sup>3</sup>. d) All Cameroon. e) All China. f) Italy, 1730 m<sup>3</sup>; Spain, 1000 m<sup>3</sup>; Switzerland, 5000 m<sup>3</sup>. g) Cameroon, 43 m<sup>3</sup>; Togo, 30 m<sup>3</sup>. h) Including Italy, 2000 m<sup>3</sup>; Netherlands, 10000 m<sup>3</sup>; Switzerland, 4000 m<sup>3</sup>. i) Cameroon, 47 m<sup>3</sup>; Togo, 10 m<sup>3</sup>. j) Japan, 100 m<sup>3</sup>; Philippines, 120 m<sup>3</sup>. k) Finland, 200 m<sup>3</sup>; Italy, 1200 m<sup>3</sup>; Netherlands, 7400 m<sup>3</sup>. l) All Ecuador. m) Including Norway, 1000 m<sup>3</sup>; Sweden, 1000 m<sup>3</sup>. n) Including U.S., 1000 m<sup>3</sup>. o) All Spain. p) Denmark, 500 m<sup>3</sup>; Finland, 300 m<sup>3</sup>. q) Denmark, 500 m<sup>3</sup>; Ireland, 3875 m<sup>3</sup>. r) Including Denmark, 2700 m<sup>3</sup>; Finland, 200 m<sup>3</sup>. s) All Italy. t) Including Denmark, 1000 m<sup>3</sup>. u) Denmark, 1000 m<sup>3</sup>; Ireland, 5000 m<sup>3</sup>. v) Austria, 93 m<sup>3</sup>; Italy 93 m<sup>3</sup>. w) Sweden from Finland, 300 m<sup>3</sup>; from Denmark, 400 m<sup>3</sup>. x) Including U.S. from Spain, 400 m<sup>3</sup>; from Russia, 3000 m<sup>3</sup>.

Table 2-3-1. Tropical Veneer Exported from Africa in 1991 (m³)

Importers Exporters	AFRICA	EUROPE								U.S. <sup>4</sup>	OTHERS	TOTAL VENEER EXPORTS	
		Belgium Luxembourg	Denmark	France	Germany	Italy	Nether- lands	Spain	United Kingdom				Others
Cameroon <sup>w</sup>		255	221	2068	1516	15761	281	65	17 <sup>s</sup>	20184	23	20000	
		600	500	2000 <sup>M</sup>	500 <sup>F</sup>	14000		400 <sup>M</sup>	0	18000	9		
Congo		300	3600	7980	15000	2600	4000	100 <sup>M</sup>	1100 <sup>B</sup>	34680	813	32000	
Côte d'Ivoire <sup>rw</sup>	18606 <sup>a</sup>	4401	354	15910	17500	13216	1743	1024	305	2806 <sup>d</sup>	57259	2660	84000 <sup>e</sup>
	0	7900	100	3000 <sup>M</sup>	36000	12500 <sup>M</sup>	1000	0	500 <sup>M</sup>	344 <sup>f</sup>	61344	30	0
Gabon		0		0			300 <sup>M</sup>	1000 <sup>M</sup>	8 <sup>g</sup>	1308			7000
Ghana	90	360	0	3280	6980	4500	610	380	2690	440 <sup>h</sup>	19240	20	19000
	30 <sup>i</sup>	600	0		9000	3000 <sup>F</sup>	0		1110 <sup>M</sup>	400 <sup>i</sup>	14110	3	
Liberia		0		0	0	0			2000	2000			4000 <sup>j</sup>
		0		0	1000	100 <sup>M</sup>	0			1100			
Zaire		600	200	100 <sup>M</sup>	3000			1000 <sup>M</sup>		4900			5000
Others	0							0		0			
	359 <sup>k</sup>	800				1600 <sup>M</sup>	0	1000 <sup>M</sup>		3400	36		
TOTAL VENEER IMPORTS		18000 <sup>F</sup>	8000	20000 <sup>F</sup>	85000	130000 <sup>F</sup>	10000	1000	11000		20000		

a) All Sweden. b) Norway, 100 m³; Switzerland, 1000 m³. c) Including Cameroon, 37 m³; Congo, 85 m³; Egypt, 111 m³. d) Including Austria, 98 m³; Finland, 73 m³; Greece, 122 m³; Norway, 37 m³; Portugal, 24 m³; Russia, 1266 m³; Sweden, 781 m³. e) Including Canada, 183 m³; Ecuador, 37 m³; Japan, 12 m³; New Zealand, 25 m³. f) Finland, 100 m³; Greece, 244 m³. g) All Ireland. h) Finland, 390 m³; Sweden, 50 m³. i) All Finland. j) All Togo. k) Cameroon, 189 m³; Togo, 170 m³.

Table 23-2. Tropical Veneer Exported from Asia-Pacific in 1991 (m<sup>3</sup>)

Importers Exporters	ASIA-PACIFIC						NORTH AMERICA	TOTAL VENEER EXPORTS
	Australia	China	Japan	Republic of Korea <sup>d</sup>	Thailand	Others	Total	
Indonesia	0	0	0	0	0	2000 <sup>a</sup>	2000	31000 <sup>a</sup>
	300 <sup>M</sup>	5450	5500	500	2000	5532 <sup>a</sup>	19282	800 <sup>b</sup>
Malaysia	940	52800	266500	4700	580	136000 <sup>c</sup>	461520	6600 <sup>b</sup>
	800	14660	594100	7000		133362 <sup>d</sup>	749922	3076 <sup>b</sup>
Philippines	1740	2670	14190			0	18600	9850 <sup>a</sup>
	400		29700			4256 <sup>a</sup>	34356	6325 <sup>b</sup>
Thailand	0		0	1000	-		1000	0
	100 <sup>M</sup>		1300	1000	-	1 <sup>f</sup>	2401	75 <sup>b</sup>
Others	0		45 <sup>e</sup>	0		609 <sup>g</sup>	654	0
	400 <sup>h</sup>		24500 <sup>i</sup>			2282 <sup>j</sup>	27182	73 <sup>k</sup>
TOTAL VENEER IMPORTS	2000	27000	677000	8000	3000			

a) All Taiwan Province of China. b) All U.S. c) Including Taiwan Province of China, 128000 m<sup>3</sup>. d) Philippines, 10 m<sup>3</sup>; Taiwan Province of China, 133352 m<sup>3</sup>. e) Canada, 700 m<sup>3</sup>; U.S., 9150 m<sup>3</sup>. f) All Malaysia. g) Japan, 500 m<sup>3</sup>; Taiwan Province of China, 109 m<sup>3</sup>. h) All Papua New Guinea. i) China, 21500 m<sup>3</sup>; India, 2600 m<sup>3</sup>; Korea, 400 m<sup>3</sup>. j) Including Taiwan Province of China, 2248 m<sup>3</sup>. k) All U.S.

Table 2-3-3. Tropical Veneer Exported from Asia-Pacific in 1991 (m<sup>3</sup>)

Exporters	EUROPE								TOTAL VENEER EXPORTS
	Denmark	France	Germany	Italy	Netherlands	United Kingdom	Switzerland	Others	Total
Indonesia	0	700 <sup>M</sup>	100 <sup>M</sup>	700	100 <sup>M</sup>	300		216 <sup>B</sup>	2016
Malaysia	0				4100	500		20 <sup>B</sup>	4620
	0	700 <sup>M</sup>	2000		3000	600 <sup>M</sup>	1000 <sup>F</sup>	100 <sup>F</sup>	7400
Philippines			0		550	20	590		1160
			100		0		1000 <sup>F</sup>		1100
Thailand	1000				0	1000			2000
	1500	100 <sup>M</sup>		500 <sup>M</sup>	100 <sup>M</sup>	400 <sup>M</sup>		200 <sup>d</sup>	2800
TOTAL VENEER IMPORTS	8000	20000 <sup>F</sup>	85000	130000 <sup>d</sup>	10000	11000	4000 <sup>*</sup>		

a) Belgium, 100 m<sup>3</sup>; Finland, 100 m<sup>3</sup>; Ireland, 16 m<sup>3</sup>. b) All Norway. c) All Belgium. d) Finland, 100 m<sup>3</sup>; Norway, 100 m<sup>3</sup>.

Table 2-3-4. Tropical Veneer Exported from Latin America/Caribbean and North America in 1991 (m<sup>3</sup>)

Exporters	Importers	ASIA-PACIFIC		EUROPE		LATIN AMERICA	NORTH AMERICA		TOTAL VENEER EXPORTS
		Japan	Others	Total	Germany		Others	Total	
LATIN AMERICA									
Bolivia		90		90	30	8200*		470	9000
		2200		2200	0	0		69	
Brazil					18000	18000		2000	4000*
		900		900	13000	5378 <sup>b</sup>		5369	
Colombia			0	0				30	30
			0	0				0	
Ecuador			1066 <sup>c</sup>	1066		282 <sup>d</sup>		468	2000
							130 <sup>f</sup>		
Others									
		2500		2500	100 <sup>g</sup>	100	26170	82	
NORTH AMERICA									
Canada							0	0	0
		0	20 <sup>h</sup>	20			0	109	
U.S. <sup>4</sup>		26	85 <sup>i</sup>	111	0	80 <sup>j</sup>	472	-	1000
		0	261 <sup>k</sup>	261	0	16 <sup>m</sup>	1	-	
TOTAL VENEER IMPORTS		677000			85000		2000	20000	

a) Including Peru, 20 m<sup>3</sup>. b) Belgium, 100 m<sup>3</sup>; Denmark, 700 m<sup>3</sup>; France 300 m<sup>3</sup>; Finland 100 m<sup>3</sup>; Greece, 78 m<sup>3</sup>; Italy, 3000 m<sup>3</sup>; Netherlands 600 m<sup>3</sup>; Norway 300 m<sup>3</sup>; United Kingdom, 200 m<sup>3</sup>. c) China, 214 m<sup>3</sup>; Korea, 852 m<sup>3</sup>. d) Spain, 10 m<sup>3</sup>; Sweden 272 m<sup>3</sup>. e) Including 18 m<sup>3</sup> to Panama. f) All Colombia. g) All France. h) Malaysia, 2 m<sup>3</sup>; Taiwan Province of China, 18 m<sup>3</sup>. i) Including Australia, 2 m<sup>3</sup>; Philippines, 2 m<sup>3</sup>. j) Sweden, 48 m<sup>3</sup>; United Kingdom, 32 m<sup>3</sup>. k) Including Brazil, 9 m<sup>3</sup>; Honduras, 4 m<sup>3</sup>. l) Taiwan Province of China, 260 m<sup>3</sup>; Thailand, 1 m<sup>3</sup>. m) Ireland, 13 m<sup>3</sup>; Netherlands, 2 m<sup>3</sup>; United Kingdom 1 m<sup>3</sup>.



Table 2-3-5. Tropical Veneer Exported from Europe in 1991 (m<sup>3</sup>)

Exporters	Importers	EUROPE						U.S. <sup>a</sup>	OTHERS	TOTAL VENEER EXPORTS
		Belgium Luxembourg	Denmark	France	Germany	United Kingdom	Russian Federation	Others	Total	
Belgium Luxembourg <sup>i</sup>		-	500	1520	1680	340		2440 <sup>a</sup>	6480	7000
		-		1330			36 <sup>i</sup>	40 <sup>i</sup>	1406	0
France <sup>w</sup>		152		-	1330			390 <sup>a</sup>	1872	0
		2700 <sup>m</sup>	100	-	1000 <sup>m</sup>	1000 <sup>i</sup>		600 <sup>i</sup>	5400	634 <sup>i</sup>
Germany <sup>f</sup>		1000	3000		-	3000	2000	6000 <sup>a</sup>	15000	22000
		900 <sup>m</sup>	1318 <sup>a</sup>	300 <sup>m</sup>	-	1300 <sup>m</sup>	3912 <sup>i</sup>	990 <sup>i</sup>	8720	107 <sup>i</sup>
Italy		100 <sup>m</sup>			100 <sup>m</sup>		93 <sup>i</sup>	3 <sup>c</sup>	296	911 <sup>i</sup>
		2000	1000			2000			5000	0
Netherlands		2800 <sup>m</sup>	200		100 <sup>m</sup>	700 <sup>f</sup>	1259 <sup>i</sup>	188 <sup>c</sup>	5347	0
			0		1000	1000		0	2000	2000
Portugal		100	0		1000	500		17 <sup>i</sup>	1617	0
Spain		337 <sup>a</sup>	100 <sup>a</sup>			1000 <sup>a</sup>		7 <sup>i</sup>	1444	116
						-		2000	2000	
United Kingdom		300 <sup>m</sup>		200 <sup>m</sup>		-		3 <sup>c</sup>	503	128
					100 <sup>a</sup>	500 <sup>a</sup>	93 <sup>i</sup>	1600 <sup>m</sup>	2293	41 <sup>a</sup>
Others								100 <sup>i</sup>	100	90 <sup>i</sup>
TOTAL VENEER IMPORTS		18000 <sup>f</sup>	8000	20000 <sup>f</sup>	85000	11000	8000 <sup>i</sup>		20000	

a) Including Austria, 220 m<sup>3</sup>; Italy, 260 m<sup>3</sup>; Netherlands, 1160 m<sup>3</sup>; Portugal, 100 m<sup>3</sup>; Spain, 400 m<sup>3</sup>; Sweden, 140 m<sup>3</sup>. b) Including Canada, 100 m<sup>3</sup>. c) All Ireland. d) Including Italy, 290 m<sup>3</sup>; Netherlands, 100 m<sup>3</sup>. e) All Italy. f) Cameroon, 24 m<sup>3</sup>; Japan, 600 m<sup>3</sup>; Togo 10 m<sup>3</sup>. g) Including Italy, 2000 m<sup>3</sup>; Netherlands, 1000 m<sup>3</sup>; Sweden, 1000 m<sup>3</sup>; Switzerland, 1000 m<sup>3</sup>. h) Ireland, 193 m<sup>3</sup>; Italy 100 m<sup>3</sup>; Netherlands, 500 m<sup>3</sup>; Finland, 200 m<sup>3</sup>. j) Cameroon, 1 m<sup>3</sup>; Colombia 10 m<sup>3</sup>; Japan, 900 m<sup>3</sup>. k) All Denmark. l) All Austria. m) Denmark to Finland, 100 m<sup>3</sup>; to Netherlands, 100 m<sup>3</sup>; to Norway 100 m<sup>3</sup>; to Sweden, 1300 m<sup>3</sup>. n) All Greece. o) Finland from Sweden. p) Denmark, 67 m<sup>3</sup>; Switzerland, 23 m<sup>3</sup>.

Table 2-4-1. Tropical Plywood Exported from Africa in 1991 (m<sup>3</sup>)

Importers Exporters	AFRICA	ASIA- PACIFIC	EUROPE							NORTH & LATIN AMERICA	TOTAL PLYWOOD EXPORTS
			Belgium Luxembourg	France <sup>w</sup>	Germany	Italy	Nether- lands	United Kingdom	Russian Federation	Others	Total
Cameroon <sup>w</sup>	71		35	2367	0	707				120 <sup>a</sup>	3229
			0	2700 <sup>u</sup>		1000 <sup>u</sup>					3700
Côte d'Ivoire <sup>pw</sup>	2544 <sup>b</sup>	139 <sup>c</sup>	830	3015	3278	2504	330	58	259	537 <sup>d</sup>	10811
				1540	1000	3000 <sup>e</sup>	0	0		62 <sup>f</sup>	5602
Gabon											
	60 <sup>g</sup>		200	13860	1000	1000				90 <sup>h</sup>	16150
Ghana	1120 <sup>i</sup>		10		230		0	50			290
	24 <sup>j</sup>		0		0			0			
Others	1000 <sup>k</sup>										
	1 <sup>k</sup>		0	0				1000		31 <sup>l</sup>	1031
TOTAL PLYWOOD IMPORTS			139000	213000 <sup>a</sup>	202000	47000 <sup>u</sup>	287000	536000	10000 <sup>f</sup>		

a) All Spain. b) Including Cameroon, 7 m<sup>3</sup>; Congo, 16 m<sup>3</sup>; Egypt, 21 m<sup>3</sup>. c) Including Japan, 2 m<sup>3</sup>; New Zealand, 5 m<sup>3</sup>. d) Including Denmark, 70 m<sup>3</sup>; Spain, 194 m<sup>3</sup>; Sweden, 148 m<sup>3</sup>. e) Canada, 35 m<sup>3</sup>; Ecuador, 7 m<sup>3</sup>; U.S., 504 m<sup>3</sup>. f) All Ireland. g) All Togo. h) All Greece. i) Including to Togo, 890 m<sup>3</sup>. j) All Liberia. k) All Ireland.

Table 2-4-2. Tropical Plywood Exported from Asia-Pacific in 1991 (m<sup>3</sup>)

Table Z-4-Z. Tropical Plywood Exports												
Importers Exporters	ASIA-PACIFIC								NORTH AMERICA		OTHERS	TOTAL PLYWOOD EXPORTS
	Australia	China	Japan	Malaysia	Republic of Korea	Thailand <sup>d</sup>	Others	Total	Canada	U.S.		
Indonesia <sup>1</sup>			6280000	0		0		6995382	935876		72413 <sup>a</sup>	8863000
	14000	1049080	2882400	295	670000	1100	396091 <sup>b</sup>	5012966	43000	705000	0	
Malaysia	1600	159200	47200	-	240	8000	693630 <sup>c</sup>	909870	70	116300	310 <sup>d</sup>	1186000
	1000	151320	45500	-	3000	1000	20185 <sup>e</sup>	222005	0	115000		
Philippines	120	290	1600				4950 <sup>f</sup>	6960	90	6650	0	112000
	100		1000				420 <sup>g</sup>	1520	0	4000	0	
Thailand <sup>h</sup>		0	1000	0		-	0	1000				1000 <sup>a</sup>
		0	200			-	242 <sup>h</sup>	442				
Others		21960 <sup>i</sup>				0	106458 <sup>j</sup>	128418	5968 <sup>b</sup>	1100 <sup>a</sup>	300 <sup>i</sup>	
		25523 <sup>m</sup>	1632 <sup>n</sup>	2675 <sup>o</sup>	664 <sup>p</sup>	0	19557 <sup>r</sup>	50051	1000 <sup>r</sup>	3000 <sup>r</sup>	460 <sup>r</sup>	
TOTAL PLYWOOD IMPORTS	20000	1417000 <sup>s</sup>	2941000	20000 <sup>t</sup>	673000	2000 <sup>u</sup>			53000	934000		

a) Destination not specified. b) Philippines, 220 m<sup>3</sup>; Taiwan Province of China, 395871 m<sup>3</sup>. c) Including India, 1300 m<sup>3</sup>; Nepal, 110 m<sup>3</sup>; New Zealand, 400 m<sup>3</sup>. d) All Africa. e) New Zealand, 460 m<sup>3</sup>; Taiwan Province of China, 19725 m<sup>3</sup>. f) Including New Zealand, 400 m<sup>3</sup>. g) All New Zealand. h) All Taiwan Province of China. i) Korea, 1000 m<sup>3</sup>; Taiwan Province of China, 20960 m<sup>3</sup>. j) Including Japan to Nepal, 100 m<sup>3</sup>. k) Japan, 100 m<sup>3</sup>; Korea, 1000 m<sup>3</sup>. l) All Japan to Africa and Latin America. m) Including Japan, 1440 m<sup>3</sup>; Korea, 4000 m<sup>3</sup>; Taiwan Province of China, 2758 m<sup>3</sup>. n) Including India, 300 m<sup>3</sup>; China, 600 m<sup>3</sup>; Korea, 700 m<sup>3</sup>. o) Including Japan, 2653 m<sup>3</sup>. p) Including India, 500 m<sup>3</sup>. q) Including Papua New Guinea to Japan, 3500 m<sup>3</sup>. r) All India. s) India, 2000 m<sup>3</sup>; Japan, 1000 m<sup>3</sup>. t) All Panama (origin not specified). u) Including India, 500 m<sup>3</sup>.



Table 2-4-3. Tropical Plywood Exported from Asia-Pacific in 1991 (m<sup>3</sup>)

Exporters	Importers	EUROPE										TOTAL PLYWOOD EXPORTS	
		Belgium Luxembourg	Denmark	France	Germany	Italy	Nether- lands	United Kingdom	Austria	Norway	Others		Total
Indonesia		65000 <sup>f</sup>	21200 <sup>f</sup>	121660 <sup>h</sup>	152000	14200 <sup>p</sup>	126000	282000		4000	1677 <sup>r</sup>	851061	8863000
Malaysia		9400	4200	4500	3100	2400	16000	83400	31300	1100	3620 <sup>a</sup>	159020	1186000
		10500 <sup>f</sup>	6100	7700	11000	2900 <sup>p</sup>	16000	102000	0	1000	2503 <sup>c</sup>	159703	
Philippines		10000 <sup>f</sup>	6080		2370		25540	48880	10			103890	112000
		9000 <sup>f</sup>	4700	3080	9000		12000	62000	0		59 <sup>d</sup>	99839	
Others								4642 <sup>e</sup>				4642	
							40020 <sup>f</sup>	20000 <sup>g</sup>		1000 <sup>h</sup>		61020	
TOTAL PLYWOOD IMPORTS		139300	40000	213000 <sup>r</sup>	202000	47000 <sup>h</sup>	287000	536000	1000	11000			

a) Finland, 400 m<sup>3</sup>; Greece, 673 m<sup>3</sup>; Ireland, 604 m<sup>3</sup>. b) Including Greece, 2200 m<sup>3</sup>; Ireland, 150 m<sup>3</sup>; Spain, 400 m<sup>3</sup>; Sweden, 790 m<sup>3</sup>. c) Finland, 100 m<sup>3</sup>; Greece, 335 m<sup>3</sup>; Ireland, 1740 m<sup>3</sup>; Spain, 328 m<sup>3</sup>. d) All Ireland. e) All Taiwan Province of China. f) Including Taiwan Province of China, 697 m<sup>3</sup>. g) Including Korea, 1000 m<sup>3</sup>; Taiwan Province of China, 5000 m<sup>3</sup>. h) All India.

Table 2-4-4. Tropical Plywood Exported from Latin America/Caribbean and North America in 1991 (m³)

TABLE 2-4-4. IMPORTS BY COUNTRY OF ORIGIN															
Exporters	Importers	EUROPE								LATIN AMERICA	NORTH AMERICA	OTHERS	TOTAL PLYWOOD EXPORTS		
		Belgium Luxembourg	Denmark	France	Germany	Ireland <sup>w</sup>	Italy	Nether- lands	United Kingdom					Others	Total
LATIN AMERICA															
	Brazil														
		23400	3800	8300 <sup>M</sup>	14000	7819	3000 <sup>P</sup>	5700	56000	2468 <sup>S</sup>	124487	135000			
	Colombia														
		0							0	2140 <sup>J</sup>	450 <sup>I</sup>	55000 <sup>B</sup>	350000 <sup>*</sup>		
									0	200 <sup>I</sup>		0	6000		
	Ecuador														
				88	0		43		793	615 <sup>A</sup>	1539	11448 <sup>B</sup>	10071 <sup>I</sup>	0	23000
									1000	401 <sup>I</sup>	1401	2230 <sup>A</sup>	3000 <sup>A</sup>	0	
	Others														
									0	1213 <sup>I</sup>			0	0	
									9000	23 <sup>J</sup>	15523	2520 <sup>M</sup>	2000 <sup>A</sup>	0	
NORTH AMERICA															
	Canada														
									0				3000 <sup>A</sup>		3000
		0					0				0		3000 <sup>A</sup>	759 <sup>A</sup>	
	U.S.														
							1000		3000		4000	28000	8000 <sup>A</sup>	12000 <sup>A</sup>	54000
		0			0				0	1005 <sup>A</sup>	1005	3330 <sup>I</sup>	8000 <sup>A</sup>	434 <sup>A</sup>	
TOTAL PLYWOOD IMPORTS		139000	40000	213000 <sup>*</sup>	202000	12000 <sup>I</sup>	47000 <sup>M</sup>	287000	536000						

a) All U.S. b) All Asia. c) Finland, 300 m³; Greece, 1868 m³; Norway, 300 m³. d) All Panama. e) Australia, 100 m³; Malaysia 238 m³; Togo, 60 m³. f) Including Honduras, 100 m³. g) Spain, 476 m³; Sweden, 139 m³. h) Including Colombia, 860 m³; Peru, 519 m³. i) Canada, 75 m³; U.S., 9996<sup>A</sup> m³. j) All Spain. k) Colombia, 1970 m³; Panama, 260 m³. l) Guyana, 13<sup>A</sup> m³; Panama, 1200 m³. m) Including Bolivia from Brazil, 1000 m³. n) Cameroon, 25 m³; Japan, 672 m³; Malaysia, 2 m³; Philippines, 60 m³. o) All Canada. p) All Japan. q) Including Norway, 1000 m³. r) Colombia, 30 m³; Panama, 3300 m³. s) Including Japan, 100 m³; Philippines, 300 m³.

Table 2-4-5. Tropical Plywood Exported from Europe in 1991 (m<sup>3</sup>)

Exporters	Importers	EUROPE										OTHERS	TOTAL PLYWOOD EXPORTS
		Belgium Luxembourg	Denmark	France <sup>w</sup>	Germany	Greece	Italy	Nether- lands	Spain <sup>*</sup>	United Kingdom	Others	Total	
Belgium Luxembourg		-	300	1308	1000	100	15440	200	19800	5000 <sup>a</sup>	2200 <sup>b</sup>	43148	54000
		-		1540			13603			0	15143		
Denmark			-	100	1100	300				5600 <sup>c</sup>	7100	7000	
		0								1000 <sup>d</sup>	1000		
France <sup>w</sup>		6160	1540	-	10780	1540	9240	46200	6160	4620 <sup>e</sup>	86240	88000	
		6600 <sup>f</sup>	800	-	12200	1753	10800 <sup>g</sup>	59400 <sup>h</sup>	4828 <sup>i</sup>	600 <sup>j</sup>	1000 <sup>k</sup>	97981	48 <sup>l</sup>
Italy													9000 <sup>m</sup>
		100 <sup>n</sup>	200 <sup>o</sup>	200 <sup>p</sup>		77	-	1700 <sup>q</sup>			2277	10 <sup>r</sup>	
Netherlands		23000		8000	3000				1000		35000	104 <sup>s</sup>	36000
		23000 <sup>t</sup>	200	1540	2100 <sup>u</sup>	0	200	-	77	400 <sup>v</sup>	27517		
Spain <sup>*</sup>				2403	509		1770	1880	-	3760	446 <sup>w</sup>	10768	15000 <sup>x</sup>
		0				32			-	0	0	32	
United Kingdom													3000 <sup>y</sup>
		500 <sup>z</sup>			100					-	504 <sup>aa</sup>	1104	
Others			32 <sup>ab</sup>		100 <sup>ac</sup>	29 <sup>ad</sup>				177 <sup>ae</sup>	338		
		0	500 <sup>af</sup>	3700 <sup>ag</sup>		128 <sup>ah</sup>	200 <sup>ai</sup>	805 <sup>aj</sup>	2000	2161 <sup>ak</sup>	16739	197 <sup>al</sup>	
TOTAL PLYWOOD IMPORTS		139300	40000	213000 <sup>am</sup>	202000	5000 <sup>an</sup>	47000 <sup>ao</sup>	287000 <sup>ap</sup>	9000 <sup>aq</sup>	536000			

a) Including Ireland, 4400 m<sup>3</sup>; Sweden, 300 m<sup>3</sup>. b) Including Zaire, 100 m<sup>3</sup>. c) Including Norway, 3200 m<sup>3</sup>; Sweden, 1800 m<sup>3</sup>. d) All Norway. e) Including Switzerland, 3080 m<sup>3</sup>. f) All Austria. g) All Cameroon. h) All U.S. j) Including Portugal, 240 m<sup>3</sup>. k) All Ireland. l) All Finland. m) Germany, 400 m<sup>3</sup>; Greece, 100 m<sup>3</sup>. n) All Germany. o) Netherlands. 77 m<sup>3</sup>; Portugal, 728 m<sup>3</sup>. p) Including Norway from Finland, 200 m<sup>3</sup>. q) Including U.S. from Russia, 100 m<sup>3</sup>.

Table 3-1. Value of Trade in Tropical Timber Products by ITTO Consumers in 1991 (1000 \$)

Country	Reported Currency	Rate <sup>a</sup>	Logs		Sawnwood		Veneer		Plywood		Total	
			Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Australia	U.S.\$		2800	0	0	108081	0	3628	0	17175	2800	128884
Austria	U.S.\$		110	1483	258	11835	233	2196	3	940	604	16454
Canada	U.S.\$		0	308	189	7570	615	2018	1541	22338	2345	32234
China	U.S.\$		5523	180054	0	15450	0	11374	0	539277	5523	746155
EEC												
Belgium-Luxembourg	U.S.\$			38901		213628		23334		102741		378604
Denmark	D. Krone	0.157	95	690	3649	11595	4684	10285	685	21116	9113	43686
France	Franc	0.178	3024	202811	7828	100338	6227	10852	79701	90553	96780	404554
Germany	U.S.\$			83443		194125		43617		109117		430302
Ireland	U.S.\$		378	21	3042	23467	48	1481	140	5437	3608	30406
Netherlands	ECU <sup>b</sup> /Guilder <sup>c</sup>		2376	22432	66721	147611	7200	7063	27639	150515	103936	327621
Portugal	U.S.\$		1079	103705	4049	8580	3392	2170	53	768	8573	115223
Finland	U.S.\$		0	0	147	6072	14	1712	83	666	244	8450
Japan	U.S.\$		0	1580733	91	437797	244	105326	5617	963537	5952	3087393
New Zealand	U.S.\$			230		5576		10		446		6262
Norway	U.S.\$		0	89	176	3036	55	759	246	7402	477	11286
Republic of Korea	U.S.\$			499302		171304		5988		354395		1030889
Russian Federation	U.S.\$					1028		1513				2541
United States	U.S.\$		779	2755	12110	98436	1992	25136	13676	367887	28557	494214
ITTO Consumers			16164	2716857	98260	1563529	24704	258462	129384	2754310	268512	7295158

a) Average conversion rate from foreign currency to U.S. dollars, from FAO 1991 Yearbook of Forest Products. b) For logs and sawnwood. As no ECU conversion rate exists for 1991, the exchange rate at the time of publishing (\$0.848/ECU) is used. c) For veneer and plywood; \$0.537/guilder.

Table 3-2. Value of Trade in Tropical Timber Products by ITTO Producers in 1991 (1000 \$)

Country	Reported Currency	Rate <sup>a</sup>	Logs		Sawnwood		Veneer		Plywood		Total	
			Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Cameroon	CFA	0.0036	122855	153	56211	723	17464	189	2039	67	198570	1132
Congo	U.S.\$			1100								1100
Côte d'Ivoire	CFA	0.0036	48296		130166		51886		0		230348	
Gabon	U.S.\$		0	26	253439	2676	24264	809	4411	205	282114	3716
Ghana	U.S.\$		32315		59675		13646		627		106263	
Liberia	U.S.\$		49264		3502		652		213		53631	
Togo	U.S.\$			153		265		52		373		843
Africa			252730	1432	502993	3664	107912	1050	7290	645	870926	6791
Indonesia	U.S.\$				432540				3193256		3625796	
Malaysia	U.S.\$		1537276	725	1074506	2741	112020	1932	370849	2067	3094651	7465
Papua New Guinea	U.S.\$		96998		1020	477					98018	477
Philippines	U.S.\$		142	29960	16634	2135	8468	63	43389	1020	68633	33178
Thailand	U.S.\$		66	272583	53548	362734	12746	4147	1670	16353	68030	655817
Asia-Pacific			1634482	303268	1578248	368087	133234	6142	3609164	19440	6955128	696937
Bolivia	U.S.\$			294		29		55				378
Brazil	U.S.\$				139145		30949		109937		280031	
Colombia	U.S.\$				1466	2614	33	313	1969	1324	3468	4251
Ecuador	U.S.\$		720		14819	226	1094		8690		25323	226
Guyana	U.S.\$		161		3503				51		3715	
Honduras	U.S.\$				14091 <sup>b</sup>				625 <sup>b</sup>		14716 <sup>b</sup>	
Panama	U.S.\$			13	230	933			331	1677	561	2623
Peru	U.S.\$			4	519	131	25	171	65	142	609	448
Latin America			881	311	173773	3933	32101	549	121688	3143	328423	7926
ITTO Producers			1888093	305011	2255014	375684	273247	7731	3738122	23228	8154477	711654
ITTO Total			1904257	2949323	2353274	1934706	297951	265635	3867506	2695037	8472989	7844701

## Appendix 4

**Table 4-1. Major Species Traded by ITTO Consumers in 1991**

Countries	Major Exports	Major Imports
Canada	Canada re-exports small volume of tropical logs and sawnwood to the US	Logs: Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, Kempas Sawn: Virola (Baboén) Plywood: Mahogany
EEC		Limba, Sipo, Okoumé, Meranti
Germany		Sapelli, Iroko, Okoumé, Sipo, Acajou, Limba, Makore, Obeche
Portugal		From Africa (Cameroon, Central African Republic, Congo, Côte d'Ivoire, Ghana, Zaire): Acajou (Mahogany), Framiré (Emeri), Sipo (Utile), Sapelli, Tiama (Edinam), Iroko, Dibetou (Walnut), Niangon, Kosipo (Omu), Avodiré, Kotibé (Danta), Dabéma (Dahoma), Obeche (Wawa), Azobé (Ekki), Wengé, Makore, Afromosia, Bossé foncé (Guarea), Abura, Doussié (Afzelia), Okoumé, Tola (Agba), Bilanga (Opepe)
United Kingdom		From Asia (Indonesia, Malaysia, Philippines, Papua New Guinea): Dark Red Meranti, Light Red Meranti, Dark Red Luan, Balau, Keruing, Ramin, Teak, Jelutong, Kapur, Merbau, Mengkulang, Bitangor, Kempas, Dark Red Meranti (Nemesu), Agathis
Japan		From South America (Bolivia, Brazil, Peru): Mahogany, Cedro, Courbaril (Jatoba), Moral (Tajuba), Virola, Pau marfim, Cerejeira (Amburana), Andiroba, Imbuia, Greenheart, Amarante (Purpleheart)
Republic of Korea		Red Meranti, Yellow Meranti, White Meranti, Kapur and Mersawa are 80% of imports. Others include Jongkong, Nyatoh, Kasai (Taun) and Terminalia
New Zealand		Main imports are of non-traditional species. 69% of 1991 imports were of "lesser-known species", up from 61% in 1990.
US		Ramin, Merbau, Jelutong, Meranti, Teak, Luan, Sapelli, Agathis (Fijian Kauri), Balau, Iroko, Mahogany Meranti, Keruing, Mahogany, Luan, Teak

Table 4-2. Major Species traded by ITTO Producers in 1991

Countries	Major Exports	Major Imports	Other exported forest products
Cameroon	Obeche (Ayous), Sapelli, Azobé and Sipo make up 40-50% of production. Also Movingui, Limba (Frake), Iroko, Moabi, Dibétou (Bibolo), Acajou, Doussié, Faro, Kosipo, Ilomba, Tali		
Congo	Sapelli, Sipo, Dibétou, Tiama, Kosipo, Limbali, Limba, Obeche (Ayous) (together 90 - 97% of exports)		
Côte d'Ivoire	Sapelli (Aboudikro), Acajou, Makore, Tiama, Obeche (Samba), Mansonia (Bete), Framiré, Doussié (Lingue), Limba (Frake), Aningré, Kosipo, Ovèngkol (Amazakoue), Kotibé, Bilinga (Badi), Ialandza, Movingui, Faro, Fuma (Fromager), Dibétou, Ako, Teak		
Gabon	Okoumé, Ozigo, Padouk, Movingui, Ailé, Limba, Bubinga (Kébazingo), Acajou, Kosipo, Moabi		
Ghana	Obeche (Wawa: 51% of exports), Iroko (Odum: 7%), Acajou (3%), Sapelli (2%), Tiama (Edinam: 2%), Makore (1%), Sipo (Utile: 1%)		Rose from 25% of total export volume in 1989 to 30% in 1991.
Liberia	Sipo, Makore, Sapelli, Kosipo, Tiama, Acajou, Dibétou, Niangon, Iroko, Mansonia, Aningré, Bilinga (Kussia), Framiré, Ovèngkol (Amazakoue), Tali, Movingui, Ailé, Azobé (Eki), Gombé (Didelotia), Ilomba, Limbali	Teak, Iroko, Acajou, Obeche (Samba), Limba (Frake)	Minor forest products (bird's nests, nipa sugar, ilipenuts, rattan) account for 0.5% of export earnings
Togo	Logs: Red Meranti (Red Seraya), White Seraya, Yellow Meranti (Yellow Seraya), other Meranti, Kapur, Keruing, Balau (Selangan batu)	Small sawnwood imports of Meranti, Balau (Selangan batu) and Kapur from Indonesia	
Malaysia	Sawnwood: Ramin, Meranti, Kapur, Balau (Selangan batu)		
Papua New Guinea	Kasai (Taun), Bintangor (Calophyllum), Malas, Simpoh (Dillenia), Amberoi, Nyatoh (Pencil Cedar), Benuang (Erina), White Dhup (Canarium), Celtis, Merbau, Mersawa, Kelat (Water Gum), Tasua (Amoora), Terminalia, Sengkuang (Laup), Padauk (Rosewood), Eucalyptus deglupta	Meranti, Keruing (reexported as finished products)	
Philippines	Kokko (from plantations)	Keruing, Teak (together one-third of imports)	
Thailand	Teak, Rubberwood, (together 74% of exports)		
Bolivia	Mara(Swietenia macrophylla)		
Colombia	Caivo, Abarco, Saqui-Saqui (Ceiba Tolua)	Red Cedar, Honduran Pine	
Ecuador	Balsa, Sandé, Radiata Pine, Freijo (Laurel), Cedro, Araribá (Amarillo), Virola, Nargusia (Roble), Teak, Andiroba (Tangaré), Zapote (Colorado), Moho (Chanul), Cuángare, Balsamo		
Guyana	Greenheart, Walaba		
Panama	Caivo, Caracoli, Mahogany, Cedro, Satinwood, Trebol	Yellow Poplar, Caribbean Pine, Douglas-fir	Maçaranduba (Balata), Palm, Rattan
Peru	Mahogany, Cedro	Conifer timber, Hardwood veneer	Increase in use of minor species.

For consistency, Pilot names from the International Technical Association of Tropical Timber (ATIBT) are given for all species. The names reported by correspondents are shown in parentheses if they are different from pilot names. Species shown in italics have no pilot names in the ATIBT reference.