INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

ANNUAL REVIEW AND ASSESSMENT OF THE WORLD TROPICAL TIMBER SITUATION 1993-1994

This document supersedes document ITTC(XVII)/3 "Elements for the Annual Review and Assessment of the World Tropical Timber Situation 1993 - 1994". It presents updated and revised statistics of the world tropical timber situation received during and following consideration of document ITTC(XVII)/3 by the International Tropical Timber Council in November 1994. Because of the transfer of consideration of the Annual Review from the May to November Council Session in 1994, this Review covers the period since the approval of the 1992 Review by Council in May 1993.

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Summary

Production of tropical saw and veneer logs in ITTO producing countries totalled over 139.9 million m^3 in 1992, a 3 percent increase from 1991 levels. Log production is expected to decrease substantially through 1994, to just under 134 million m^3, due almost entirely to decreases in Malaysian production. The proportions of log production being utilized domestically in Africa and Asia in 1992 (Latin America consumes virtually all logs produced) both increased by more than 5 percent from 1991 levels to 70 and 84 percent respectively. While the proportion of domestically processed logs for Africa is predicted to fall back to 66 percent through 1994 (largely due to increased log exports to Asia), the Asian figure is expected to continue growing to over 90 percent. This reflects increasing populations, growing economies and the emphasis on exporting value-added products in this region. Sawnwood production by ITTO producers totalled almost 41.8 million m^3 in 1992, up 6 percent from revised 1991 levels. This increase was due to increases in all three regions, with an apparent jump of 2 million m^3 in Brazilian production the primary cause. In 1993 sawnwood production decreased to just under 41.2 million m^3, where it was expected to stay in 1994. This decrease was due to production falling throughout Asia and to a lesser extent Africa, which masked continuing production increases in Latin America. Tropical hardwood veneer production totalled just under 2.1 million m^3 in 1992, a 38 percent increase from revised 1991 levels. This increase was due to new capacity in Malaysia, with a further large increase to over 3 million m^3 projected through 1994. Plywood production rose by 6.5 percent in 1992, to 14.2 million m^3. This increase was primarily due to growth in both Indonesian and Malaysian plywood production, although the rate of growth of the Malaysian industry continues to exceed that of Indonesia. Both countries continued to increase production in 1993, although Indonesia's production is expected to stabilize in 1994 as limits on plant capacities and annual allowable cuts are reached. Malaysia's plywood production will rise through 1994 due to new plants to add value to logs from Sabah and Sarawak. ITTO consumer countries also produced substantial quantities of tropical timber products in 1992. Consumers produced almost 3.9 million m^3 of sawnwood, 1.1 million m^3 of veneer and nearly 8 million m^3 of plywood, nearly all from imported tropical logs. These production levels, particularly for plywood, will drop in 1993-94 as the supply of tropical logs dwindles.

ITTO producers exported 22.2 million m^3 of logs in 1992, with Malaysia providing 78 percent of this amount. The Malaysian proportion of total ITTO log exports declined to less than 60 percent as a result of a major drop in log exports from Sabah (due to an export ban) and Sarawak (due to implementation of the recommendations of the ITTO Mission) in 1993. This decline is due to the combined pressures of domestic demand, value-added policies and environmental concern. Sawnwood exports increased almost 10 percent to 8.0 million m^3 in 1992. Exports dropped back to 7.7 million m^3 in 1993, and are predicted to have dropped further to 7.5 million m^3 in 1994. Drops in Indonesian and Malaysian sawnwood exports account for most of these decreases. Malaysia remains the largest sawnwood exporter, accounting for 66 percent of the total volume of ITTO exports in 1992. Veneer exports, led by increases from Malaysia, increased by a remarkable 50 percent from the 1991 level to over 1.1 million m^3. Plywood exports from ITTO producing nations increased by 5.9 percent over 1991 levels, to 11.3 million m^3. This increase was due to continuing expansion in both Malaysian and Indonesian exports which together constituted almost 93 percent of the ITTO total in 1992. This dominance will remain through 1994, as continuing increases in Malaysian exports offset a levelling of those from Indonesia. ITTO consumers also exported or re-exported substantial quantities of tropical timber in 1992, led by sawnwood and plywood exports of 0.3 and 0.4 million m^3 respectively. This trade is largely centered in Europe and is expected to continue the declining trend identified in previous years.

Tropical hardwood log imports by ITTO consumers fell by less than 1 percent to just under 22.8 million m^3 in 1992. If imports by producing members are taken into account, however, total 1992 tropical log imports reached 26.2 million m^3. This figure is almost 3.9 million m^3 greater than total exports, with the shortfall presumably made up by non-ITTO suppliers (including Indochina, the 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 increasing gap between total tropical log imports and exports shown by the figures for 1993 (5 million m^3) and 1994 (5.8 million m^3) indicates that there may be some under reporting of log exports or misclassification of imports. The existence of such a log shortfall is also an indicator of the increasing demand for substitute materials. Japan maintained its position as the dominant importer of tropical logs in 1992, accounting for over 48 percent of all consumer country log imports. Although Japanese demand for tropical logs rose by almost 6 percent in 1992 to nearly 11 million m^3, a substantial decrease (to 8.3 million m^3) occurred in 1993, followed by an expected rebound to almost 9.5 million m^3 in 1994. India, Thailand and the Philippines are the major ITTO producing country log importers.

Japan's imports of almost 1.3 million m^3 of tropical sawnwood in 1992 rose by over 23 percent from 1991 levels, almost erasing a similar percentage decrease observed between 1990 and 1991. Japan still remained the main importer amongst consumers whose imports totalled 6.6 million m^3 in 1992. Thailand remained the largest ITTO importer of tropical sawnwood in 1992 at over 1.7 million m^3. Thailand will continue to be the major market for tropical sawnwood in the foreseeable future, with imports expected to grow to over 2 million m^3 in 1994. In contrast, all consuming countries except Japan and Korea predict relatively steady or decreasing imports of tropical sawnwood through 1994. The increase in total ITTO tropical sawnwood imports of nearly 14 percent in 1992 is primarily attributable to the increases in Japanese and Thai imports, which continue to more than offset the steady decline in European imports.

Japan was overtaken as the dominant tropical hardwood veneer importer in 1992 by the People's Republic of China and Taiwan Province of China, which together absorbed an estimated 433 000 m^3 (39 percent of both consumer imports and total ITTO imports). Japan significantly revised downwards its tropical veneer import figures for 1992. Tropical plywood importers continue to be led by Japan, which absorbed almost 2.9 million m^3 in 1992, down 2 percent from 1991. Tropical plywood imports continued to grow in almost all consuming countries, reaching 8.7 million m^3 in 1992. Further large increases in Japan's imports resulted in consumer plywood imports of 9.5 million m^3 in 1993 with total ITTO imports exceeding 10 million m^3 for the first time.

Real prices for primary tropical hardwood products appear to have firmed somewhat during 1992-94 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 increased significantly at the end of 1992 and during 1993 as wood shortages become apparent. Prices had returned to mid-1992 levels by the end of 1993 in most cases. Plywood prices have, in general, increased steadily over the period, with recent sharp drops causing much uncertainty in the market. Prices for all products and regions in 1992-94 have fluctuated 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

Several factors combined to affect tropical forests and forest products in 1993-94. Negotiations for a successor agreement to the International Tropical Timber Agreement, 1983, were completed under the auspices of UNCTAD in Geneva in January 1994. The new agreement will have implications for ITTO's statistical coverage with consideration of non-tropical timbers to be included. Members are currently in the process of ratifying the new Agreement. Preliminary consideration of the mechanisms for collecting, analyzing and disseminating statistics on all timbers as required under the successor agreement was undertaken by members at the Seventeenth Council Session in November 1994.

In other related developments, ongoing proposals to include several commercially important tropical timber species in Appendix 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, with ITTO undertaking for the first time its own study on the issue of timber certification of all timber and timber products. Other initiatives to implement certification systems also gained publicity. Recession continued to ease in North America but less markedly in Japan and parts of Europe. Progress was made in negotiating a new world trade agreement following the successful completion of the Uruguay Round, with major tariff reductions achieved in several timber products. A new World Trade Organization (WTO) is due to come into being in January 1995 to replace GATT if member states are able to ratify the Uruguay Round accords in time. These developments and many others combined to make the 1993-94 period one of rapid and significant change, with accompanying uncertainty, in all sectors of the global economy.

This Review attempts to summarize some of the issues relating to and linkages between the economic, environmental and political dimensions of tropical forest development in ITTO member countries.

Scope and Structure

The remainder of the Review is divided into four 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, continuing the coverage presented in the 1992 Review, utilizing data from the revised ITTO Forecasting and Statistical Enquiry. 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 1993-94 ITTO Forecasting and Statistical Enquiry wherever possible. The 1993-94 Enquiry was revised in light of Decision 4(XIV) to include provisions for members to provide statistics on all timber trade and forest resources (tropical and non-tropical). Following discussions at the Sixteenth Council Session, members were advised to only complete the tropical portion of the Enquiry. This Review, therefore, continues to focus solely on tropical timbers.

The number of countries responding to the Enquiry dropped sharply in 1993-94, with only 14 of 25 producers and 19 of 27 consumers providing at least partial responses by September 1994, in time for inclusion in the first draft of the Review considered at the Seventeenth Council Session. A further 2 consumer and 4 producer members submitted responses to the Enquiry by the end of December 1994, in time for inclusion in the final version of the Review. Several of the responses that were received contained significant and obvious errors in one or more categories. As the majority of responses were also received late, there was often insufficient time to adequately analyze the figures and request clarification where necessary. A complete, unedited listing of member country responses to the Enquiry is contained in the document "Results of the 1993-94 Forecasting and Statistical Enquiry" [ITTC(XVII)/4 Rev.1], available from the ITTO Secretariat. Countries which did not respond to the 1993-94 Enquiry are identified in that document and 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 References and the notes to the Appendices. Comparisons with global totals or totals for all developing countries in the production and trade sections are based on statistics from the 1992 FAO Yearbook of Forest Products.

Despite the decision to move consideration of the Annual Review to the November Council Session to allow for the provision of more timely statistics, many members failed to report forecasts for 1994 and were unable to provide final figures for 1993. The base year for all comparisons in the Review is therefore 1992. Caution should be used when interpreting the estimates for some countries and ITTO totals given here for 1993-94. Countries for which estimates were made are identified by the superscripts used in the Appendices.

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 1-5 and Tables 1-5, as well as document ITTC(XVII)/4 Rev.1. Notes relevant to all data precede the Appendices.

The assistance of those countries which responded to the 1993-94 ITTO Forecasting and Statistical Enquiry is gratefully acknowledged, as is the support of the FAO Forestry Department, the FAO/ECE Timber Committee, 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

Table 1 summarizes statistics on forest area in 1992 for ITTO producer members. Few countries provided meaningful figures for roundwood removals (apart from saw and veneer log production) or logging areas in the 1993-94 Enquiry. Such information will, however, be essential to ITTO's efforts to monitor progress towards Year 2000 Objective. Table 1 is based on the management categories used by FAO in the 1980 Forest Resource Assessment project to facilitate comparison with this data. Unfortunately, the 1990 Forest Resource Assessment results for tropical countries, which were released in late 1993, no longer incorporate the classifications "productive" and "unproductive". ITTO, however, continues to seek data on total productive forest areas from members as these figures are required for the vote calculation procedure laid out in both the original and new agreements. Forest area data for countries not responding to the ITTO Enquiry were taken from the 1990 Forest Resource Assessment, with the total area of closed broadleaved forest assumed to be "productive" and with all plantations assumed to be hardwoods, with the exception of Venezuela, where significant areas of coniferous plantations exist.

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. Only Ghana, Malaysia, Bolivia 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. The full details of country responses with regard to forest/logging areas and roundwood removals are contained in document ITTC(XVII)/4 Rev.1.

Proposals to include tropical timber species in the Appendices of the Convention on International Trade in Endangered Species (CITES) continued during 1993-94. The main proposals for consideration at the Ninth Meeting of CITES in Fort Lauderdale, U.S.A. in November 1994, called for the inclusion of *Khaya* species (including African mahogany or Acajou), *Entandrophragma* species (including sapele and utile, among others) and South American mahogany (*Swietenia macrophylla*) in Appendix II of CITES. The Netherlands put forward South American mahogany, with Germany seeking the listing of the African species. Although none of these proposals were accepted by the contracting parties, a decision was taken to establish a working group to examine in detail timber species issues in collaboration with other relevant organizations. ITTO will continue to work closely with CITES to ensure its members are informed of any proposals of relevance to tropical timber which may arise. Appendix 4 contains a list of major species traded by ITTO producers and consumers in 1992-93. Few ITTO member countries provided statistics on volumes traded by species, particularly from Africa. Brazil, which opposed the listing of *Swietenia*, has export quotas in place to limit trade in this species. An ITTO pre-project completed in Brazil in 1993 concluded that further forest inventory and collection and analysis of production statistics are required before any conclusions can be drawn on the extent of mahogany resources.

The issue of timber certification and labelling continued to be a focus of attention in tropical timber producing and consuming countries in 1993-94. ITTO undertook a major survey of existing schemes, including the opinions of members, which served as the background document to a working party convened on this topic during the Sixteenth Council Session in May 1994 in Cartagena, Colombia. The prevailing opinion of ITTO members does not appear to favour the

Table 1. Tropical Forest Areas for ITTO Producers as of 1992 (1000 ha)

Country	Total Land Area	Natural Forest							Plantations			Total Tropical Forest Area
		Productive					Unproductive	*Legally Reserved*	Total			
		Total	Managed	*Sust. managed*	Unmanaged	*Unexploited*				Hardwood	*rapid growth*	Softwood	
Africa	**403133**	**79656**	**10711**	***2185***	**55790**	***10038***	**134765**	***5478***	**214421**	**331**	***71***	**9**	**214761**
Cameroon	46540	22820	191	*506*	16940	*10000*	5880	*3000*	28700	37	*14*		28737
Congo I	34150	14741	5241		9500		7500		22241	53	*48*	3	22297
Côte d'Ivoire I	31800	5050	10		5040		1950	*1950*	7000	78		1	7079
Gabon	25767	7466					12534		20000	30		1	20031
Ghana	23002	2053	1679	*1679*	374		528	*528*	2581	77			2658
Liberia	9675	3900	1700		2200		1000		4900	10	*5*	0	4910
Togo	5439	236	0	*0*	236	*38*	763		999	25	*4*		1024
Zaire I	226760	23390	1890		21500		104610		128000	21		4	128025
Asia-Pacific	**703320**	**203142**	**47548**	***20988***	**37331**	***6600***	**108137**	***11826***	**311273**	**28609**	***254***	**12**	**339894**
India F	297319	28747					22982		51729	18900			70629
Indonesia F	181157	86393					23156		109549	8750			118299
Malaysia	32855	13368	13368	*10494*			4482	*1500*	17850	122	*122*		17972
(Peninsular)		2820	2820	*2820*			1900		4720	51	*51*		4771
(Sabah)		3348	3348	*2674*			1088		4430	64	*64*		4494
(Sawawak)		7200	7200	*5000*			1500	*1500*	8700	7	*7*		8707
Myanmar	65797	34319	20474		13845		15439		49758	31		1	49790
PNG	45286	6938	338		6600	*6600*	25580		32518	37	*10*	11	32566
Philippines	29817	3123					2032	*2032*	5155	41			5196
Thailand	51089	16886	0	*0*	16886	*0*	9978	*6794*	26864	606			27470
Latin America	**1340834**	**579110**	**10907**	***4752***	**137514**	***63075***	**199938**	***9522***	**780813**	**10984**	***448***	**574**	**792371**
Bolivia	108438	45000	5000	*1000*	40000	*26000*	10000		55000	12			55012
Brazil F	845651	387121					173980		561101	7000			568101
Colombia	103870	46302	135		46167				46302	129	*129*	170	46601
Ecuador I	27684	13549	855		12694	*5027*	1395		14944	60	*54*	36	15040
Guyana	19685	8961	4913	*3752*	4048	*4048*			8961				8961
Honduras	11189	2840						*76*	4605				4605
Panama	7599	1609	4		1605		1446	*1446*	3055	3500		6	6561
Peru	128000	33000			33000	*28000*	8000	*8000*	41000	265	*265*		41265
Trinidad F	513	155					0		155	18			173
Venezuela F	88205	40573					5117		45690			362	46052
Total	**2447287**	**861908**					**442840**		**1306507**	**39924**		**595**	**1347026**

F: FAO 1990 Forest Resource Assessment. I: ITTO estimate.

Organization playing any direct role in the certification of timbers. However, the Council decided that the Organization should continue to closely monitor developments in the market for certified timbers. In addition to up-dating members on market developments in this regard, this will probably entail some degree of information exchange with the Forest Stewardship Council, which was formally established in 1993 to accredit timber certification companies and programs. Meanwhile, several ITTO producing members were planning their own certification programs in 1993-94, led by Indonesia which hosted an international conference to present its scheme and receive reactions to it in September 1994.

ITTO was involved in several post-UNCED activities to provide input to the U.N. Commission on Sustainable Development which is scheduled to undertake in April 1995 its Forest Review - a review of country-level progress in implementing UNCED's agreed decisions on forests. These include the so-called Helsinki-Montreal process (which aims to produce criteria and indicators for sustainable management of boreal and tropical forests), and the Intergovernmental Working Group on Global Forests (IWGGF), established by Canada and Malaysia to discuss core issues of global forest policy and management within the context of UNCED's Agenda 21.

In a large-scale environmental catastrophe, the worst fires since the major blaze of 1982 were burning out of control in the forests of eastern Kalimantan, Indonesia, in early October 1994. Sub-surface coal and peat deposits were helping to fuel the fires, which showed no signs of abating after a long dry season. It is unclear whether Indonesia will undertake timber salvage operations when the fires are extinguished - if so, this could add significantly to short-term Indonesian log supplies. Smoke from the fires made air traffic in the region hazardous and raised health concerns in neighbouring Malaysia and Singapore. ITTO is currently in the process of developing guidelines for the protection of tropical forests against fire, with an expert panel to be convened in early 1995.

Year 2000 Objective Progress Reports

Under ITTC Decisions 3(X) and 4(XIV), members are required to report annually on their progress towards ITTO's Year 2000 Objective. The reports (from 3 producer members and 7 consumer members) received in 1993-94 prior to the Seventeenth Council Session in November 1994, are summarized in this section. Complete copies of the country reports are available from the Secretariat.

Indonesia

Indonesia submitted a brief update to its 1992 progress report to the Fourteenth Council Session in May 1993. The government is emphasizing the following activities: (i) gazetting of permanent forest estate and inventory; (ii) implementation of strict management practises; (iii) improvement of socio-economic status of forest communities; and (iv) establishment of plantations.

In April 1993, the Minister of Forestry issued a decree setting out national guidelines for criteria and indicators of sustainable forest management at the national and management unit levels. These guidelines were developed from those of ITTO. A checklist for ascertaining sustainability of management of natural forest has also been prepared and is being used in the field. A copy of the checklist, which includes very detailed items with respect to resource security, continuity of timber production, conservation/environmental impacts, and socio-economic concerns (e.g. community consultation), was attached to Indonesia's report. Indonesia intends to evaluate the results of using this checklist in 1995, leading to refinement in the categories of information included.

In a statement to Council at its Fifteenth Session in November 1993, the Indonesian Minister of Forestry described the importance of forestry to the Indonesian economy and people. Over 4 million Indonesians earn a significant part of their incomes directly from the forestry sector. Sustainable production from natural forests is calculated at 31 million m^3 per year, but production from these forests was only projected at 22.5 million m^3 through 2000. Plantation harvests are projected to increase from 1.49 million m^3 in 1994 to over 5 million m^3 in 2000 from a combination of short and long-rotation species. Conversion forests provide an annual 3.5 million m^3, with non-forest estates (e.g. rubberwood, smallholders) accounting for over 8 million m^3 annually. The Minister also announced that an independent body would be established in Jakarta to oversee the certification of Indonesian forest products.

Malaysia

Malaysia submitted its annual report to the Fourteenth Council Session in May 1993 which was structured 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 14.08 million ha of natural forest as Permanent Forest Estate (PFE), to be managed under sustained yield (42.8 percent of total land area). Approximately 11.25 million ha of the PFE have been classified as production forests with the remainder protection forest. Forest plantations of species such as *Gmelina arborea, Acacia mangium* and *Paraserianthes falcateria* are becoming increasingly important, with total areas of over 115 000 ha in 1991 projected to increase to 360 000 ha within 10 years. The government is reviewing incentives to encourage private investment in forest plantations.

Annual felling coupes are determined in 5-year plans. Current annual harvest areas are 52 250 ha for Peninsular Malaysia, 30 000 ha for Sabah and 96 000 ha for Sarawak. Peninsular Malaysia also uses volume control to regulate annual harvests, based on data from pre-harvest inventories. The government is also increasing manpower resources of forest departments and penalties for forestry offences to curb illegal harvesting of timber. Successful regeneration of logged-over areas is ensured by silvicultural release treatments and, where necessary, enrichment planting.

Malaysia has established a series of over 120 Virgin Jungle Reserves with a total area of over 110 000 ha to assist in conserving biodiversity and to serve as control, for experiments examining the impact of harvesting on natural forests. A National Council on Environment was also established in 1993.

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 revised Environmental Quality Act which came into force in 1987 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.

The Malaysian forestry sector contributes 4 percent of GDP and accounts for 10 percent of total export earnings, while employing 3 percent of the country's labor force. The Malaysian report concludes by detailing the various institutional arrangements that are in place throughout the country in this important sector, including administration, research and extension, and overseas cooperation.

Philippines

The status report of the Philippines was presented to the Sixteenth Session of the ITTC in May 1994. The report was broken down into 5 sections: Forest Resource Status; Sustainable Forest Management; Status and Progress; Policies and the Forest Code; and Sustainability Gaps (Future Directions Toward the Year 2000 Objective).

The Philippines legally classifies 15 million ha or 50 percent of its land area as forest lands. However, natural forests only cover an estimated 6 million ha, of which 1.8 million ha of second-growth forests are designated for long-term sustained timber production. Logging has been banned in all remaining virgin forest areas.

Seven principle objectives to achieve sustainable forest management are being pursued. These are to:

- set aside a permanent natural forest estate;
- ensure the long term security of the forest estate;
- enhance forest productivity;
- improve regional, provincial and local economic stability and increase social equity and employment;
- enhance and maintain environmental stability;
- conserve biodiversity; and
- protect and develop cultural communities.

The report provides details on the various activities underway in the Philippines to achieve these objectives. It also outlines steps being taken to implement sustainable forest management, including details of current concession areas (1.4 million ha) and Annual Allowable Cut (800 000 m^3).

The Philippines has adopted a Philippine Strategy for Sustainable Development and a Philippine Agenda 21 following UNCED in 1992. Copies of these documents were appended to the Philippines report. The Philippines Cabinet in late 1992 approved a medium term development plan ("Philippines 2000") which incorporates elements of these documents as well as the ITTO Guidelines. This document lays out very specific targets through the year 2000 (e.g. establishment of almost 1 million ha of plantations, establishment of 14 000 ha of buffer zones, production of over 11 million seedlings and 500 000 saplings in 1994, etc.), which will be achieved through a combination of local and internationally assisted projects. All of these activities take place under the umbrella of a 25-year Forestry Master Plan Program.

The last two sections of the Philippines report give details on administrative arrangements (including a proposed new forestry reform code currently before the legislature) and future work (including the need for external financing). The report concludes that over $3.2 billion of external financing will be required to complete its 25-year Forestry Master Plan Program, with public and private sources within the Philippines expected to contribute $3.9 billion.

Australia

Australia submitted progress reports to both the Fourteenth (May 1993) and Sixteenth (May 1994) Council Sessions. These are both summarized here.

Australia is unique within ITTO by being the only consumer country member with substantial tropical forests. Approximately 1.4 million ha of the country's total forest area of 43 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.

Logging activity in the north Queensland rainforest has been largely curtailed following World Heritage listing of these forests in 1989. Current production from privately held areas and salvage operations is only about 6 000 m^3 per year, compared to a sustainable harvest of 60 000 m^3 per year prior to the World Heritage listing. Federal, State and local governments are involved in a Community Rainforest Reforestation Program which will plant 1 000 ha per year of rainforest timbers by 1995 in an attempt to rebuild a viable, small-scale forest industry in North Queensland. In the rest of the country, almost 40 000 ha per year are being planted, primarily with exotic conifers. However, the native rainforest conifer *Araucaria cunninghamii* (hoop pine) is an important plantation species, with almost 45 000 ha established, almost all in non-tropical zones.

In June 1992, the Australian Federal Government announced a policy on international cooperation to achieve sustainable management of tropical forests. The policy incorporates ITTO's Guidelines and Year 2000 Objective. The Australian Government also supported a seminar in April 1994 (organized by the Australian Timber Importers' Federation and WWF Australia) which considered the challenges of sustainable rainforest management and brought together interested parties from throughout the country. Australia was also active in efforts to reform the international trading system in 1993-94, to safeguard and increase access of all countries to global markets. Australian tariffs on imported forest products will fall to 5 percent or less by mid-1996.

In December 1992, all Australian States, except Tasmania, adopted a National Forest Policy Statement, which sets out an agreed national approach to the sustainable management of Australian forests (both temperate and tropical). A summary of this statement was appended to Australia's 1993 report. Implementation of priority policy areas in the statement began in 1993 and continued through 1994. Export controls are being removed on plantation wood. Criteria for the selection of forest reserves are being developed and a reserve system for public lands should be in place by 1995. Procedures for conducting comprehensive regional assessments of environmental and heritage aspects of forests are being developed.

Both of Australia's reports conclude with summaries of relevant international cooperation, environmental measures (e.g. he National Forest Inventory Program) and socio-economic impacts of the forest industries which contribute 0.5 percent of total Australian employment and 1 percent of its GDP. Statistics of Australia's timber production and trade were also included in both reports.

Austria

Austria presented a report to the Fifteenth Council Session in November 1993. The report highlighted the importance of protection forests in Austria's mountainous terrain and detailed the forest legislation and policy in place to ensure sustainable management of forest resources. The report also noted the long history of sustainable forest management in Austria, with the first law to ensure a sustainable supply of raw materials (for mines, saltworks and the metallurgical industry) passed in 1852.

The current Austrian Forest Law (1975) bans clear cuts of more than 2 ha, with government approval required for any clearing exceeding 0.5 ha. Forest owners are legally obliged to replant after felling. About 30 percent (1.3 million ha) of Austria's total forest land is reserved for protective functions. Annual growth in the remainder of the productive forest (about 2.6 million ha) averaged 20 million m^3 over the last decade, with average felling of 13 million m^3, although this figure varied considerably from year to year.

Austria provided statistics of its production and trade in timber (including tropical) and concluded its report with a summary of international cooperation and environmental measures. Notable in the latter section were discussions of measures underway to protect forests from air pollution, and

a description of legislation for the amended "quality mark" for timber and timber products sold in Austria.

Netherlands

The Netherlands presented reports to the Fourteenth (May 1993) and Fifteenth (November 1993) Council Sessions. Both of these describe aspects of the implementation of the Netherlands' Policy on Tropical Rainforests, described in their 1992 report. The latter report contains a complete description of the Netherlands' Framework Agreement on Tropical Timber (NFATT), which is designed to ensure that by the end of 1995, all tropical timber bound for Dutch markets will be sustainably produced. The NFATT consists of 3 phases to be carried out over 3 years: Development and Exploration Phase (1993); Experimental Phase (1994); and Implementation Phase (1995). A complete description of the activities under each phase together with a copy of the complete NFATT were included in the report. It was also noted that the NFATT could be extended to all timbers.

The report to the Fourteenth ITTC Session, in addition to giving a preliminary outline of the NFATT, provides statistics on Dutch imports of tropical timber and related international cooperation programs.

New Zealand

New Zealand provided a short report to the Fifteenth Council Session (November 1993), detailing the country's history of forest exploitation and the development of over 1.3 million ha of plantation forests which ensure that the country will always have a sustainable wood supply. The recent privatization of most of the plantation resource, together with the removal of subsidies for plantation establishment and management were cited as positive steps leading to greater international competitiveness in the New Zealand forest industry.

Only one percent of New Zealand's wood supply comes from natural forests which are now largely protected from exploitation by the Forest Amendment Act of 1993. Forest owners and NGOs signed an accord in 1993 ensuring that no indigenous forests will be cleared for plantation establishment. New Zealand timber importers are working to maintain consumer acceptance of all timbers, including tropical.

Norway

Norway presented a report to the Fifteenth Council Session based on the format agreed in ITTC Decision 4(XIV).

Norway imports minimal quantities of tropical timber, with all tropical products granted duty free access. Norwegian forest area covers 11.8 million ha, 5.2 million ha of which is considered productive. 200 000 ha of forests are protected in national parks and nature reserves. The Norwegian Forestry Act stipulates multiple, sustainable use of all forests.

Norway provided statistics of its wood production and trade and a summary of bilateral assistance programs in forestry which totalled over $5 million in 1991. The report concludes with a summary of employment (45 000) and value added (over $2 billion) in the Norwegian forest sector in 1991.

Switzerland

Switzerland presented a brief progress report to the Fifteenth Council Session (November 1993). The report noted the Swiss commitment to apply the Year 2000 Objective to its own forests, and outlined steps underway to achieve this.

Laws have been in place since 1876 to conserve Swiss forests and ensure they carry out their protective functions in Switzerland's mountainous terrain. Swiss forest area exceeds 1 million ha, with more than half of these forests occurring over 1 000 m altitude and on slopes greater than 40 degrees. The 1876 law was revised in 1902. The laws ensured that all production forests were managed on a sustained yield basis and that all cleared areas (including clearances caused by natural catastrophes) were replanted.

The 1902 Forest Law was revised in 1993 to include concerns for forest monitoring, biodiversity, conservation, timber marketing, manpower development and the provision of a label for timber from well-managed forests. Switzerland is now implementing this new law.

United Kingdom

The United Kingdom submitted a progress report just prior to the Council's Seventeenth Session (November 1994). The report covered three main areas:

- international forest policy issues;
- bilateral and multilateral forestry aid; and
- sustainable forest management in the United Kingdom.

The United Kingdom agreed in September 1993 to work together with India to ensure a successful review of implementation of UNCED's Forest Principles by the U.N. Commission on Sustainable Development (CSD) in 1995. This collaboration has resulted in an agreed standard framework for countries to use in their reports to the CSD on implementing the forestry aspects of UNCED.

The United Kingdom has ratified both the Biodiversity and Climate Change Conventions agreed at UNCED, and is currently considering the Desertification Convention. £130 million has been committed to the Global Environment Facility (GEF). The United Kingdom is an active participant in the FAO Tropical Forestry Action Program (TFAP).

The United Kingdom is supporting the development of a voluntary certification and labelling system for all timbers, which it sees as a valuable incentive for sustainable forest management.

The U.K. Overseas Development Administration reviewed its policy on forestry development assistance in 1993 to ensure compatibility with the UNCED Forestry Principles. Forestry aid in 1993-94, at about £30 million, is four times the 1988-89 level. Some 200 forestry projects are underway or in the planning stage, with a total cost of £152 million. Several examples of these projects are listed in the report, with special attention paid to projects undertaken through ITTO. The report also outlines the U.K. policy for project support in the ITTO forum and expresses the desire for closer cooperation between ITTO and TFAP.

The United Kingdom report concludes with a description of domestic forest policy. Under the government Forestry Commission, this policy aims to sustainably manage existing forests while promoting the continued expansion of forest cover (forests currently make up about 11 percent of total land area). Forest expansion will be achieved through grants for planting and early stand management. Forest investment incentives were reviewed by the government in 1993-94, with the result being a more effective system of planting incentives.

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 other available data sources (see Appendix 1). Production statistics in many ITTO member countries are weak or non-existent. The primary problem in many producer countries appears to be the lack of any kind of regular industrial survey to obtain production figures, while consumer countries usually are unable to distinguish the processing of tropical timber from all timber processing. In some cases, production figures have been estimated by working backward from available log supply. Apparent domestic consumption (production plus imports minus exports) statistics may include changes in stock levels which are not reported or reported incorrectly by most 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 2 presents information for producer members on industrial structure, capacity of production, average recovery rates (units of product per unit of log) and employment levels in each country's forest sector. Quality of responses varied as usual, with some countries providing detailed information and many others responding that such information is not collected or otherwise unavailable. Consumer countries did not in general have information on mills processing tropical wood. Although many estimates of total employment had to be made, Table 2 shows that in ITTO's producing member countries almost 7 million people are directly employed in logging and primary processing of tropical forest products. Over 90 percent of these are employed in the forest industries of Asia, including an estimated 3 million each in India and Indonesia. Employment in producing country forest industries appears to have remained relatively stable in most countries in 1992, although the many countries not providing timely statistics make generalizations and analysis of regional and product totals difficult. Several countries (most notably Malaysia and the Philippines) predict decreases in logging employees through 1994, as log harvests decrease. These employees are expected to be largely absorbed by new and existing processing mills. Guyana remains the only country reporting an increase in logging employment (50 percent) through 1994, as plans to increase sawnwood and plywood capacity will require increased logging. Data for 1993-94 from the relatively few countries that provided it is contained in document ITTC(XVII)/4 Rev.1.

Table 2 also shows average conversion rates for primary processing industries in ITTO producer member countries. Particularly notable are the low average conversion rate given for Papua New Guinea's sawnwood (25 percent) and the high rate given for Sabah veneer (80 percent). Several countries also reported the existence of secondary processing mills of various types. Unfortunately there was insufficient information available on these operations, from either the Enquiry or secondary sources, to include a chapter on secondary processing in this Review. Details of "other" wood processing industries are given in the Country Notes when available.

Logs

The production of tropical hardwood saw/veneer logs in ITTO producer member countries totalled 139.9 million ^{3} in 1992, 79 percent of production of non-coniferous saw/veneer logs in developing countries 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 1990-94 (estimated). Côte d'Ivoire, Papua New Guinea, Philippines, Thailand and Bolivia reported or were estimated to have undergone significant declines in log production in 1992, as shown in Appendix 1.

Table 2. Forest Industry Structure in ITTO Producers in 1992

Industry	Logging		Sawmills				Veneer mills				Plywood mills				Others		Total	
Country	Enter-prises	Employees	Enter-prises	Employees	Installed Capacity (1000m3)	Avg. Conv. Rate	Enter-prises	Employees	Installed Capacity (1000m3)	Avg. Conv. Rate	Enter-prises	Employees	Installed Capacity (1000m3)	Avg. Conv. Rate	Enter-prises	Employees	Enter-prises	Employees
Africa	**206**	**27530**	**184**	**63915**	**568**	**0.47**	**20**	**80**	**115**	**0.52**	**17**	**1000**	**173**	**0.49**	**70**	**0**	**930**	**148505**
Cameroon	286	7000	211	12580			2	460			3	580					502	8500
Congo																		5000 I
Côte d'Ivoire																		13325 I
Gabon	25	14000	22	2500	80		1	80	13		3	1000	113		65		116	17580
Ghana1)	180	13500	102	61400	480	0.47	15		102	0.52	10		60	0.49			307	74900
Liberia	3																3	4000 I
Togo	1	30	1	15	8												2	200 I
Zaire																		25000 I
Asia-Pacific	**1525**	**136223**	**2289**	**73441**	**22217.5**	**0.48**	**67**	**22610**	**3570.38**	**0.67**	**264**	**31386**	**2214.3**	**0.50**	**665**	**44657**	**4810**	**6335769**
India																		3000000 I
Indonesia			292		7900						117		8200				409	3000000 I
Malaysia	1454	84223	1106	57087	22818.4	0.52	41	13410	3380	0.73	79	29472	2940		231	8207	2911	192399
(Peninsular)	*1204*	*12049*	*697*	*35329*	*11800*						*44*	*18972*	*1840*		*97*	*3597*		*69947*
(Sabah)2)		*17174*	*217*	*13358*	*9118.4*	*0.54*	*26*	*12910*	*3000*	*0.80*	*19*			*0.65*	*63*	*3110*		*46552*
(Sarawak)	*250*	*55000*	*192*	*8400*	*1900*	*0.50*	*15*	*500*	*380*	*0.65*	*16*	*10500*	*1100*	*0.52*	*71*	*1500*		*75900*
Myanmar			8	6284								1264					8	10000 I
PNG		12000			200	0.25					1	650	16.2	0.40	401	1450	402	14100
Philippines2)	71	40000	161	10070	1083.2	0.60	13	9200	474	0.50	42			0.43	26	35000	313	94270
Thailand			722		6.1		13		96		25		357		7		767	25000 I
Latin America	**1404**	**75008**	**1363**	**18855**	**2095.4**	**0.47**	**19**	**2065**	**172.57**	**0.46**	**31**	**11187**	**368.107**	**0.29**	**2391**	**14174**	**6498**	**515259**
Bolivia			296				3				3						302	25000 I
Brazil																		350000 I
Colombia			178		1135.4	0.50	11		113.97	0.40	7		132	0.25	809		1005	6000 I
Ecuador*		1000	268	2509	53	0.40	1	65	55		8	1964	73		1105	6374	1382	11912
Guyana	363	6848	85	4208	175						1	80	39.107				449	11136
Honduras			136	4138							2	495					138	4633
Panama*	41	160		8000		0.52					4	248	24	0.20	354		399	8408
Peru	1000	67000	400		732		4	2000	3.6	0.53	6	8400	100	0.44	123	7800	1533	85200
Trinidad	1000	1500	66	350	100										224	1120	1290	2970
Venezuela																		10000 I
Total	**3135**	**238761**	**3836**	**156211**	**24880.9**	**0.43**	**106**	**24755**	**3857.95**	**0.55**	**312**	**43573**	**2755.41**	**0.43**	**3126**	**58831**	**12238**	**6999533**

1) Number of employees of sawmills includes those of all processing mills. 2) Installed capacity and number of employees of veneer mills include those of plywood mills.

*: Unofficial Data. I: ITTO estimate.

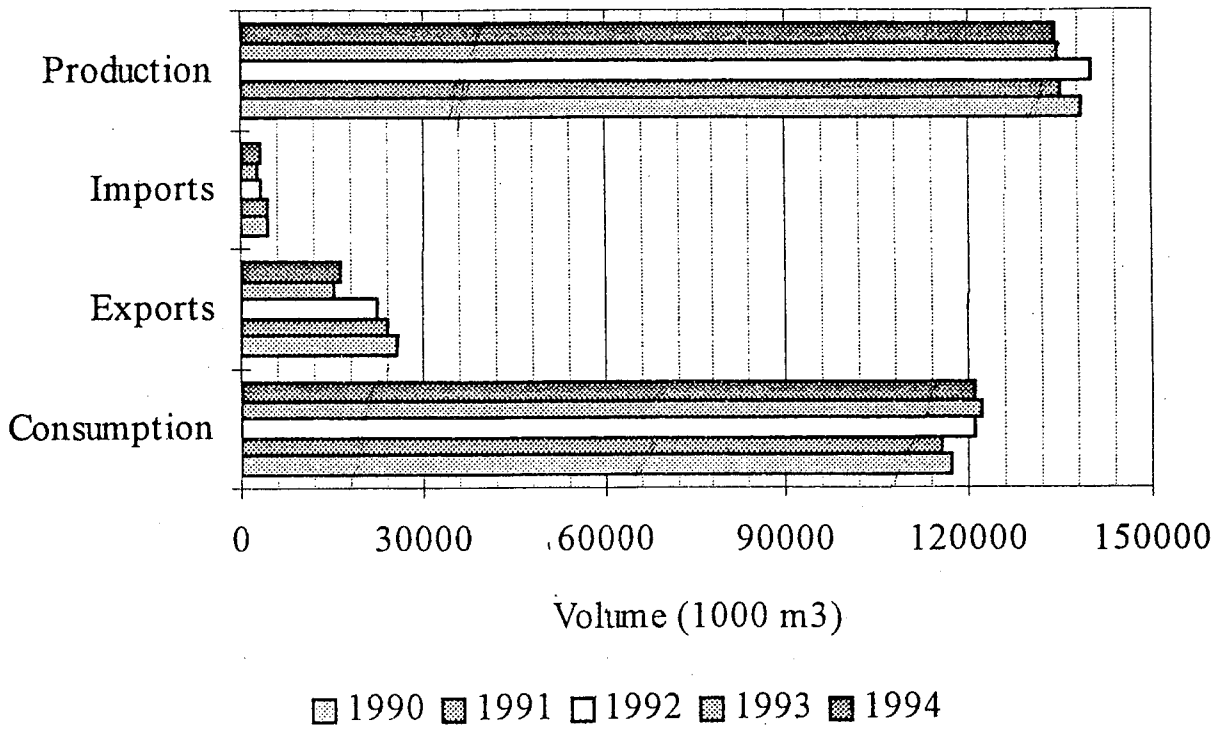

Figure 1. Producers' Production, Trade and Consumption of Tropical Logs

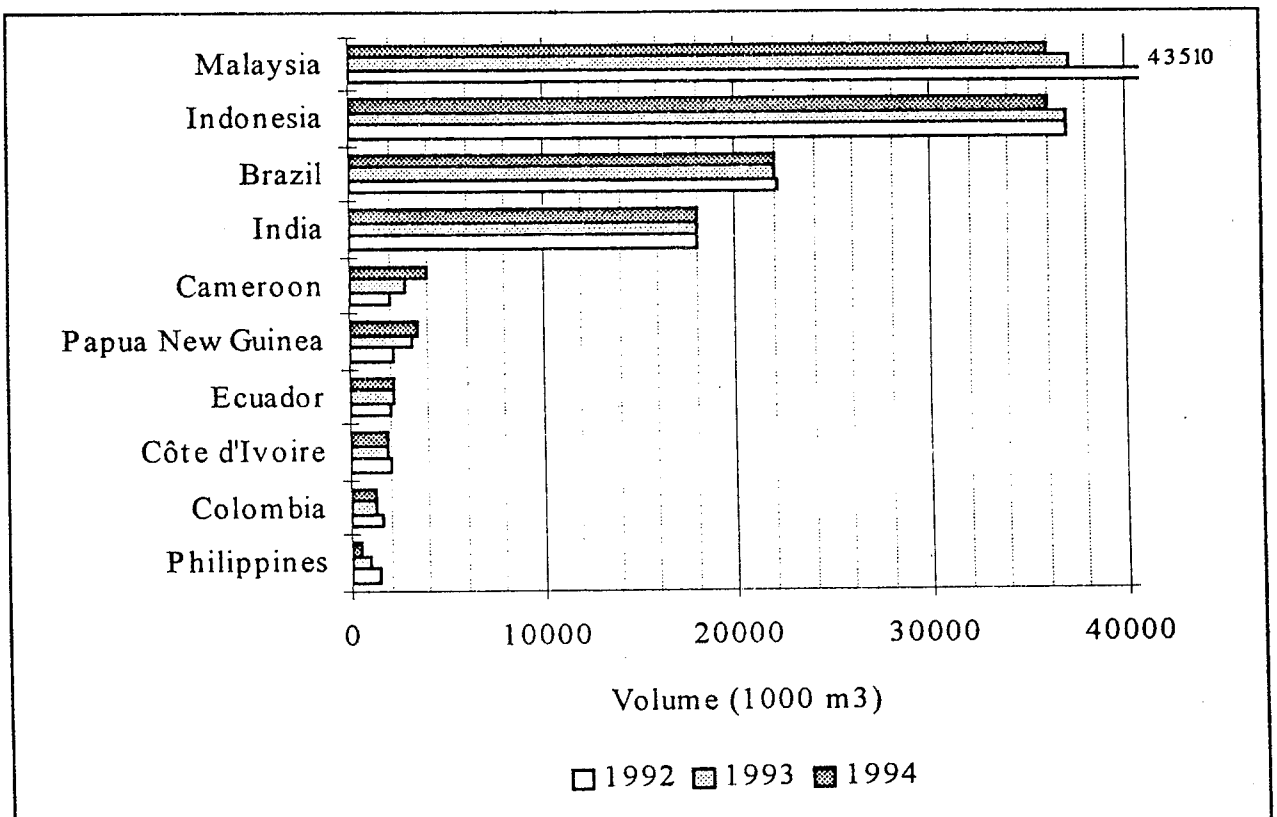

Figure 2. Major Tropical Log Producers

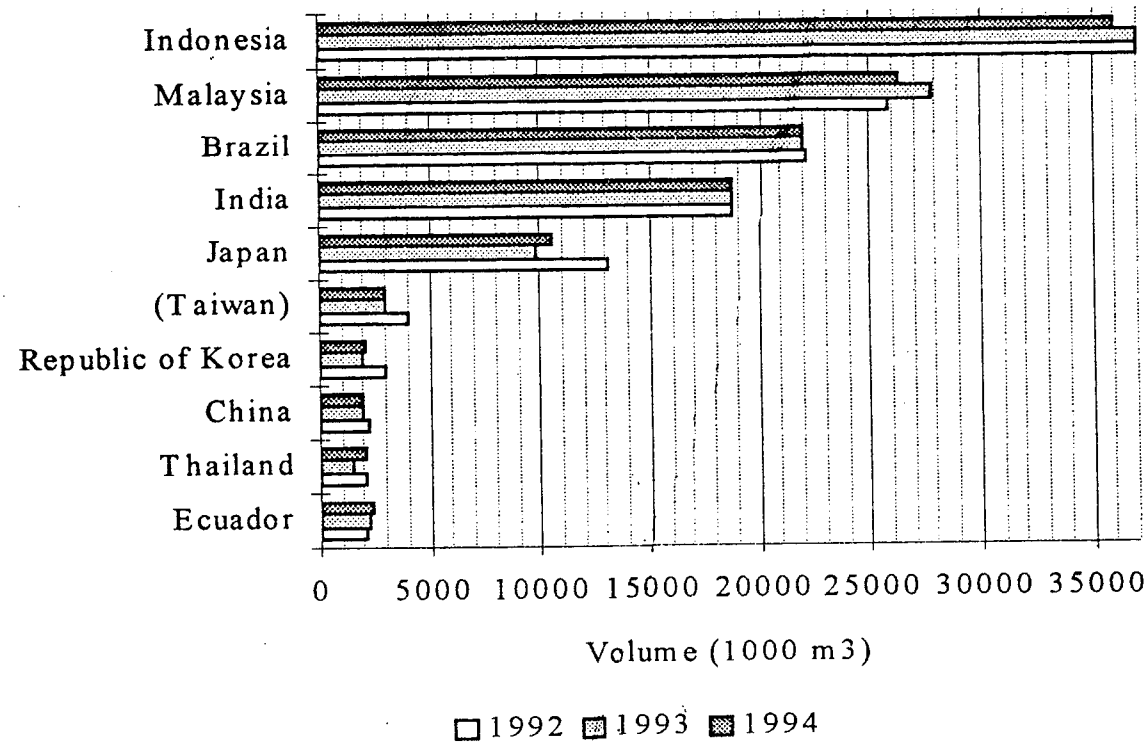

Figure 3. Major Tropical Log Consumers

All these countries (except the Philippines and Thailand) expect log production to remain stable or increase through 1994. Figure 2 shows ITTO's major log producers through 1994. Only Cameroon, Ecuador and Papua New Guinea (PNG) will increase log production through 1994, while some countries (Malaysia, Indonesia and the Philippines) forecast substantial decreases in production. Malaysia alone reported a drop of over 6.4 million m^3 in log production between 1992 and 1993, from 43.5 million m^3 to 37.1 million m^3, as Sarawak implements the ITTO Mission recommendations and as Sabah resources decline in availability. Malaysian production is expected to drop further, to 36 million m^3, in 1994.

Figure 2 illustrates the dominance of the top four tropical log producing countries (Malaysia, Indonesia, Brazil and India) which together comprise over 85 percent of ITTO production. Indonesian figures are based on total estimated removals, including those from conversion operations. Papua New Guinea was the fifth largest ITTO log producer in 1992-93, with production rising to 3.2 million m^3. 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. In 1994, Cameroon reported an increase in production of more than 1 million m^3 (to 3.9 million m^3) to replace PNG in the number five spot. This large increase was driven partially by a jump in exports to Asia, discussed in the next Chapter. There appears, however, to be a substantial quantity of logs unaccounted for by Cameroon's production estimates for 1994. As this could not be clarified prior to publication, the 1994 log production figure should be treated with caution.

Although they do not appear in Figure 2, Gabon, Ghana, Myanmar and Peru all have log production exceeding that of the Philippines from 1993 when Philippine production dropped by 38 percent due to the cessation of logging in virgin forests. Production figures for Gabon and Ghana rose particularly rapidly in 1993, to over 1.8 and almost 1.7 million m^3 respectively. These increases (30 percent in Gabon's case) were, as for Cameroon, primarily due to increased exports

to Asian markets.Two ITTO consuming countries possess significant tropical timber resources: Australia and China. Production from these sources for 1992 was estimated at almost 700 000 m^3, approximately equally distributed between the two countries. Australia's production was estimated based on reported 1992 production of tropical sawnwood and is probably largely plantation grown hoop-pine. China's production is from Hainan Island and Southern Yunnan Province and consists largely of tropical eucalyptus and pines. Log production from these areas is relatively small and consumed almost entirely domestically.

The regional breakdown of tropical log production is given in Appendix 1; the Asia-Pacific region produced 73 percent of ITTO members' tropical hardwood logs in 1992 (103.5 million m^3), down 1 percent from 1991. Asia's share of ITTO log production will fall to 71 percent in 1994, due to Malaysian production decreases. Africa's share of production will rise from 6 to 7 percent over the period, with Latin American production growing from 20 to 21 percent. These trends will likely continue to the turn of the century and beyond, as few (if any) of ITTO's Asian members have the potential to substantially increase log production sustainably.

Figure 3 shows that tropical log consumption for 1992-94 is stable or decreasing in the top five consuming countries, except Malaysia. All three producing regions experienced growth in domestic log consumption in 1992, although the figures in Appendix 1 show that apparent domestic log consumption declined slightly through 1994 for the Asian and Latin American regions, but continued to increase in Africa due to increases in log production reported by Cameroon. The overall trend towards increasing domestic log consumption, 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 and Latin America, will continue to drive long-term domestic demand upwards.

Sawnwood

Production of tropical sawnwood in ITTO producing countries totalled over 41.8 million m^3 in 1992, 61 percent of sawn hardwood produced in all developing countries and 33 percent of global sawn hardwood production. This figure represents a 6 percent increase from 1991 production due to an increase of 2 million m^3 in Brazilian production. No official statistics on production were provided by Brazil, so this increase (based on unofficial statistics) cannot be confirmed. Figure 5 shows the effect of this increase on production and consumption trends for all producers, as well as trade trends. Figure 4 shows the major ITTO producers of tropical sawnwood in the 1992-94 period.

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 log production figures have been estimated based on other sources. In addition, the estimates for both India and Brazil (neither of which has ever submitted official 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 increasing by 5 percent from 1991 levels to almost 9.5 million m^3 in 1992. Malaysian production is expected to fall to about 9 million m^3 in 1994 as logs are diverted to plywood mills. Production in Indonesia and the Philippines is also expected to decline significantly through 1994, with Brazil's production anticipated by unofficial ources to exceed 9 million m^3 in 1993-94. Seven countries are producing between 450 000 m^3 and 600 000 m^3 of tropical sawnwood per year, just below production levels for the final countries included in Figure 5. Both Thailand and the Philippines

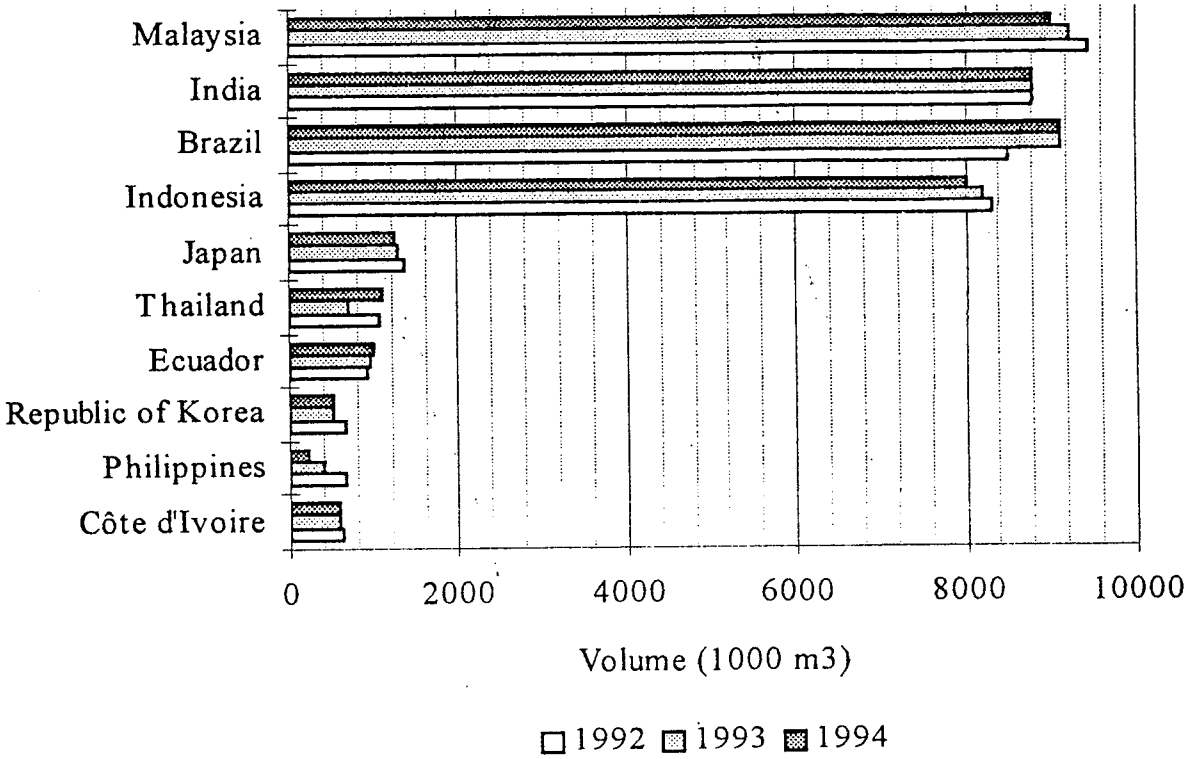

Figure 4. Major Tropical Sawnwood Producers

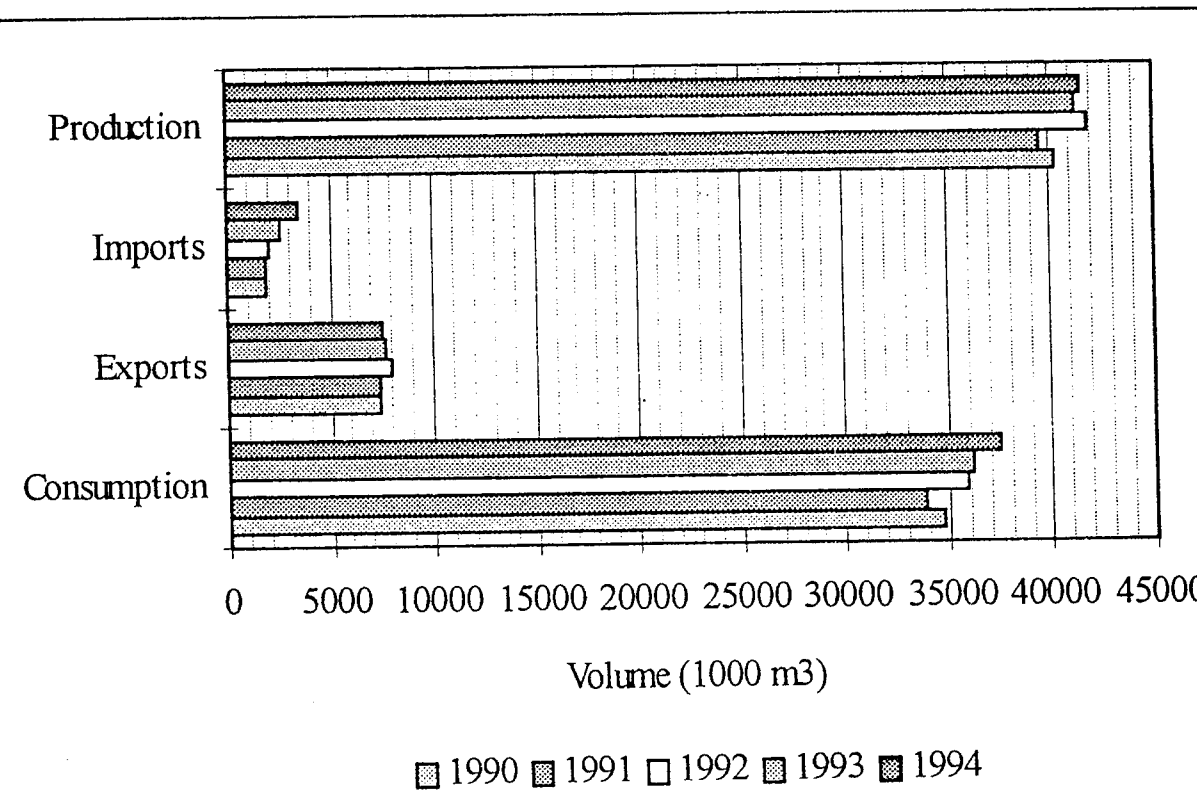

Figure 5. Producers' Production, Trade and Consumption of Tropical Sawnwood

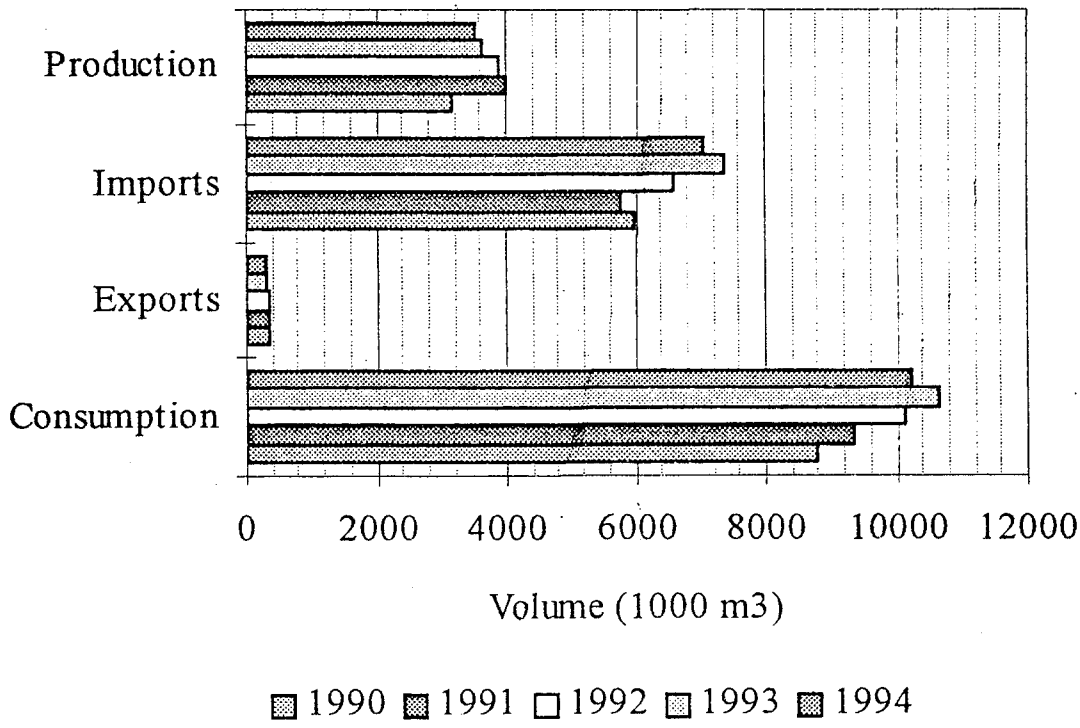

Figure 6. Consumers' Production, Trade and Consumption of Tropical Sawnwood

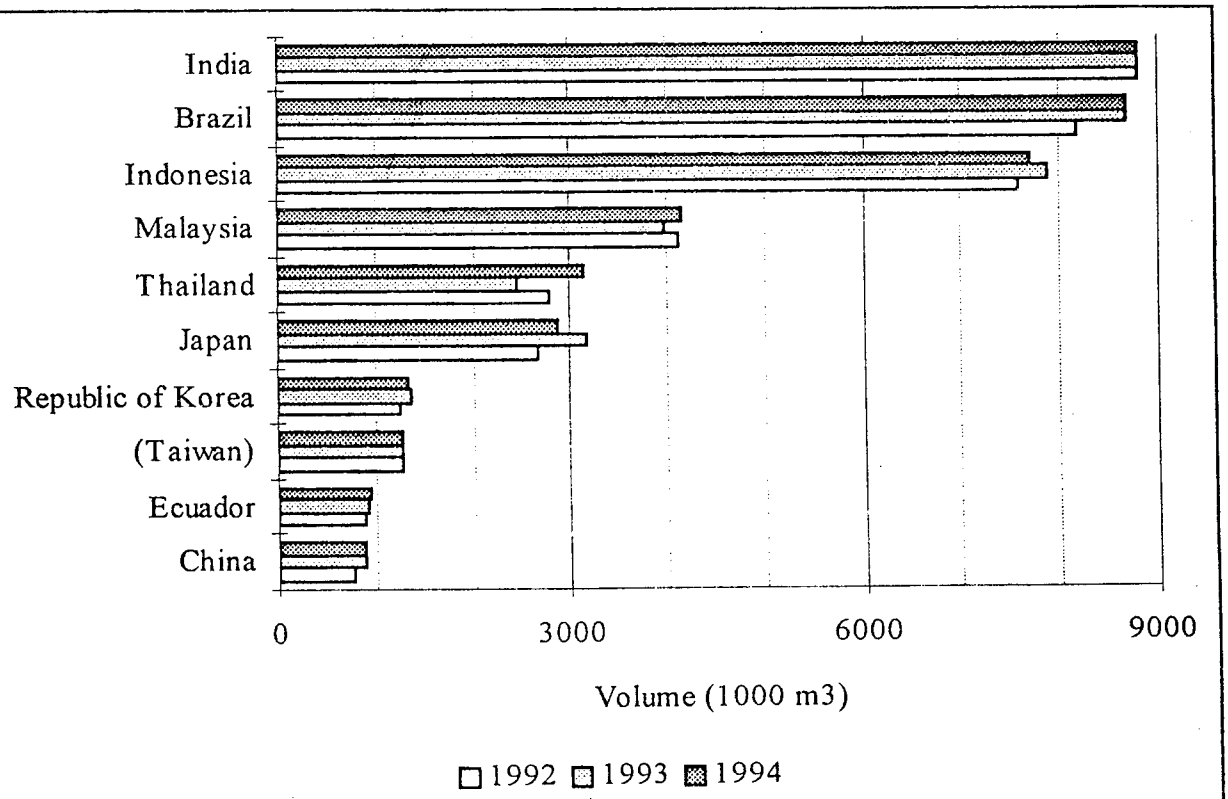

Figure 7. Major Tropical Sawnwood Consumers

are producing significant quantities of sawnwood from imported tropical logs, although production in both countries dropped sharply in 1993, corresponding to the log export ban in Sabah. Thai production is expected to rebound in 1994, while that of the Philippines will continue to fall.The Asian region accounted for 69 percent of sawnwood production in producer countries in 1992, with this proportion predicted to fall to 68 percent in 1994. Consumption of tropical sawnwoodby ITTO producers will grow steadily through 1994 (Figure 5). This growth in consumption arises from increased production and demand in all three producing regions (see Appendix 1).

Consuming countries produced approximately 3.9 million m^3 of tropical sawnwood from imported logs in 1992 (Figure 6), down 31 percent from 1991 levels. Substantial production decreases in China, Taiwan Province of China and the Republic of Korea in 1992 more than offset a 36 percent increase in Japanese production. Production in other consuming countries has been relatively stable since 1990, and is projected to remain so through 1994, with European production increasing gradually. Figure 6 shows that consumption of tropical sawnwood by ITTO consumers increased in aggregate between 1990-94, as increases in imports offset continuing decreases in production. 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 1992. The Republic of Korea; Japan, Taiwan Province of China and China are the major non-tropical consumers of tropical sawnwood.

Veneer

Production of veneer in ITTO producing countries totalled 2.1 million m^3 in 1992, 84 percent of total veneer produced in developing countries globally, and 38 percent of global veneer production. These production figures should not include veneer used in domestic plywood production and therefore represent only the production of veneer intended to be traded as such. Veneer production in producing countries increased by almost 39 percent from the 1991 level, with the increase due almost entirely to increased Malaysian production as shown in Appendix 1. Malaysia's veneer production will continue to rise through 1994 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 secondary processing industries of producing countries has risen steadily from 700 000 m^3 in 1990 to a predicted level of 2 million m^3 in 1994.

The Asian region produced 1.5 million m^3 of veneer for trade in 1992, Latin America produced 245 000 m^3 and Africa produced 314 000 m^3. Aggregate production in all regions is expected to expand through 1994. The ten largest ITTO veneer producers in 1992-94 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 tropical veneer and plywood industries are shrinking together with log availability.

ITTO consuming countries produced about 1.1 million m^3 of veneer from imported logs in 1992. As for sawnwood, production in consumer countries fell in 1993-94 as logs for peeling and slicing become scarce (Figure 10). Aggregate consumption fell by 13 percent in 1992 to 2 million m^3, largely as a result of a sharp decrease in imports reported by Japan. However, consumption, driven by imports, has risen in 1993-94.

Production of veneer in consumer countries in 1992 was split between Taiwan Province of China (56 percent), Japan (25 percent) and the EEC (19 percent). Japan and Taiwan Province of China consume all of the veneer they produce, however, while more than 20 percent of the total produced in Europe is re-exported to other European countries (see following chapter). Figure 11 shows the dominance of Japan and China on the consumer side and of Malaysia on the producer side in the

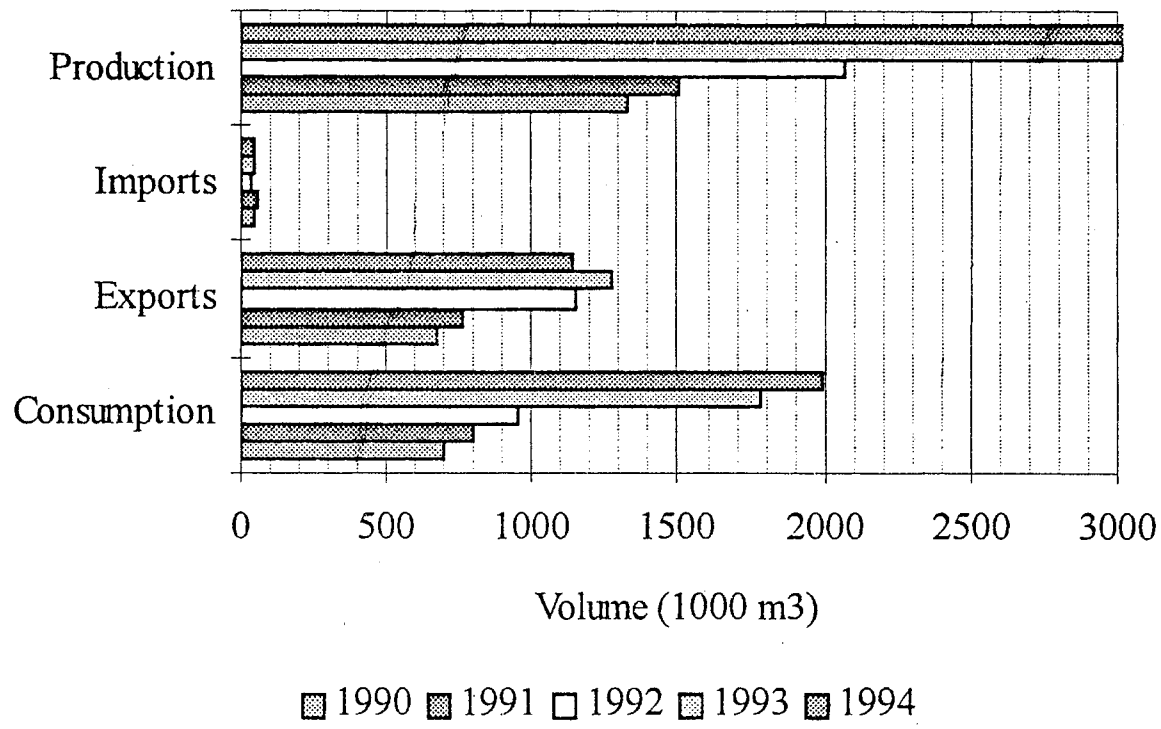

Figure 8. Producers' Production, Trade and Consumption of Tropical Veneer

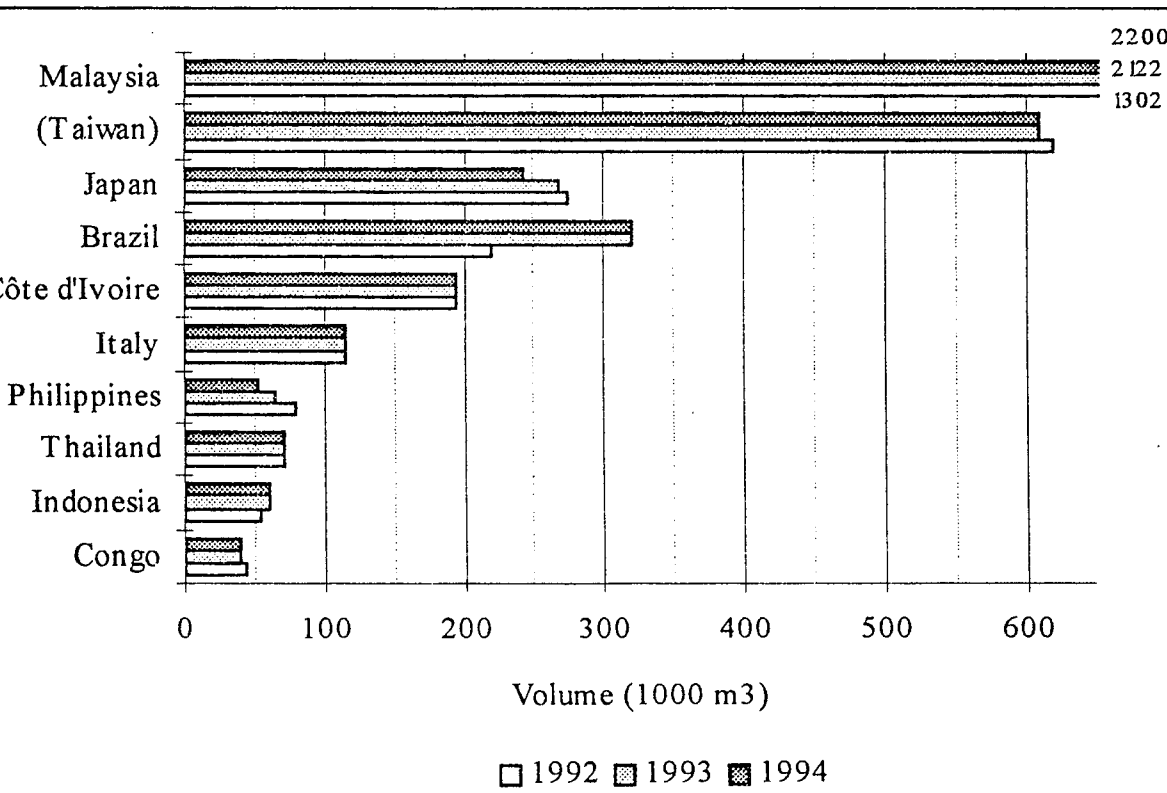

Figure 9. Major Tropical Veneer Producers

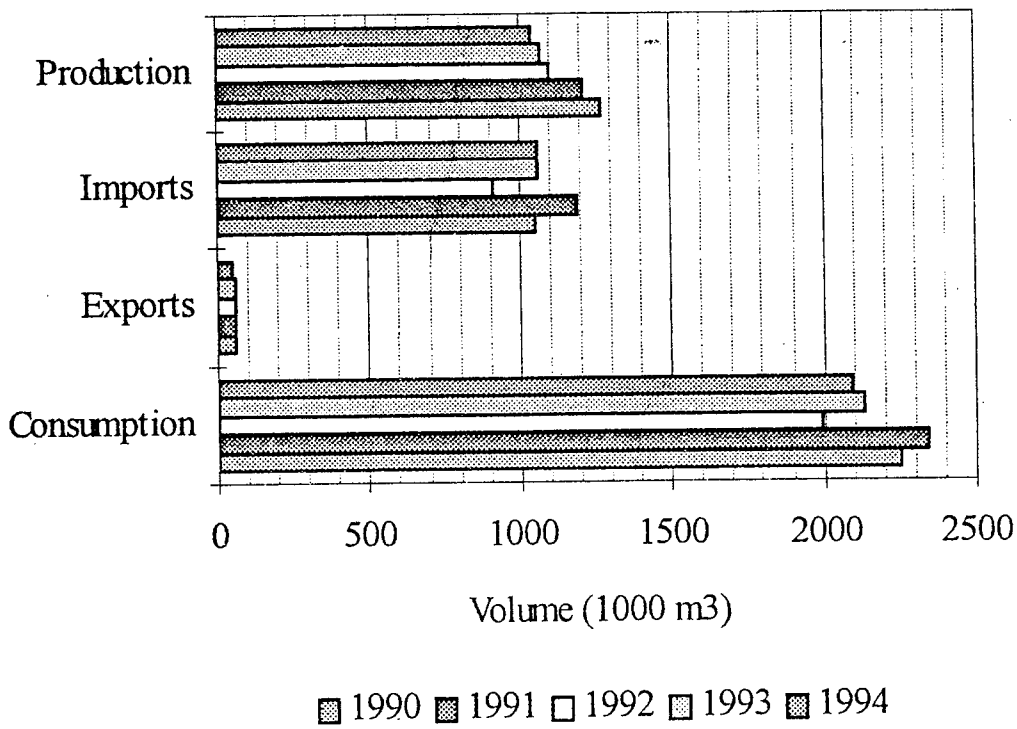

Figure 10. Consumers' Production, Trade and Consumption of Tropical Veneer

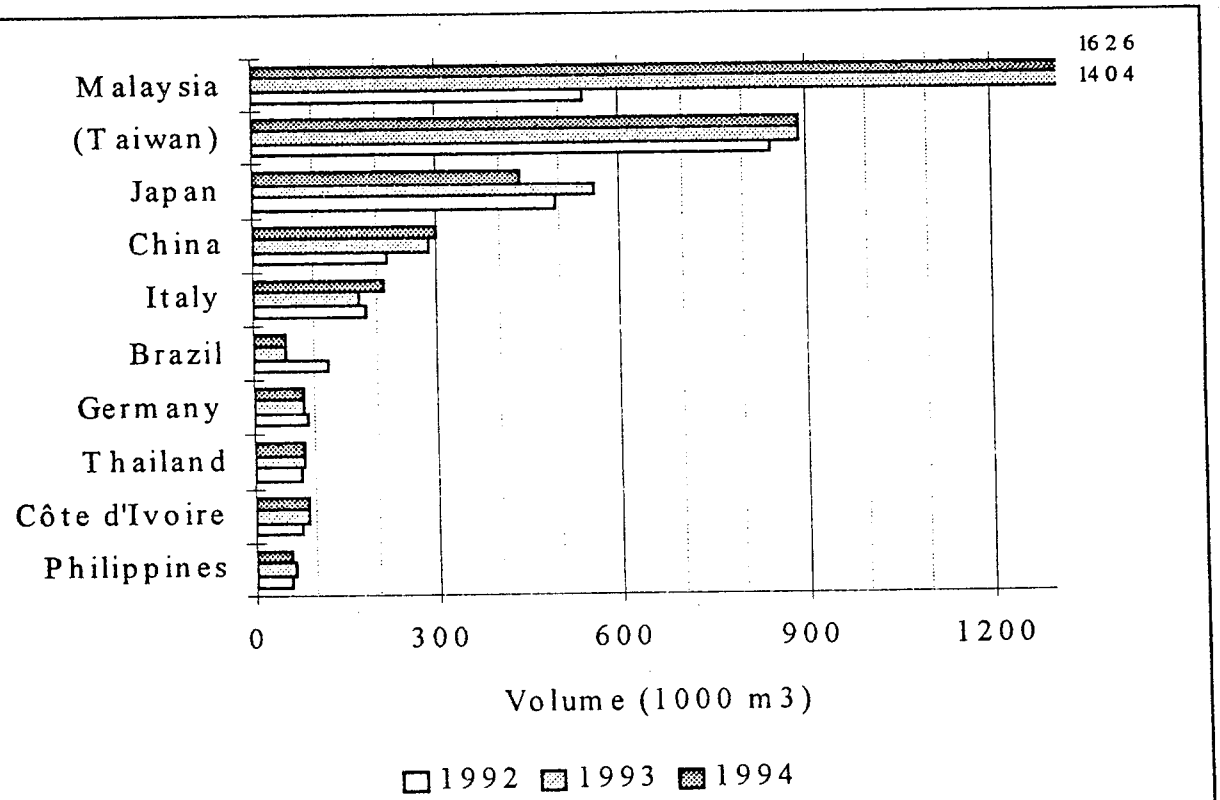

Figure 11. Major Tropical Veneer Consumers

consumption of substantial quantities of veneer domestically. Malaysia's growth in consumption has been explosive and requires further clarification.

Plywood

Production of plywood in ITTO producing countries totalled 14.2 million m^3 in 1992, 77 percent of plywood production in all developing countries and 30 percent of global plywood production. Plywood production in producing countries increased by 6.5 percent from the 1991 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^3 per year) throughout the 1980's, with no major production increases foreseen after 1993. Malaysia's plywood production, in contrast, will continue to rise through 1994 to exceed 3 million m^3 per year, a jump of almost 200 percent from 1990 production. Malaysia is diverting a substantial quantity of logs previously exported 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 increased in 1992 due to apparent consumption increases in India, Indonesia and Malaysia. Note that production statistics for India and Indonesia are unreliable, making accurate assessment of aggregate consumption figures difficult.

The Asian region produced 12.4 million m^3 of plywood in 1992, Latin America produced 1.4 million m^3 and Africa produced 286 000 m^3. The three regions utilized 19, 66 and 60 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 except African veneer exceeded 45 percent in 1992.

The ten largest ITTO plywood producers in 1992-94 are shown in Figure 13 - Indonesia's dominant role is clear from this chart. 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 75 percent of the 863 000 m^3 drop in plywood production in ITTO consuming countries between 1992 and 1994. Figure 14 shows the aggregate decreasing production trend in these countries, with consumption continuing to be driven by imports.

ITTO consuming countries produced almost 8 million m^3 of plywood from imported logs and/or veneer in 1992, a 7 percent decrease from figures for 1991. Aggregate consumption totalled 16.8 million m^3 in 1992, increasing to 17.6 million m^3 in 1993 before falling back to an estimated 16.6 million m^3 in 1994. Tropical plywood consumption in traditional markets may continue to decrease in future as substitutes and more efficient uses are developed. As mentioned in previous Reviews, 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. Indonesia, India and Brazil are major "producing" country plywood consumers, with domestic consumption in each predicted to fall through 1994 according to unofficial figures. The Netherlands, Germany, the Philippines and Thailand are all substantial tropical plywood consumers, with consumption over 200 000 m^3 per year in the 1992-94 period.

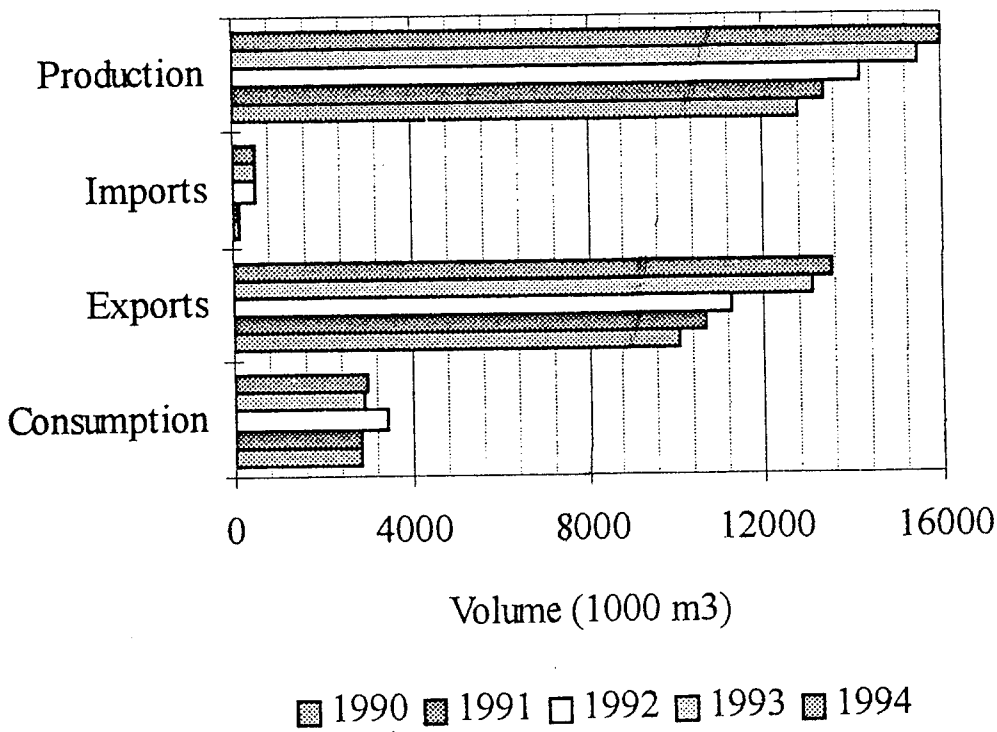

Figure 12. Producers' Production, Trade and Consumption of Tropical Plywood

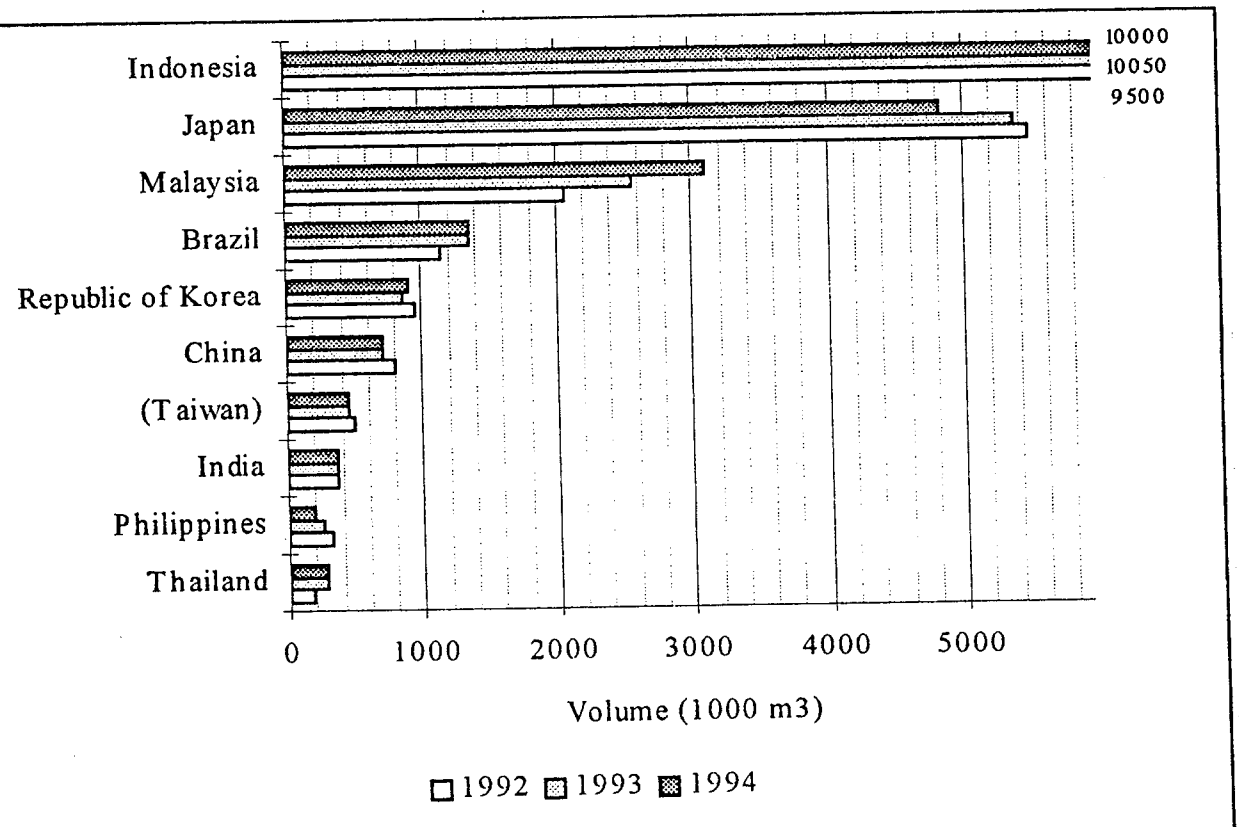

Figure 13. Major Tropical Plywood Producers

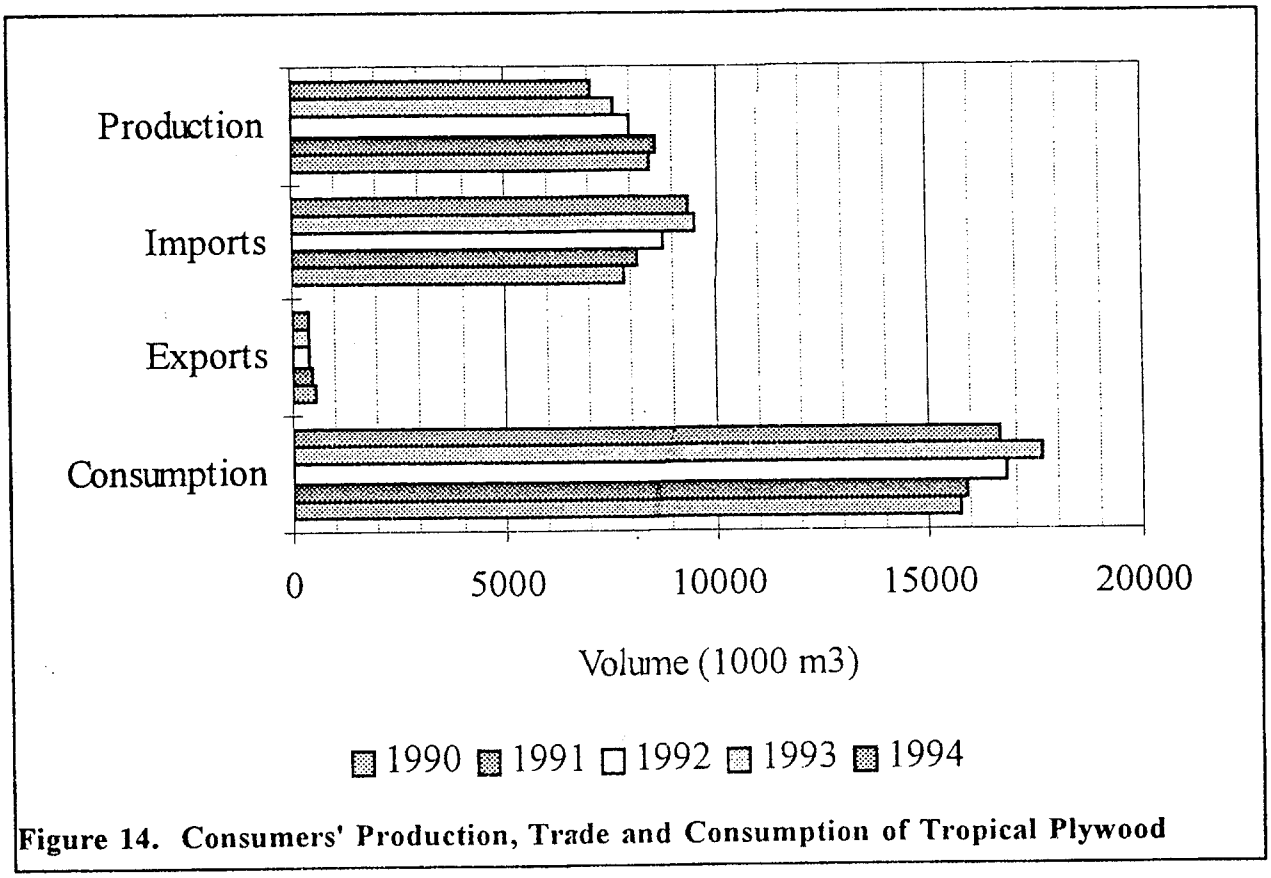

Figure 14. Consumers' Production, Trade and Consumption of Tropical Plywood

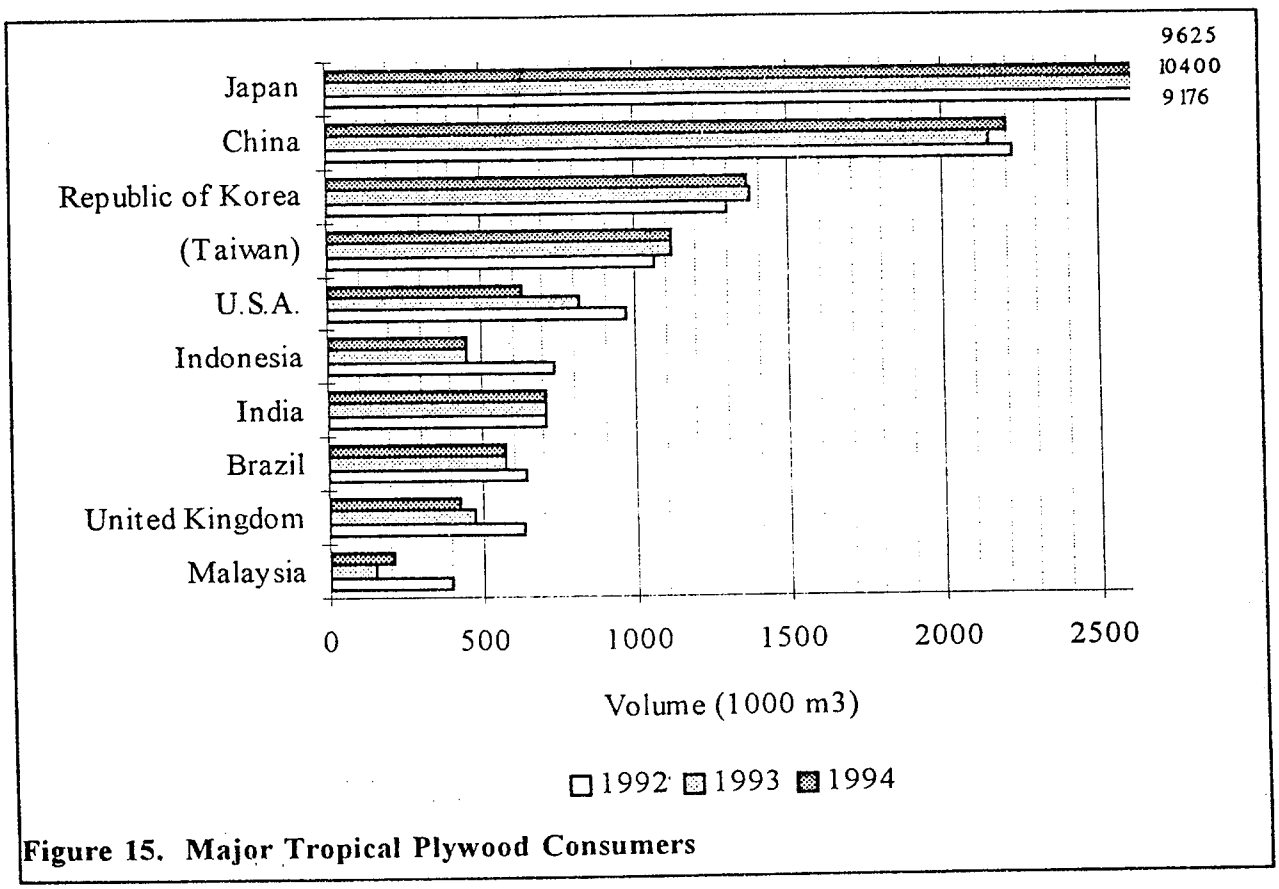

Figure 15. Major Tropical Plywood Consumers

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 1993 and forecasts for 1994, 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. Major species in trade in 1992-93, together with volumes and average prices when these were reliably reported, are summarized by country in Appendix 4. Price trends for logs, sawnwood and plywood were prepared from the ITTO/ITC Market News Service (MNS) database and are contained in Appendix 5. Average 1992-93 price levels are also presented for veneer (prices of which are not yet included in the MNS database) based on sources identified in the text.

Market Developments

Economic performance of major markets for tropical timber was again mixed during the period under review. The IMF reported that global output (real GDP) grew by 2.2 percent in 1993, after smaller increases of 0.5 and 1.8 percent in 1991 and 1992. The IMF predicts growth of 3.5 percent in the world economy in 1994, although this projection does not incorporate the contracting economies of the former USSR, which shrank by 17 percent in both 1992 and 1993. World trade volume grew by 4 percent in 1993, up from 3.3 percent growth in 1992. World trade is projected to grow a further 4.5 percent in 1994, but continued growth will depend to some extent on the successful ratification of GATT's Uruguay Round of trade talks and creation of the new World Trade Organization to oversee the agreements reached under the Uruguay Round.

Interest rates and exchange rates fluctuated markedly in many major markets, affecting consumer confidence and demand in general. All major European currencies fell in value against the U.S. dollar in 1993, at least partially due to lower interest rates in the U.S. This weakening continued in 1994. In late 1993 a series of crises in the European Monetary System led to a decision to widen the permissible band for currency fluctuation within the Exchange Rate Mechanism (ERM) to 15 percent from the former 2.25 percent band. The Japanese yen increased in value against the U.S. dollar during 1993, and continued strengthening in 1994 to new post-war highs. Currency fluctuations will continue due to increasingly divergent economic performance and policies in the major markets.

Western European economies performed poorly in aggregate in 1993, with a decline in real Gross Domestic Product (GDP) of 0.2 percent. Limited growth of 1.6 percent is forecast for Europe in 1994, as some major European markets emerge from recession. In Germany, the continuing costs of reunification are reflected in a decrease of 1.6 percent in 1993 GDP, and a projected increase of 1.2 percent in 1994. The U.K. economy, emerging from its longest recession since the 1930s, grew by 1.8 percent in 1993, with 2.8 percent growth projected for 1994. In France, the IMF predicts growth in GDP of 1.1 percent in 1994, following a contraction of 1 percent in 1993. Slow growth translates into increased unemployment in many European countries and decreased activity in construction sectors and housing starts. The poor prospects for growth in most countries, together with environmental policies, will continue to erode the European market for tropical timbers through 1994.

In North America, the U.S. economy grew by 2.7 percent in 1993, equal to growth in 1992 and that expected in 1994. Expansion in the U.S. will be passed on to its major trading partner,

Canada, which expects one of the highest growth rates among developed countries in 1994 (3.8 percent). Both countries experienced increased housing starts in 1993, recovering from substantial decreases the previous year. U.S. housing starts, which slumped to a 50 year low of 1.05 million units in 1992, recovered to 1.3 million units in 1993 and are expected to reach 1.4 million units in 1994.

The Japanese economy was stagnant in 1993, with expansion forecast at only 2 percent in 1994. 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. Exports have been weakened by the strong appreciation of the yen. Consumer spending and wooden housing starts increased only slightly in 1993, with further small increases forecast for 1994. These increases are partially due to a second economic stimulus package announced by the government in September 1993. Nonetheless, high consumer debt and decreasing property prices will continue to depress growth in the world's second largest economy.

In contrast to the traditional developed markets, many developing or newly industrialized Asian economies continued to enjoy high growth in 1993, with this growth projected to continue in 1994. This development will have a profound impact on regional trading patterns for tropical timber. China's growth is most spectacular, with real GDP predicted to rise by 10 percent in 1994 following average 13 percent increases in 1992 and 1993. 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 1994. Thailand's economy is expected to grow by 8.2 percent in 1994, slightly above the growth rate of 1993. Indonesia and Malaysia should continue their impressive growth, with 6-7 percent increases expected in 1994 for both countries. Inflation is predicted to remain relatively low in these countries (from 4.4 percent in Malaysia to 8 percent in Indonesia), leading to good prospects for sustained growth. Several Latin American countries, led by Brazil, also experienced strong growth and decreased inflation in 1993-94, although most sub-Saharan African economies continued to perform poorly. Domestic markets for timber products will grow and become increasingly sophisticated in many of these developing countries as their economies and/or populations expand.

Trade

One of the major developments affecting the trade in tropical timber during 1993-94 was the successful conclusion of the Uruguay Round of trade talks. The agreement seems certain to provide a boost to exports of tropical timber, with tariffs on finished wood products set to fall in most major markets. Due to the uncertainties surrounding ratification of the GATT accord and the start-up of the WTO at the time of preparation of this Review, a more complete description of the benefits of the new trade agreement will be included in the 1995 Review, by which time it is hoped that enough countries will have ratified the agreement to bring it into force. Table 3 provides a summary of current (mid-1994) trade barriers in place for tropical timber products in those ITTO consumer member countries that responded to this portion of the 1993-94 Forecasting and Statistical Enquiry. Trade barriers in producer member countries are summarized in the Country Notes. The complicated European Union GSP (Generalized System of Preferences) quota scheme for plywood was under review in September 1994 and looks likely to be replaced in 1995. It is assumed that the figures for the Netherlands are to be viewed within the context of the EU GSP scheme, although this was not explicitly stated.

Table 3. Tropical Timber Trade Barriers in ITTO Consumer Countries, 1994

Country	Product	Description
Canada	Logs	None
	Sawn	None
	Veneer	None
	Plywood	8-9 percent import tariff, depending on species.
Egypt	Sawn	50 percent import tariff.
EU	Plywood	Duty free GSP quota of 90 300 m^3/year to each of Brazil, Indonesia, Malaysia, Philippines and Singapore; 10 percent import tariff when GSP quota exhausted.
Netherlands	Logs	None
	Sawn	2-2.5 percent import tariff, depending on species.
	Veneer	4-6 percent import tariff, depending on species.
	Plywood	10 percent import tariff, depending on species.
U.K.	Logs	None
	Sawn	None
	Plywood	EU GSP scheme.
Japan	Veneer	5 percent import tariff subject to GSP scheme.
	Plywood	10-15 percent import tariff subject to GSP scheme.
	All	None
Norway	All	None
Korea	Logs	2 percent import tariff.
	Sawn	5 percent import tariff.
	Veneer	5 percent import tariff.
	Plywood	8 percent import tariff.
U.S.	All	None, under GSP scheme.

The direction of trade tables contained in Appendix 2 were derived from responses to the 1993-94 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 import and export values by product for those countries which did report are summarized in Appendix 3. As data availability and reliability improve, trade flows by value will be summarized in future Reviews.

Many countries made errors or omissions in providing these 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, quotas and/or taxes have been documented for some tropical forest products and countries. 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

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.

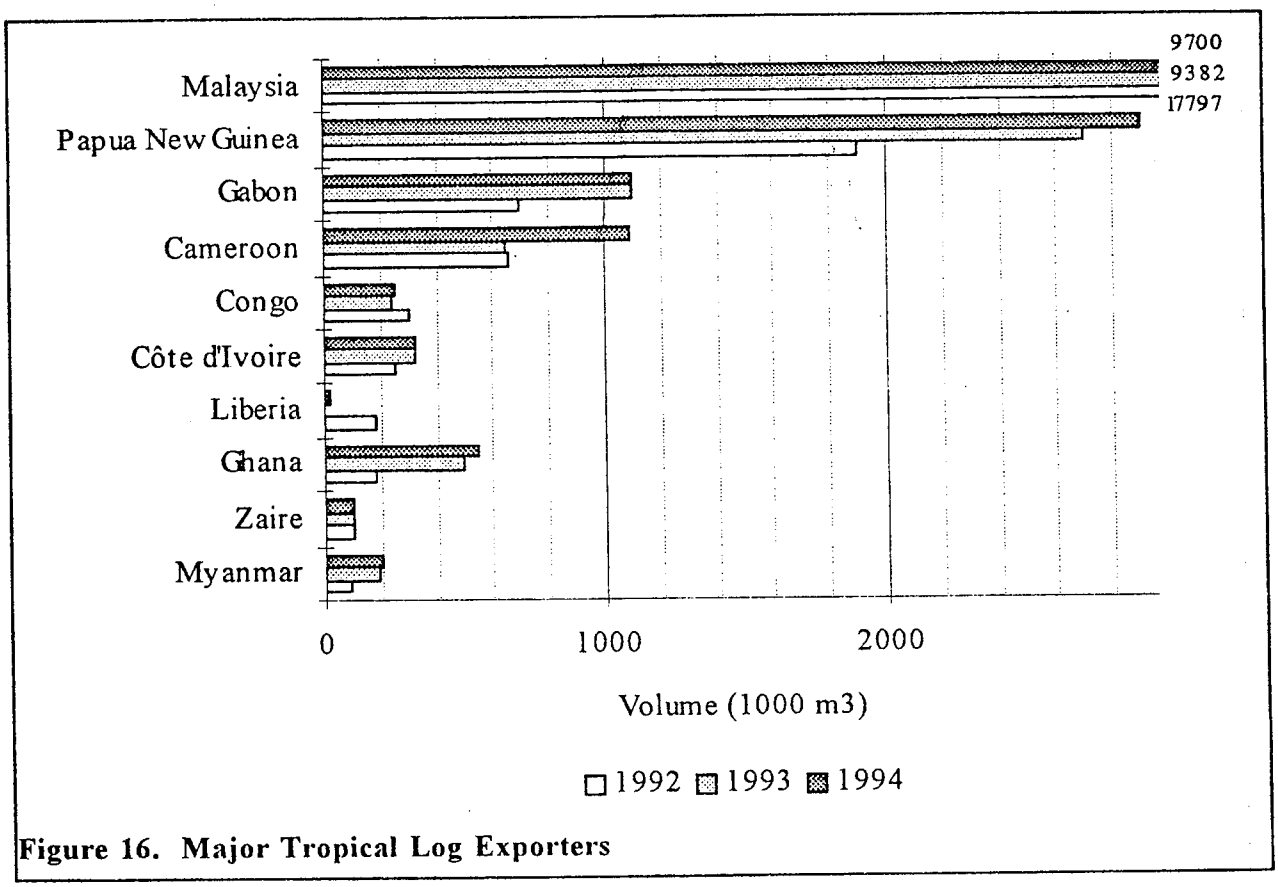

Figure 16. Major Tropical Log Exporters

Logs

The composition of exports from the ITTO producing regions is shown in Table 4. The contribution of logs to total exports (in terms of both value and roundwood equivalent volume - rwe - 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 almost 52 percent of total roundwood equivalent export volume in 1993. This proportion rises to 54 percent based on the projections for 1994 exports in Appendix 1. Note that processed exports exceeded log exports in 1992 - this was reversed with the increased log exports from Africa to Asia in 1993-94. The Asia-Pacific region is rapidly replacing log exports with the export of

processed products, spurred by Indonesian plywood exports and Malaysian exports of sawnwood, veneer and plywood. Asian log exports made up 35 percent of total export volume in 1992 but are expected to drop sharply to 24 percent of total exports in 1994. Total roundwood equivalent export volume as a percentage of production will increase in Latin America over the period, while the proportion of African and Asian log production which is ultimately exported will shrink due to increasing domestic demand and, in the case of Asia, decreasing log exports. The large drop in total Asian export volume in 1993 was partially offset by increased exports from Africa and Latin America, but total ITTO producer member exports (rwe) still dropped almost 5 percent in 1993.

Figure 16 shows the top ten ITTO tropical log exporters in 1992-94, ranked by 1992 export volume. Total ITTO producer member exports of 22.2 million m^3 (see Appendix 1) comprised 88 percent of global exports of non-coniferous tropical industrial roundwood. Malaysia continues to dominate the trade in tropical logs, with the 17.3 million m^3 exported in 1992 constituting 78 percent of ITTO producer member exports. Malaysia's log trade in 1992 decreased in volume by 6 percent from 1991 levels, with a further near halving of exports (to 9.4 million m^3) in 1993. These reductions are due to sharply decreased exports from Sarawak and Sabah, which fell from 14.8 and 3.1 million m^3 respectively in 1992 to 9.1 and 0.2 million m^3 in 1993.

Table 4. Composition of Exports by Region, 1992-94 (1000 m^3 rwe)

Region	Log Production			Log Exports			Processed Exports			Total Exports		
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Africa	8051	9184	10214	2369	2903	3435	2890	2752	2980	5259	5655	6415
Asia-Pacific	103542	97555	95617	19795	12279	12806	37174	39969	40040	56969	52248	52846
Latin America	28317	27743	28084	77	69	85	2604	3772	3830	2681	3841	3915
Total	139910	134482	133915	22241	15251	16326	42668	46493	46850	64909	61744	63176

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^3 per year from a PFE of 4.5 million ha. Log production in Sarawak will fall from 18.8 to 16.5 million m^3 between 1992 and 1994, including production of about 8 million m^3 from conversion forests. Appendix 2 shows that Malaysia's major log customers are all in Asia, with Japan, China (including Taiwan Province of China) and the Republic of Korea accounting for 86 percent of Malaysia's reported log export volume in 1992. Malaysia's log exports were worth over $1.5 billion to the country in 1992 (Appendix 3).

Papua New Guinea is the second largest tropical log exporter, with 1992 exports of 1.9 million m^3. Appendix 2 (Table 2-1-3) shows the bulk of PNG's log exports go to Japan and the Republic of Korea. It also shows that every major importer of logs from PNG reported higher imports than the corresponding export figures from PNG. Exports from PNG were expected to grow rapidly to an estimated 2.9 million m^3 in 1994 as Malaysian supplies dwindle. The reported value of 1992 log exports from PNG was $157 million.

The majority of the remainder of world tropical hardwood log exports comes from Africa, directed primarily to European markets. The African countries shown in Figure 16 account for all of ITTO's African region (and 12.4 percent of ITTO producers') tropical log exports. Although few countries provided reliable information, it appears that most African countries experienced a marked decrease in log exports between 1991 and 1992. Large increases in exports from Cameroon, Gabon and Ghana in 1993-94, primarily to China, Korea and Japan,

offset continued decreases in other African countries. Liberia's civil war appears to have led to drastic decreases in official production and exports, as reported in Appendix 1. It is likely that unofficial exports exist, but no reliable estimates for these could be obtained. Indonesia replaced log export bans with levies in 1992, but their magnitude ($500 to $4500/m^3) will continue to ensure that few logs are legally exported. Nonetheless, some importing countries (e.g., China, Malaysia) reported substantial imports of Indonesian logs in 1992 (see Appendix 2).

Re-exports of logs by consumers fell 11 percent to 97 000 m^3 in 1992, 80 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, Belgium/Luxembourg and the Netherlands were the major log re-exporters in 1992, selling tropical logs to each other and other EU countries. Consumer countries did not in general provide detailed breakdowns of re-exports (value or destination). The magnitude of this trade is predicted to decline through 1994 together with tropical log supplies in Europe. The removal of customs formalities for inter-EU trade in January 1993, and the creation of the European Economic Area a year later, which extended the same trade freedoms to Austria, Finland, Iceland, Norway and Sweden, will make the collection of statistics on re-exports of tropical timber products in Europe increasingly difficult in the future.

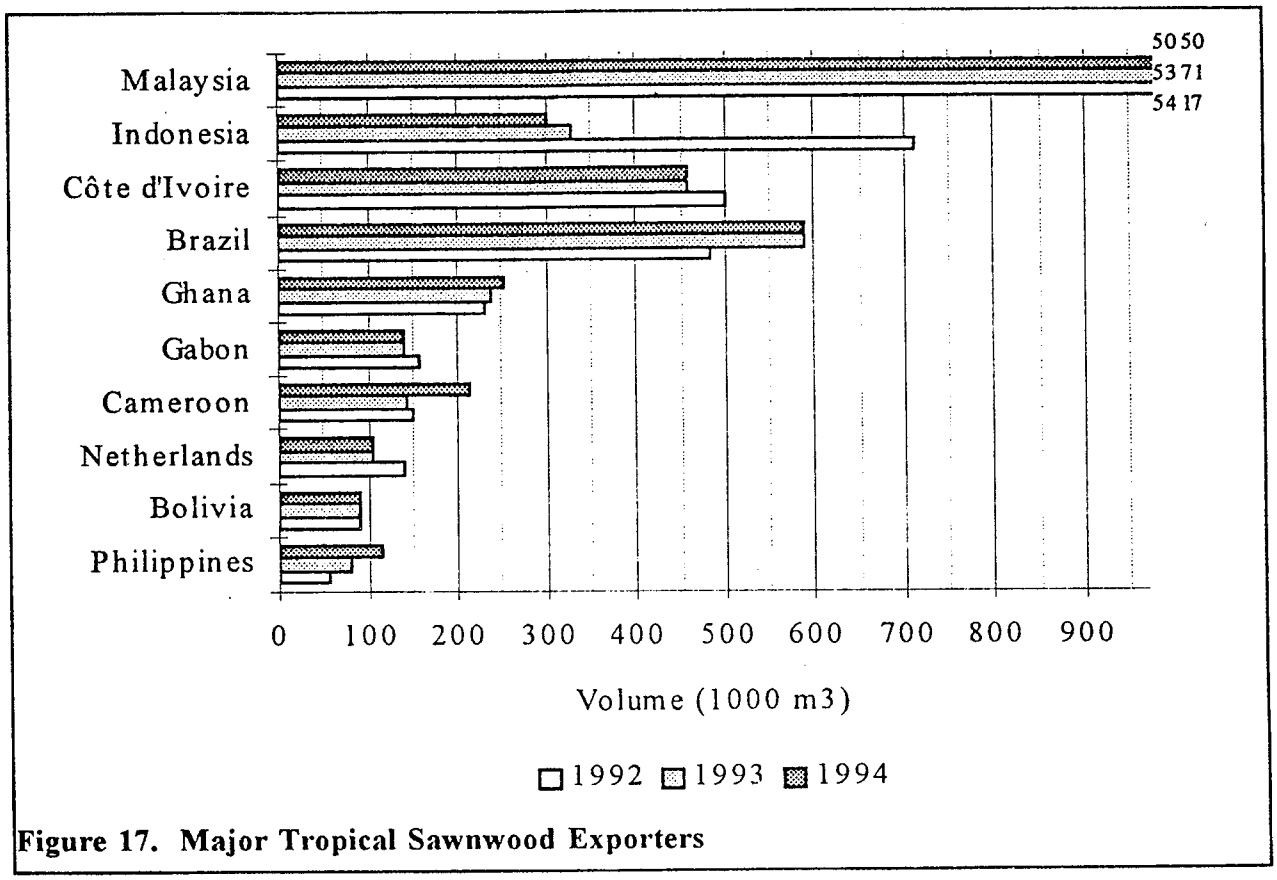

Figure 17. Major Tropical Sawnwood Exporters

Sawnwood

Figure 17 shows the top ten ITTO tropical sawnwood exporters in 1992-94, ranked by 1992 export volume. Total ITTO producer exports of 8.0 million m^3 (see Appendix 1) comprised 81 percent of global non-coniferous sawnwood exports by developing countries in 1992. Malaysia continues to dominate the trade in tropical sawnwood, with the 5.4 million m^3 exported in 1992 constituting 67 percent of total ITTO producing member exports. Malaysia's sawnwood trade increased substantially from 1991 levels, but is set to decline in 1994 to just over

5 million m^3 as more logs are directed to plywood and veneer production. Peninsular Malaysia and Sabah accounted for 44 and 39 percent of Malaysian sawnwood exports in 1992 respectively, with Sarawak making up the remainder. Appendix 2 (Tables 2-2-3 and 2-2-4) shows that Malaysia's major sawnwood customers are the EU (primarily the Netherlands and the U.K.), Thailand, Japan, Korea and Taiwan Province of China. The total value of Malaysia's 1992 sawnwood exports was $1.34 billion.

Indonesian exports of sawnwood decreased by one-quarter to 711 000 m^3 in 1992, based on FAO figures. Unofficial figures show Indonesian exports declining to 300 000 m^3 in 1994. This is a result of the Indonesian focus on value-added exports which resulted in export levies ranging from $250 to $2400/$m^3$ being imposed on all sawnwood exports since 1992-93. Sawnwood exports from Brazil, Ghana and the Philippines all increased through 1994, with exports from all other major traders decreasing. Increases from the Philippines are due to export of plantation grown sawnwood and material sawn from imported tropical logs.

Over 340 000 m^3 of tropical sawnwood was exported by ITTO consumers in 1992, primarily by countries in the EU. EU exports of tropical sawnwood totalled 281 000 m^3 in 1992, decreasing to 220 000 m^3 in 1993-94. The Netherlands, now a larger tropical sawnwood exporter than many producing countries, was the main EU sawnwood exporter, followed by Belgium/Luxembourg and Germany. Tropical sawnwood re-exports from these countries are absorbed almost wholly within Europe.

Veneer

Figure 18 shows the top ten ITTO tropical veneer exporters in 1992-94, ranked in order of 1992 export volume. Total ITTO producing member exports of almost 1.2 million m^3 (see Appendix 1) were up by over 50 percent from 1991 levels. These exports slightly exceed those given by FAO for all developing countries, indicating some possible problems in veneer export statistics. Nonetheless, ITTO members account for virtually all global exports of tropical veneer. Total exports by producers rose to almost 1.3 million m^3 in 1993, but are expected to level off in 1994. Malaysia continues to drive the growth in tropical veneer exports with the 765 000 m^3 exported in 1992 constituting 65 percent of total ITTO producer member exports. Most of these exports (91 percent) were from Sabah. Malaysia's veneer trade increased in volume by over 60 percent from 1991 levels, reflecting increased capacity. Exports will decline in 1993-94, as log supplies tighten. Appendix 2 shows that Malaysian exports, worth $194 million in 1992, are mainly directed (almost 60 percent) to Taiwan Province of China and Japan.

Côte d'Ivoire was the second largest tropical veneer exporter in 1992 but its exports were eclipsed by a near tripling in Brazilian exports in 1993-94. Brazil's exports went primarily to the U.S. (although Appendix 2 shows a rather large discrepancy between import/export reports for 1992), while those of Côte d'Ivoire went to Europe, especially Germany.

The EU accounted for 75 percent of consumer country tropical veneer exports of 59 000 m^3 in 1992, with 1993-94 levels of EU re-exports predicted to drop slightly. Germany, at almost 20 000 m^3 in 1992, is the largest EU tropical veneer exporter. Japan also reported significant exports of tropical veneer in 1992 (12 000 m^3), although these will drop in 1993-94.

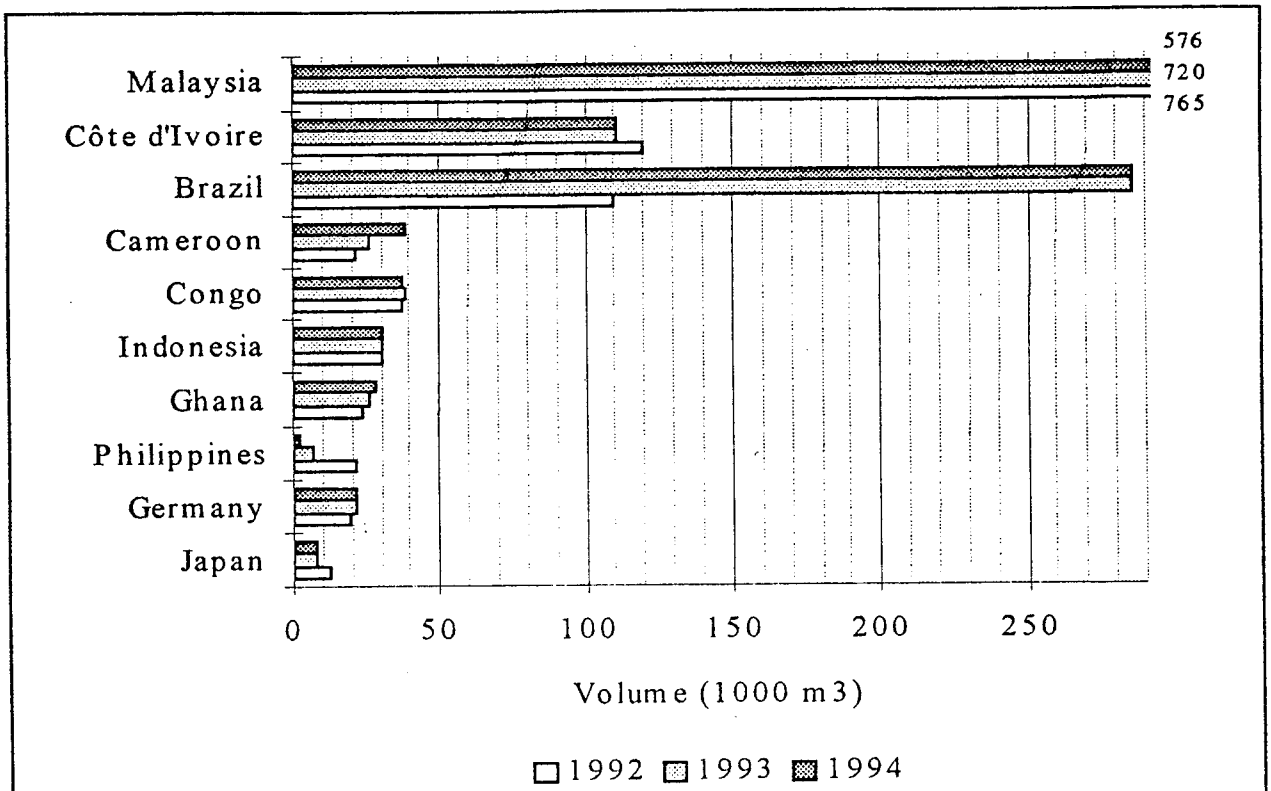

Figure 18. Major Tropical Veneer Exporters

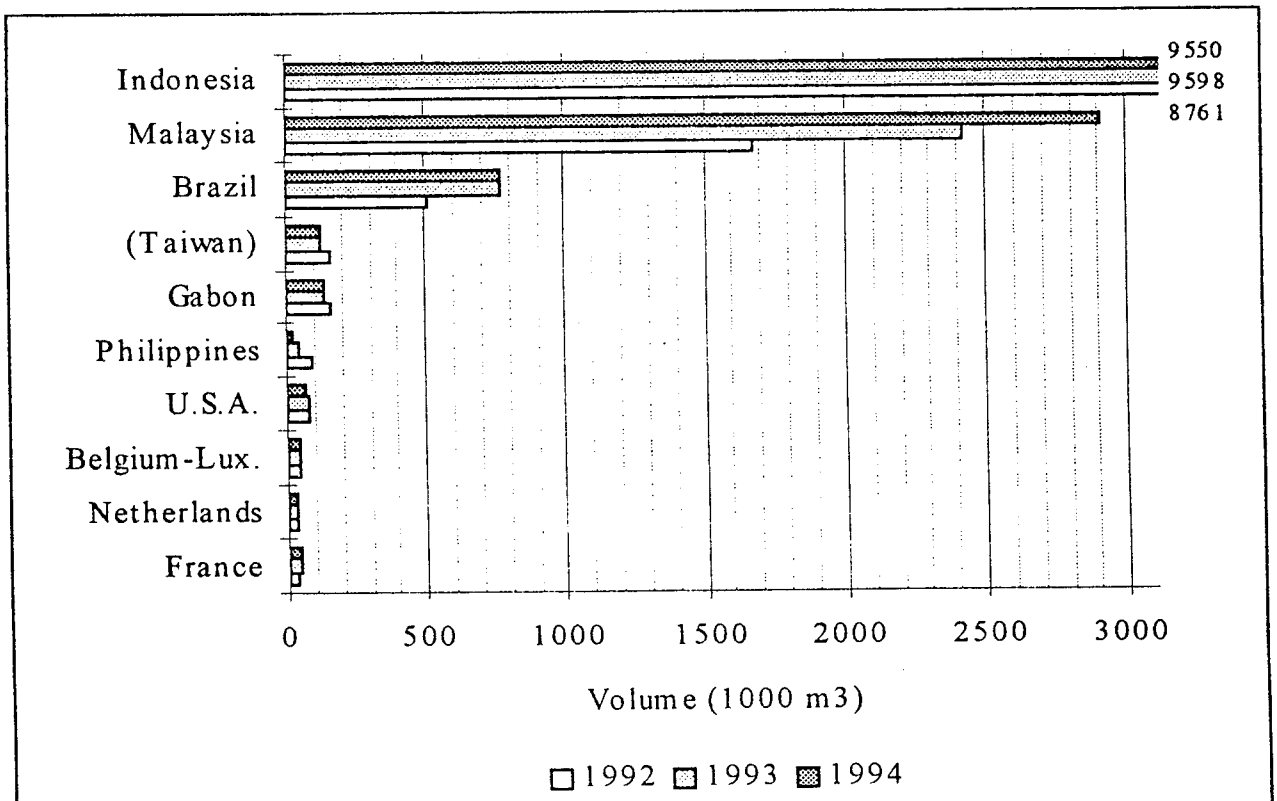

Figure 19. Major Tropical Plywood Exporters

Plywood

Figure 19 shows the top ten ITTO tropical plywood exporters in 1992-94. In 1992, total ITTO producing member exports of 11.3 million m^3 (see Appendix 1) increased by almost 7 percent over 1991 levels and comprised 92 percent of all developing country plywood exports. ITTO producing members account for over 70 percent of global exports of 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 nearly 8.8 million m^3 exported in 1992 constituting 78 percent of total ITTO producer member exports. Indonesia's plywood trade decreased in volume by 1 percent from 1991 levels. 1993 exports were reported to have increased markedly to 9.6 million m^3, where they are expected to remain in 1994. Indonesia earned almost $3.6 billion from plywood exports alone in 1992, second only to its exports of petroleum products. The proportion of Indonesian plywood exports to other Asian countries (primarily Japan, China and Korea) fell from 79 to 68 percent in 1991-92, due to increased exports to the U.S.A. and Western Europe (see Appendix 2).

Malaysia is Indonesia's major competitor in tropical plywood trade. Exports from Malaysia grew by almost 50 percent in 1992, to 1.7 million m^3. A similar jump in exports to 2.4 million m^3 was reported for 1993, with exports expected to top 2.9 million m^3 in 1994. This rapid growth is due to the construction of new plywood mills in Sabah and Sarawak to process peeler logs formerly exported. In 1992 Malaysia exported almost $535 million worth of plywood, mainly to Singapore, China (including Taiwan Province of China) and Hong Kong. Latin American plywood exports, led by Brazil, are also expected to increase by over 50 percent through 1994 to 824 000 m^3. The U.K. and the U.S.A. are the major markets for Brazil's plywood. Africa's plywood exports, almost entirely from Gabon, are relatively minor and are decreasing through 1994.

ITTO consumers exported 404 000 m^3 of tropical plywood in 1992. Taiwan Province of China accounted for 157 000 m^3 (to Japan and other Asia), the EU (primarily from France, Belgium and the Netherlands to other EU countries) for 149 000 m^3 and the U.S. for 82 000 m^3 (no destinations reported). Exports from all of these sources but the EU will drop in 1993-94.

Imports

Table 5 provides an overview of the dependence of major ITTO consumer members on imports of tropical wood products. Major consumers are defined here as those with imports of at least 100 000 m^3 of one or more tropical products.

Taiwan Province of China appears to be highly dependent on tropical wood product imports, with almost all log, veneer and plywood imports of tropical origin. Unsurprisingly, given the dominance of tropical plywood in international plywood trade, most of the countries in Table 5 have a fairly high dependence on tropical imports, with Italy and Japan both almost totally dependent on tropical imports. Most countries are not so highly dependent on tropical veneer imports, with only Italy and Belgium (apart from Taiwan Province of China) importing more tropical than non-tropical veneer. Tropical sawnwood has an even lower market share in most countries, with only the Republic of Korea dependent on it for more than half of its sawnwood imports. The percentage figures for dependence on imports of tropical saw and veneer logs may be underestimated as total imports of all industrial roundwood were used for comparison due to the revision of the Harmonized System of customs classification and the consequent lack of FAO statistics on total trade of saw/veneer logs in 1992. Nonetheless, only Taiwan Province of China and Portugal appear to be importing a significantly greater proportion of tropical than non-tropical logs in 1992. The following sections break down import trends by each tropical wood product.

Table 5. Tropical Proportion of Total Wood Imports by Major ITTO Consumers 1992

Country	Import Tropical				Import All[1]				Tropical Percentage			
	Log	Sawn	Ven	Ply	Log[2]	Sawn	Ven	Ply	Log	Sawn	Ven	Ply
Australia	0	145	2	28	7	1193	13	65	0.0	12.2	15.4	43.1
Belgium	80	210	16	148	3138	1883	29	300	2.6	11.2	55.2	49.3
China	1976	559	217	1424	6442	1790	-	2768	30.7	31.2	-	51.4
(Taiwan Province)[3]	3961	709	226	741	4207	1477	258	778	94.2	48.0	87.6	95.2
France	880	354	19	193	2772	1973	196	423	31.8	17.9	9.7	45.6
Germany	281	353	85	218	2764	5593	205	753	10.2	6.3	41.5	29.0
Italy	439	360	69	53	6134	5730	107	62	7.2	6.3	64.5	85.5
Japan	10990	1248	192	2882	47380	9984	738	3278	23.2	12.5	26.1	87.9
Netherlands	123	578	13	322	964	3366	34	636	12.8	17.2	38.2	50.6
Portugal	428	35	1	0	636	222	6	3	67.3	15.8	16.7	0.0
Rep. of Korea	3173	716	17	648	10135	913	-	953	31.3	78.4	-	68.0
Spain	334	358	1	10	2224	2021	23	38	15.0	17.7	4.4	26.3
UK	19	547	17	634	351	7525	76	1397	5.4	7.3	22.4	45.4
USA	4	193	20	1053	1503	32230	720	1572	0.3	0.6	2.8	67.0

1. 'Import All' figures from 1992 FAO Yearbook.
2. Industrial roundwood used; no import figures given for saw/veneer logs in 1992 FAO Yearbook.
3. Unofficial figures.

Logs

Total imports of tropical hardwood logs by ITTO members (consumers and producers) fell almost 4 percent to 26.2 million m^3 in 1992. This exceeded total log exports by ITTO members by about 3.9 million m^3. This difference was probably made up by legitimate log exports from Myanmar, Indochina, the Solomon Islands and non-member tropical African countries, plus unrecorded or under-reported exports from both members and non-members. The gap between predicted imports and exports in 1994 grows to over 5.8 million m^3, however, which is stretching the capability of member and non-member tropical countries to provide, legitimately or otherwise. This gap illustrates that many consumers are still unprepared for the magnitude of decreasing log supplies, although expectations have improved since last year's Review when a gap of almost 10 million m^3 was foreseen for 1993. The decrease in log availability will have implications for 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 1992-94, ranked by order of import volume in 1992. Japan still dominates the global tropical log market, with almost 11 million m^3 imported in 1992, 78 percent of which came from Sarawak and Sabah. These imports were reported to be worth $1.75 billion, substantially higher than the $1.5 billion reported as the value of all Malaysian log exports which totalled 17.8 million m^3 (Appendix 3). The resulting discrepancy in unit prices is too large to be explained by freight and insurance charges; it could be due to variations in exchange rates used to report export values, the existence of other abnormally high/low value trade partners and/or one or both partners could have made errors in reporting log trade values. Japanese log imports increased by nearly 6 percent in 1992, following large drops in 1990-91 (see Appendix 1). Japan's tropical log imports dropped almost 25 percent in 1993 to 8.3 million m^3, due to contraction in Sarawak exports and the ban on exports from Sabah, as well as the economic slowdown in Japan mentioned previously. Japanese demand for tropical logs will continue to be met primarily by output from Malaysia (72 percent of tropical log imports in 1993), although the decreasing log exports from Sarawak and the export ban in Sabah have

resulted in a greater diversity of suppliers to the Japanese market, including softwood and temperate hardwood suppliers. Japan is increasing tropical log imports from Africa, with 1993-94 imports five times the 100 000 m^3 imported in 1992, mostly from Gabon and Cameroon. Imports from PNG have also skyrocketed, increasing to an expected 1.9 million m^3 in 1994 from 1.1 million m^3 in 1992.

China is the second largest ITTO tropical log importer, led by Taiwan Province of China's imports of almost 4 million m^3 in 1992. Chinese log imports are also expected to fall through 1994, due to decreasing supplies from traditional sources. 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 and Taiwan Province of 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 and Taiwan Province of China. Chinese figures also show a rapid increase in imports from Africa (mainly Gabon and Ghana) with 1993 imports rising four times from the 1992 level of just under 38 000 m^3.

The Republic of Korea is also a major ITTO log consumer, absorbing almost 3.2 million m^3 in 1992, from Malaysia (71 percent of total imports, down from 83 percent in 1991) and PNG (23 percent, up from 13 percent in 1991). This is a substantial (14 percent) decrease from 1991 levels, with larger decreases in 1993-94 (Appendix 1). 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. Korea is also importing increasing quantities of logs from Africa (primarily Ghana, Gabon and Côte d'Ivoire), with 1994 levels expected to top 115 000 m^3 compared to 21 000 m^3 in 1992.

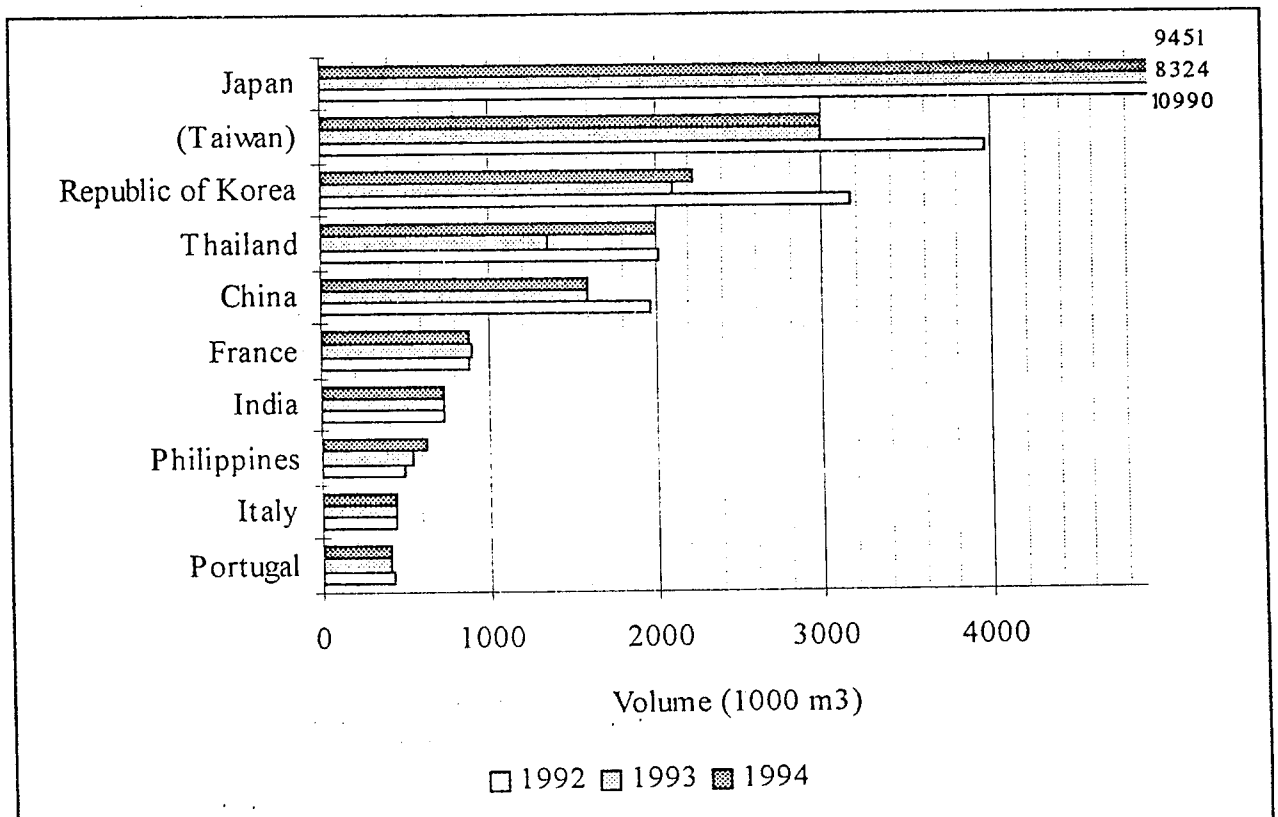

Figure 20. Major Tropical Log Importers

The EU countries imported over 2.6 million m^3 of tropical logs in 1992, most of which came from African producers. France remains the largest of the EU log importers, with the bulk of its supplies appearing to come from Gabon, Cameroon, and Congo. France is also usually a large importer of Liberian logs. Although France did not respond to the 1993-94 Enquiry, Liberia's response shows that almost all of its (greatly reduced) official log exports went to this market in 1992-94. The large discrepancy between the figures of Gabon and France (based on the French response to the 1992 Enquiry) in Appendix 2 should also be noted. Italy and Portugal are also major European log importers, with Spain and Germany reporting 334 000 and 281 000 m^3 of log imports respectively in 1992, just under the lowest levels shown in Figure 20. European log imports will decline to less than 2.5 million m^3 in 1993-94, due to depressed demand and increased competition from Asian log buyers in Africa.

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 (2.0 million m^3), India (estimated 734 000 m^3) and the Philippines (500 000 m^3) all imported substantial quantities of tropical logs in 1992, reflecting resource scarcity in these countries. Total imports of tropical logs by ITTO producing members dropped sharply in 1992, to just under 3.5 million m^3. Total imports dropped again to 2.7 million m^3 in 1993 due to the Sabah ban, before recovering to an expected 3.4 million m^3 in 1994. This continued 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.

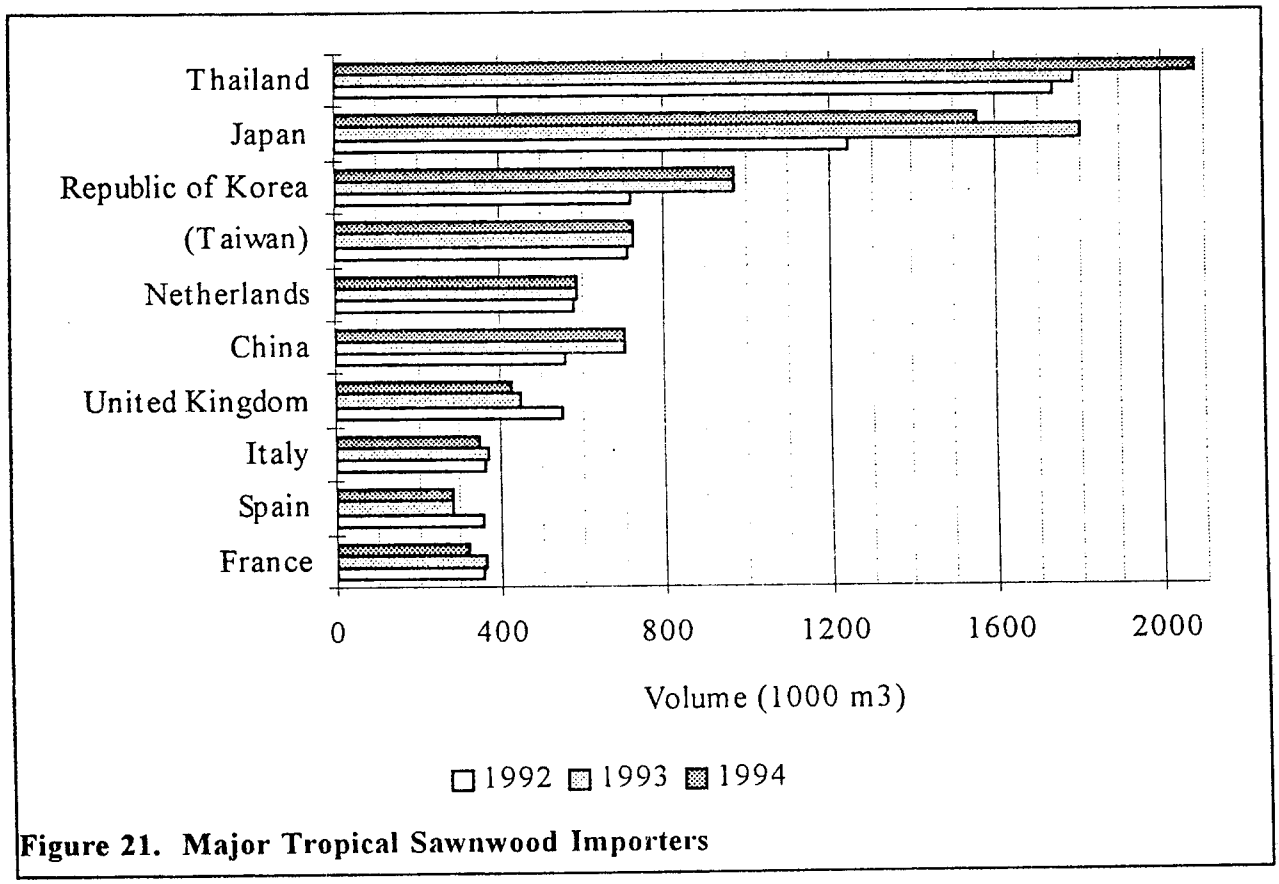

Figure 21. Major Tropical Sawnwood Importers

Sawnwood

Total ITTO imports of tropical sawnwood increased 14 percent to 8.7 million m^3 in 1992, slightly exceeding total exports which rose to 8.4 million m^3. Appendix 1 shows that while total ITTO imports continue rising to an expected 10.5 million m^3 in 1994, total exports will decline to 1991 levels of 7.8 million m^3. As for logs, this gap is probably stretching the ability of non-ITTO tropical countries to fill it, indicating the requirement for revision of estimates and/or substitute materials. Figure 21 shows the ten major ITTO sawnwood importers in 1992-94, ranked by order of 1992 import volume. Thailand remained the top sawnwood importer at over 1.7 million m^3, a 16 percent increase from 1991 levels. Thailand's imports are expected to rise to almost 2.1 million m^3 in 1994, well above those of Japan which are expected to fall back from a spike in imports of 1.8 million m^3 in 1993. The logging ban in Thailand, together with its growing economy and large furniture and secondary processing industries are responsible for growing sawnwood imports. Thailand's imports of tropical sawnwood, worth almost $428 million in 1992, are sourced primarily (74 percent) from Malaysia, as are those of Japan (54 percent).

Japanese imports rose 23 percent to almost 1.25 million m^3 in 1992, with a near 50 percent increase to 1.8 million m^3 in 1993. The large increase reported in 1993 was due to a combination of increased wooden housing starts, the decline in log availability and increasing prices in both logs and substitute materials. China and Korea (including Taiwan Province of China) are also major Asian sawnwood importers, as shown by Figure 21 and Appendix 1.

Total tropical sawnwood imports by EU countries were stable in 1992 at 2.9 million m^3, 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. Continued economic downturns in the economies of many Western European countries together with growing environmental concern contributed to the decline in European consumption of tropical sawnwood in 1993-94 shown in Appendix 1. The Netherlands remains the largest importer of tropical sawnwood in the EU, with 1992 imports of 578 000 m^3 increasing to 587 000 m^3 in 1993-94. The Netherlands' policy to only import sustainably produced tropical timbers after 1995 may lead to changes in the direction and magnitude of its tropical timber trade.

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 shows the ten major ITTO veneer importers in 1992-94. Total ITTO imports of veneer fell to under 1 million m^3 in 1992, down 23 percent from 1991 due mainly to a large downward revision in Japanese import figures (Appendix 1). Japan still accounted for 20 percent of these imports, with members of the EU (led by Italy and Germany) accounting for another 25 percent and China (including Taiwan Province of China) for 46 percent. Imports to all of these destinations (especially by China and Taiwan Province of China where veneer logs are increasingly scarce) will increase through 1994, bringing total ITTO imports to 1.1 million m^3. Chinese and Japanese imports are primarily sourced from Malaysia, while the majority of European imports are from African producers. The discrepancy between the Malaysian and

Japanese reports in Appendix 2 may be at least partially due to different assumptions regarding veneer thickness. Chinese and Japanese veneer imports were valued at over $52 million and $88 million respectively in 1992, giving unit prices of about $239/m^3 and $458/m^3. This gives some indication of the differences in quality requirements between these two important markets.

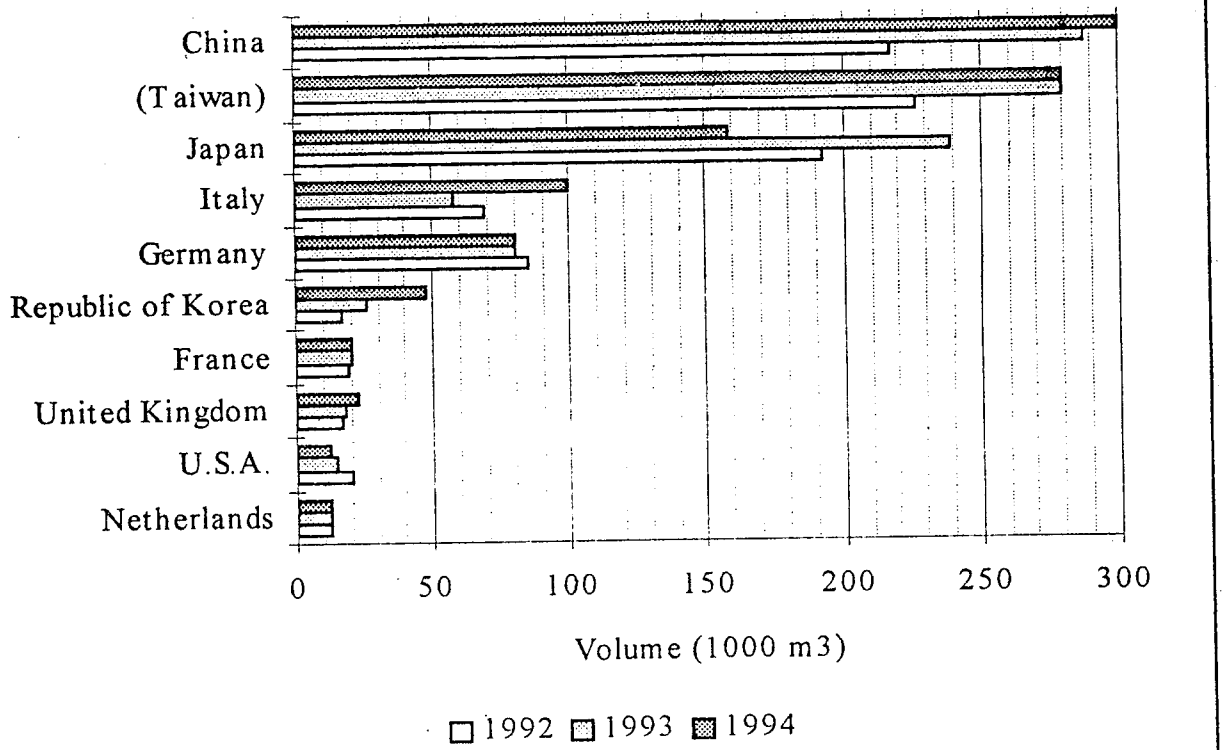

Figure 22. Major Tropical Veneer Importers

Plywood

Figure 23 shows the ten largest ITTO plywood importers in 1992-94, ranked by import volume in 1992. Total ITTO imports of tropical plywood rose over 12 percent to almost 9.3 million m^3 in 1992 and continued to increase steadily to over 10 million m^3 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, although a levelling of imports is expected in 1994. The majority of all tropical plywood imports came from Indonesia (over 96 percent in the top importer, Japan), with smaller but increasing volumes being sourced from Malaysia by some importers (China, Singapore, Hong Kong, etc.). Several major importers reported an increase in the proportion of Malaysian plywood imported in 1993-94, in an apparent attempt to diversify supply sources. The EU and the U.S. also import significant quantities of tropical plywood primarily from Indonesia, Malaysia and Brazil.

EU imports of tropical plywood totalled 1.7 million m^3 in 1992, up 14 percent from 1991 due to increased imports by the U.K. and the Netherlands. Most of this amount came from Indonesia and Malaysia, with Gabon, Brazil and inter-European trade providing the bulk of the remainder of European imports. European demand for tropical plywood will decline to 1.4 million m^3 through 1994 due to decreased demand from major importers.

Taiwan Province of China (741 000 m^3), the Republic of Korea (648 000 m^3), China (1.42 million m^3) and the U.S. (1.05 million m^3), were all substantial tropical plywood importers

in 1992. The bulk of China's imports, predicted to grow 1.5 million m^3 in 1994, are directed to the booming construction industry in the southern provinces. U.S. imports, 75 percent of which are from Indonesia, are expected to fall to 707 000 m^3 in 1994. In Korea, imports jumped to 822 000 m^3 in 1993 before dropping to an expected level of 764 000 m^3 in 1994. Indonesia supplies virtually all of Korea's plywood imports and about 70 percent of China's.

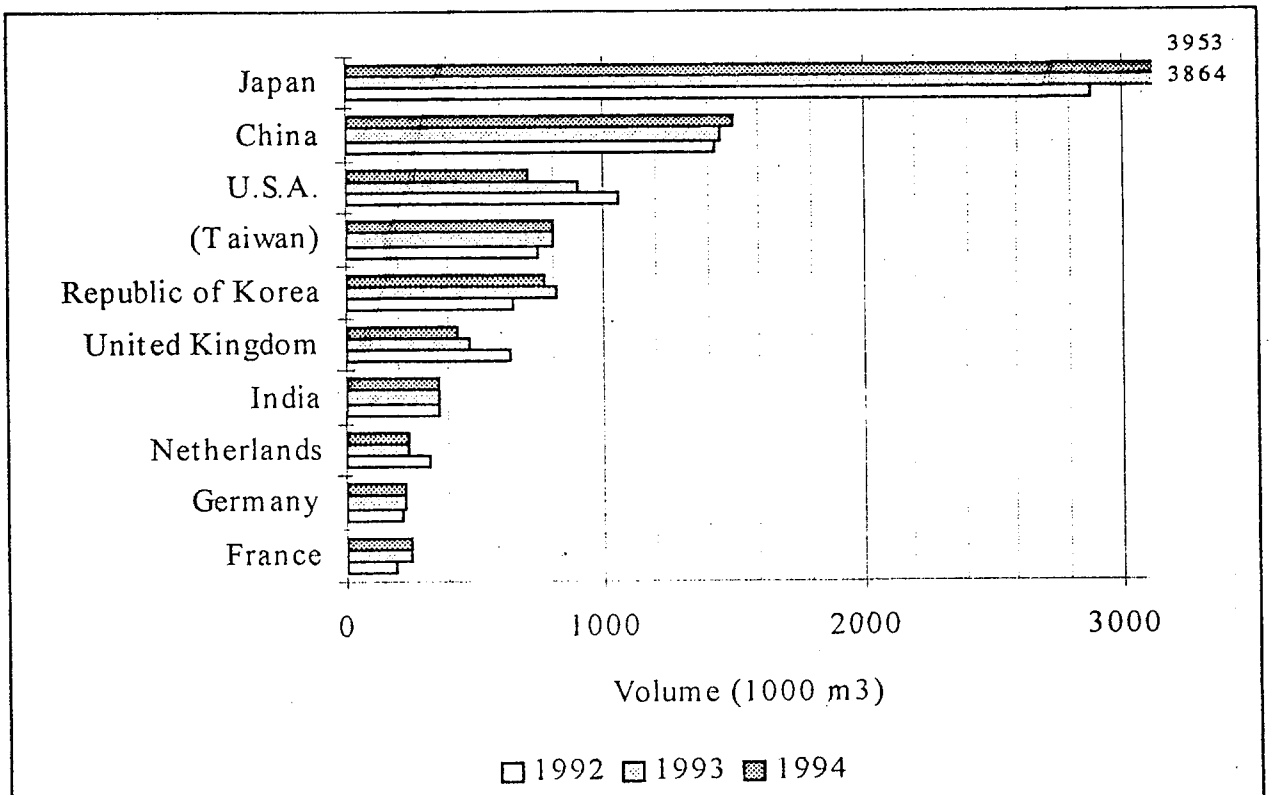

Figure 23. Major Tropical Plywood Importers

Prices

Export price trends from mid-1990 through mid-1994 for major log and sawnwood species and plywood from each exporting region are examined in this section. The price trend charts contained in Appendix 5 were developed based on the nominal prices reported by the ITTO/ITC Market News Service (MNS). These nominal prices were corrected to exclude inflationary factors affecting major consumer markets and converted to real prices (1990 = 100) using the G7 Consumer Price Index as calculated by the World Bank. As not all species are reported in each issue of the MNS, some charts only portray partial price series. An attempt was made to prepare price trend charts for all species identified as important by importers/exporters. 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 given in Appendix 4.

For logs and sawnwood, the values employed reflect FOB (free on board, port of origin) prices and the price trends are aggregated by the most frequently traded grades for a given species across countries within a region (when more than one country exported a given species) and across size and quality categories, for each period reported. High and low prices within grades 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. Descriptions of all grade abbreviations used are given in the notes preceding Appendix 5.

For plywood, the values employed reflect CIF (cost, insurance, freight - Europe) prices of a specified plywood product for each of the major producing countries, as stipulated by the base price lists developed by the major plywood trade organizations. A standard grade and thickness (9 mm Moisture Resistant B/BB grade) of plywood was selected for consistency and ease of comparison between plywood from different regions.

The charts shown in Appendix 5 indicate recent trends in regional prices, and are included due to the importance of the price factor in tropical timber markets. The price figures 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.

Average export prices for species/products traded in 1992-93 are also included in Appendix 4 for those countries that provided this data in the ITTO Enquiry. No attempt has been made to adjust or verify these nominal prices.

Logs

Appendix 5 shows indicative real FOB price trends for 17 species and/or grades of African and 8 species/grades of Asian log exports from mid-1990 to mid-1994. Real FOB prices for most species of African log exports were relatively stable or declining during this period, although real prices of Ozigo (LM grade) and certain of the higher-valued species of the genus *Entandrophragma* (e.g., Sipo, Tiama) appeared to be rising in late 1993 - early 1994. This could be due to increased demand from Asian markets for these species. Species of the genus *Entandrophragma* have been proposed for listing in Appendix II of CITES, as detailed in the chapter on Resources and the Environment. Real prices of most African log exports were stable between \$100 and \$200/m^3 throughout the period, with only Acajou, Doussie, Okoumé, Sapelli, Sipo and Tiama (the latter three being species of the genus *Entandrophragma*) achieving prices over \$200/m^3 for any sustained period. Sipo appears to be the most valuable log species exported in large volumes from Africa, with real prices approaching \$350/m^3 in mid-1994.

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 1991-92 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. The devaluation of the CFA franc may also have had a damping effect on real African export prices in 1994. The increasing interest in some species of African logs by Asian consumers, coupled with plans by some countries to ban log exports, should have a positive effect on prices in the short-term, although real prices are unlikely to increase significantly.

In contrast to African logs, real export prices of most species of Asian logs increased sharply in late 1992 and early 1993, due to the perception of log shortages in Asia. This was brought about by the ban on log exports from Sabah, together with tightening supplies from other tropical and non-tropical suppliers. Real prices more than tripled in dollar terms in some cases, causing substantial confusion in major markets. Prices underwent a generally steady decline throughout the last three quarters of 1993 as the Sabah export ban was relaxed (although few logs were subsequently exported) and importers adjusted to the new supply situation. However, real Asian log export prices in mid-1994 remained substantially (up to 100 percent) higher than before the 1993 price increase, when most prices had been relatively stable for at least two years. The graphs in Appendix 5 show that most species of Asian logs were trading at real prices of around

$100/m^3$ or less in 1990-92. Meranti logs (SQ and up) increased from an average of $125/m^3$ in this period to a peak of $375/m^3$ by March 1993. The real price of this species/grade in mid-1994 had fallen back to $200/m^3$. This is indicative of the pattern followed by most of the Asian species/grades charted in Appendix 5.

The instability in prices and supply has led many Asian log consumers to attempt to diversify to other tropical suppliers, non-tropical timbers, and non-wood substitutes. Given the relatively modest decreases in Japanese demand and the vibrant developing Asian economies discussed in the previous section, it is however unlikely that demand for Asian logs will be dramatically decreased in the short term, with the consequent prospect of sustained prices at current (late 1994) levels. 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.

Sawnwood

Real sawnwood price trends (FOB) for 12 African species/grades, 7 Asian species/grades and 9 Latin American species/grades are included in Appendix 5. Real African sawnwood prices firmed in 1993 and the first two quarters of 1994 for several important species (Acajou, Bossé, Iroko, Niangon, Sapelli and Sipo). The gradual firming in real prices of most of these species follows at least 2 years of declining real prices in 1990-92 so that real prices for many species are only now approaching 1990 levels. Sipo is the most valuable African sawnwood export species, with real prices reaching $750/m^3$ in June 1994. As African sawnwood exports are directed almost entirely to Europe, and since European consumption will not rise significantly, African sawnwood price trends will probably level off in the near future.

Asian sawnwood price trends have been generally increasing according to the charts in Appendix 5. The trends in real prices of White Seraya and Dark and Light Red Meranti all show the follow-on effects from the increase in Asian log prices observed in 1992-93. Prices of White Seraya actually began increasing in early 1992 peaking at around $900/m^3$ in early 1993 before falling back to $800/m^3$ in June 1994. The two types of Meranti sawnwood showed a slightly lagged price spike following the log price increase, as would be expected. Real prices for both types peaked at almost $800/m^3$ in April-May 1993. Dark Red Meranti has continued to fluctuate around this level while Light Red Meranti has leveled off to about $650/m^3$. These price levels are sustained by consumer worries over timber shortages in Asia, especially of the more popular species. Given the gaps between projected supply and demand of logs and sawnwood identified in the previous section, these worries appear to be well-founded.

Three of the Latin American sawnwood species reported in the MNS are well known and traded in substantial volumes (Mahogany, Cedro and Virola). Appendix 5 shows real price trends for these species, as well as for several other species. Real price trends for Latin American species of sawnwood have been variable, with, for example, Cedro and Mahogany experiencing price increases in 1993 followed by downward pressure in early 1994, and Virola prices continuing a general downward trend throughout the period. The increases in Cedro and Mahogany prices parallel the increases in prices of competing products. Kiln dried Mahogany exceeded $900/m^3$ in early 1994, before falling back to $800/m^3$ in June 1994, largely due to a levelling in demand. Continuing attempts to ensure that Mahogany is sourced from sustainable supplies may lead to further price increases in this species. Prices of Latin American sawnwood exports in general should stabilize or increase in response to good economic performance in the U.S. and the U.K. (the major markets).

Veneer

Veneer prices are not included at this stage in the ITTO/ITC Market News Service price database. It is hoped that this will be rectified in upcoming phases of the project, particularly as several producers are now exporting substantial quantities of veneer. Veneer prices are not quoted by any other available sources. Based on the export value data in Appendix 3, the unit FOB price of Malaysian veneer exports was $\$254/m^3$ in 1992. African unit values for veneer exports are generally higher, but the export values and/or volumes reported by some of the African countries may not be reliable. Average values for veneer species traded are also given for Gabon, Ghana and Malaysia (Sabah) in Appendix 4, based on country responses to the ITTO Enquiry. Brazil's unit value for veneer exports in 1992 was $\$341/m^3$. The regional price differences reflect species and 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 EU increasingly seek to supplement dwindling tropical log supplies with veneer imports.

Plywood

A plywood price database corresponding to those for logs and sawnwood was established in 1994. Export prices are generally regulated by price lists issued by trade associations [Indonesia (APKINDO) - INDO 93; Malaysia - M88; Brazil - K14 and BR94], with prices quoted as per the list plus a given percentage (e.g. M88 plus 20). The database converts these quotes into real dollar figures. Note that the plywood price lists are based on CIF prices - in the case of the graphs in Appendix 5 Europe is the common destination for comparison purposes. Appendix 5 includes graphs showing trends in real prices for Indonesian, Malaysian and Brazilian plywood. As discussed in the previous section, African plywood exports remain minimal.

Plywood export prices from all three of the countries shown in Appendix 5 have been quite volatile throughout the 1990-94 period. The inter-dependence and competition between the three countries is evident in the similar trends observed in the charts, apart from the sharp decrease in Indonesian prices shown in early 1992. Plywood prices also increased quite markedly from all three suppliers following the increases in Asian log prices in 1992-93 discussed previously. Real prices peaked at $\$550/m^3$ from Indonesia and $\$580/m^3$ from Malaysia in mid-1993, with Brazilian exports hitting their peak of just over $\$450/m^3$ a couple of months later. Prices from all three exporters have dropped sharply in the past 6 months, however, in apparent competition with each other and substitute products for market share in Europe and elsewhere. The price volatility shown by the charts in Appendix 5 has led to substantial confusion amongst both importers and suppliers of tropical plywood, making any prediction of future price trends difficult. Further significant decreases appear unlikely, however, as real production costs, especially labour, are increasing in most producing countries.

Country Notes

The following notes provide details of relevant developments in ITTO producing countries during 1993 and 1994, including information on trade barriers, new or increased processing capacity 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 several ITTO producing nations during the period under review.

Cameroon

Cameroon adopted a tropical timber trade law at the end of 1993 limiting the size of forest concessions to 200 000 ha and reducing the maximum duration of a concession to 15 years. Government policy calls for domestic processing of at least 70 percent of industrial wood production, with only 30 percent to be exported as logs (previous policy had been 60 and 40 percent, respectively). This policy is to be implemented during the five year period 1994 - 1998, following which no log exports are to be allowed.

In July 1994 Cameroon approved a balanced 1994/1995 budget which included a 25 percent tax on the value of all logs exported. Exports of secondary species have doubled in the past 3 years, in both volume and value. The devaluation of the CFA has led to an increased reliance on timber in the construction industry in 1994, and firewood use has increased considerably in urban areas.

Côte d'Ivoire

The Government of Côte d'Ivoire has announced a target of 250 000 ha of planted forest by the year 2015 with a sustainable yield of 2 million m^3. Current (1993) plantations total about 80 000 ha, with an annual yield of about 30 000 m^3. SODEFOR (The Society for the Development of Forest Plantations), the government forestry development agency, is currently planting about 5000 ha per year of primarily teak and frake. Planting rates will have to increase by over 50 percent to meet the 2015 target.

Felling taxes on logs produced for export range from 200 to 600 CFA franc per m^3, based on the value of the species harvested. The rate on logs for local processing is one half of the export rate. Log export quotas have been distributed by SODEFOR via an auction system since 1991. All species of logs are now subject to these quotas. In addition, several species including acajou (mahogany), bosse and sipo have been banned from export in log form since 1992. Duties on logs that are allowed to be exported range from 5 - 35 percent.

Housing starts and domestic timber consumption fell in 1993 as falling commodity prices depressed the economy. Little improvement is foreseen in 1994 as consumer confidence and purchasing power has been eroded by the CFA franc devaluation.

Gabon

As the nation's second largest employer and second largest contributor to GNP (after oil), the forestry sector plays an important role in Gabon's economy. Gabon is currently undertaking several projects with the assistance of ITTO and other donors to increase forest productivity and enhance sustainable development in its three main geographic regions, with the short term emphasis placed on accessible forests (those close to ports, roads, labour, etc.).

Restructuring of the Société Nationale des Bois du Gabon (SNBG) was initiated in 1991 and will be completed by the end of 1994. The restructuring will partially privatize the SNBG with the state retaining a 51 percent stake. The restructured SNBG will have a monopoly on the trade in Okoumé and Ozigo, Gabon's most important timber species.

Ghana

The Government of Ghana is constructing a Wood Processing Village with up to date facilities for wood drying, sawmilling, and veneer and furniture production. The village is expected to allow small manufacturers to pool their resources and expertise on a time-share basis, in order to produce exportable quantities of value-added timber products. Training and extension services will also be provided by the village, as well as by a Wood Industry Training Center, both of which are expected to be completed in 1995.

Heavy and prolonged rains at the end of 1993 led to logging slowdowns and price rises, particularly in sawnwood exports of mahogany and odum.

Logs of Obeche/Wawa were banned from export in early 1993, bringing the number of timber species banned from export in log form to eighteen. The complete ban on exports of logs and green/air-dried timber, expected by the end of 1994, is still pending. Temporary harvest bans have been placed on Ceiba and Chenchen, which together accounted for about 54 percent of total log exports in 1993, primarily to new Asian markets. These species occur primarily in the non-forest reserve areas and are easily accessible for extraction. 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, used to support afforestation and reforestation programmes, were extended to unprocessed timber of scarce species (10-30 percent levy) and air-dried lumber of several species (5-25 percent levy) by the new Trees and Timber (Amendment) Bill which was passed by parliament in late 1994. The government hopes to curb the rapid increase in the volume of logs harvested for export observed in 1993 -1994 (see Markets, Trade and Prices). The parliament also passed a new Forestry and Wildlife Policy in late 1994; it and the new Trees and Timber Bill will be gazetted in early 1995.

Domestic building activity and housing starts are still increasing due to a 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. Substitution of plastic for wood has been observed in the manufacture of crates, tables and chairs for the domestic market. The exploitation of lesser used species is increasing in line with increased log exports and bans/levies on better known species. The government is promoting the development of a rattan/cane processing industry. The use of plantation teak for domestic power poles and lumber is increasing.

Malaysia

Log and sawnwood imports to Malaysia are duty free, as are imports of face veneer. Core veneer and mouldings have an import tariff of 25 percent, while the tariff on plywood imports is 45 percent. Peninsular Malaysia and Sabah both prohibit the export of logs, the latter since January 1993. While there are no plans to further expand the forest industry of Sabah, several projects are planned in Sarawak. The state's first MDF mill will be built by a Japanese joint venture with the Sarawak Timber Development Corporation and other local investors. This mill is expected to begin production in , expected to begin production in mid-1996, with initial production of 35 000 m^3 increasing eventually to a capacity of 80 - 100 000 m^3. The Malaysian building supply company CASH, recently taken over by the Indonesian Barito group, plans to establish 12 new plywood mills in Sarawak, to invest in a massive ($0.5 billion) reforestation

project in Sabah, and to develop six plywood mills in Papua New Guinea in partnership with related Barito concerns.

Exports of lesser-used species are becoming more important, with the mixed hardwood group accounting for almost 0.6 million m^3 of log exports in 1993, more than the exports of any individual traditional species (see Appendix 4).

Malaysia's domestic construction sector grew by 13.2 percent in 1993, with sustained growth expected due to on-going infrastructure development, non-residential construction and housing projects. The Malaysian Government is continuing to encourage downstream processing of wood.

Papua New Guinea
PNG reported 1994 import tariff levels of 30 percent on logs and sawnwood, and 175 percent on plywood and veneer. Current policy is to reduce log exports by 10 percent each year from 1995 - 2000, following which a log export ban is to be imposed. All current logging operators have been required to submit feasibility studies for processing timber in PNG by August 1994. Various financial and legislative incentives (e.g. reform of coastal shipping, duty exemption for import of wood processing machinery, export tax exemption for processed products, etc.) are planned to encourage industrial development. PNG assumes that a sustainable harvest of 3 million m^3 will be processed locally by the turn of the century. 1994 log production was 3.5 million m^3, of which a substantial portion was traded as mixed logs. "Lesser-used" species will continue to be very important in PNG because of the diversity of species in its forests.

PNG's growth in employment and domestic investment has been slow in recent years, despite rapid population growth. This is largely due to a lack of capital arising from investor unease and debt repayment obligations. Per capita domestic wood consumption is therefore predicted to remain low, at about 0.05 m^3. PNG is attempting to develop a wood industry data base to allow the collection of more comprehensive and reliable production and trade statistics.

Philippines
The Philippines imposes import tariffs of 3 percent on logs, 30 percent on sawnwood and 50 percent on veneer and plywood. The log tariff was introduced in May 1994. Log and sawnwood exports are restricted to those arising from plantation forests or (for sawnwood) from imported logs. Due to the logging ban in 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.

Lesser used species are finding acceptance in the local market, and research is underway to establish properties and potential end-uses for such species. Minor forest products such as bamboo and rattan are becoming major exports for the Philippines.

The construction sector in the Philippines, in decline during the last three years, registered noticeable growth in early 1994. The government has a unified housing program to build 1.2 million low cost housing units by 1998. Current mortgage rates are 18 - 21 percent, however, slowing demand for non-subsidized housing. Coconut wood, bamboo and steel are increasingly substituting for traditional timbers in housing construction.

Thailand
Increased capacity in existing wood processing mills 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) and *Eucalyptus*

species which are readily available from plantations. A 1989 government policy banned logging in and restricted the export of roundwood from Thailand's natural forests. A 1992 government policy restricts the re-export of imported logs. Thailand's major import species are various *Dipterocarpus* species and *Tectona grandis* (teak). Exports primarily consist of rubberwood and teak finished products. 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 has no import tariffs on logs, sawnwood or veneer. A 10 percent tariff is imposed on plywood. Export quotas are imposed on products of several species, including mahogany and virola. No significant changes are foreseen in the species composition of Brazilian trade. Domestic wood consumption was stagnant in 1993 due to declines in domestic construction.

Colombia

Colombia imposes tariffs on forest products imports from all countries outside the Andean Pact as follows: logs and sawnwood - 20 percent; veneer and plywood - 50 percent. The government has also approved Forest Incentive Certificates (CIF) and Tax Reimbursement Certificates (CERT) to encourage timber production and exports, respectively. Currently only 17 of 150 commercial timber species in Colombia make up over 70 percent of production, showing the potential of lesser used species. Minor forest products do not contribute significantly to Colombia's forest economy.

Building activity increased by 65 percent in 1991-92; housing starts accounted for three quarters of this increase. Interest rates averaged 35 percent in 1992-93. Tropical timbers are being replaced by conifers in housing and other industries (i.e. pulp).

Guyana

Guyana plans to increase plywood capacity over seven-fold, from 12 500 m^3 in 1993 to 90 000 m^3 in 1996. These increases result from the construction of a new plymill in Guyana by a Korean joint venture company, to begin production in 1994. Over this same period sawnwood production is expected to increase from 242 500 m^3 to 252 000 m^3. Guyana's main trade concern is the increasing pressure for certification of sustainably produced timbers.

Guyana's main export species is greenheart (54 percent of exports), followed by mixed hardwoods. Research on lesser used species is a priority. Heart of palm and rattan are the major non-timber forest products produced in Guyana.

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.

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Various 1993-94 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

Appendices

The following Appendices contain data on production, trade and consumption by country (Appendix 1), major trade flows by product (Appendix 2), value of trade by producers and consumers (Appendix 3), major species traded by country (Appendix 4), and prices for major tropical timber products (Appendix 5).

In Appendix 2, figures reported by exporters are shown in bold typeface in shaded rows while those corresponding to import reports are in italics in non-shaded rows. Only major trading relationships are singled out in Appendix 2. 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: 1993-94 ITTO Forecasting and Statistical Enquiry. Other sources are indicated by the superscripts after the figures (I: ITTO estimate; F: FAO/ECE Timber Bulletin; M: FAO Monthly Bulletin; Y: FAO Yearbook; * : 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, Japan, Republic of Korea, United Kingdom, U.S.A.
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^3/ton; sawnwood - 1.43 m^3/ton; veneer - 1.33 m^3/ton; plywood - 1.54 m^3/ton.
Blanks in tables imply no data available and impossible to reliably estimate.
Figures for Germany are for the former FRG for 1990; figures for the Russian Federation are for the former USSR for 1990.
Export values in Appendix 3 are FOB; import values are CIF.

The following ITTO members did not respond to the 1993-94 ITTO Forecasting and Statistical Enquiry: France, Greece, Ireland, Portugal, Russian Federation, European Union, Congo, Côte d'Ivoire, Zaire, India, Ecuador, Panama, Venezuela.

Appendix 1

Production, Trade and Consumption of Tropical Forest Products

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Table 1-2. ITTO Producers 56

Appendix 1.

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Australia	Logs	435 I	415 I	395 I	365 I	285 I	0	0	0	0	0 I	5 I	4 I	1 I	1 I	0 I	430	411	394	364	285
	Sawn	225 I	211	203	185 I	146 I	181	154	145	170 I	136 I	2 I	0	1 I	1 I	0 I	404	365	347	354	282
	Ven	0 I	0	0	0	0 I	10	2	2	2	2 I	0 I	0	1	1	0 I	10	2	1	1	2
	Ply	0 I	0	0	0	0 I	41	20	28	25	22 I	1 I	0	2	2	0 I	40	20	26	23	22
Austria	Logs	0	0	0	0	0	4	3	2	1 I	1	0	0	2	0	0	4	3	0	1	1
	Sawn	2 I	2 I	0 I	0 I	0	23	19	17	13	17	0	0	1	1	1	25	21	16	12	16
	Ven	0 I	0	0	0	0	0	1	1	1	1	0 I	0	0	0	0	0	1	1	1	1
	Ply	0 I	0	0	0	0	2	1	2	1	1	0 I	0	0	0	0	2	1	2	1	1
Canada	Logs	0	0	0	0	0 I	2	1	2	1	1 I	0	0	0	0	0 I	2	1	2	1	1
	Sawn	0	0	0	0	0 I	26	15	19	14	14 I	1 I	1	1	1	1 I	25	14	18	13	13
	Ven	0	0	0	0	0 I	3	2	1	2	2 I	0 I	0	0	0	0 I	3	2	1	2	2
	Ply	0	0	0	0	0 I	62	53	58	74	74 I	8 I	3	6	3	3 I	54	50	52	71	71
China	Logs	50 I	50 I	300 I	400 I	400 I	691	1395	1976	1595	1600 I	17 I	17	1	9	10 I	724	1428	2275	1986	1990
	Sawn	175 I	350 I	220 I	200 I	200 I	154	88	559	703	700 I	0 I	0	5	22	20 I	329	438	774	881	880
	Ven	0 I	0	0	0	0 I	5	27	217	287	300 I	0 I	0	1	0 R	0 I	5	27	216	287	300
	Ply	175 I	350 I	800 I	700 I	700 I	1302	1417	1424 I	1450 I	1500 I	0 I	0	0 I	0 I	0 I	1477	1767	2224	2150	2200
(Taiwan Province)	Logs	47 *	24 *	15 *	15 *	15 I	3945 *	4218 *	3961 *	3000 *	3000 I	3 *	3 *	5 *	2 *	2 I	3989	4239	3971	3013	3013
	Sawn	170 *	806 *	582 *	548 *	548 I	118 *	529 *	709 *	725 *	725 I	17 *	14 *	12 *	8 *	8 I	271	1321	1279	1265	1265
	Ven	648 *	630 *	620 *	610 *	610 I	89 *	146 *	226 *	280 *	280 I	0 *	0 *	0 *	0 *	0 I	737	776	846	890	890
	Ply	484 *	530 *	486 *	450 *	450 I	361 *	432 *	741 *	800 *	800 I	257 *	204 *	159 *	130 *	130 I	588	758	1068	1120	1120
Egypt	Logs	0 I	0 I	0	0	0 I	0	0	5 I	5 I	5 I	0 I	0 I	0	0	0 I	0	0	5	5	5
	Sawn	0 *	0 *	2 I	0	0 I	27 *	30 *	18 *	14 *	12 *	0 *	0 *	0	0	0 I	27	30	20	14	12
	Ven	0 I	0 I	0 I	0	0 I	0	0	0 I	0	0 I	0 I	0 I	0 I	0	0 I	0	0	0	0	0
	Ply	0 I	0 I	0	0	0 I	100 *	100 *	150 I	110 I	110 I	0 I	0 I	0	0	0 I	100	100	150	110	110
EU	Logs	0	0	0	0	0	3415	3173	2637	2482	2468	81	78	77	65	65	3334	3101	2560	2417	2403
	Sawn	808	783	849	868	868	3197	2919	2937	2760	2681	317	309	281	220	220	3688	3417	3527	3408	3329
	Ven	310	280	206	190	190	237	289	231	205	252	63	55	44	46	45	484	514	389	349	397
	Ply	563	526	266	227	227	1469	1490	1697	1431	1397	203	222	149	157	154	1829	1794	1796	1501	1470
Belgium Luxem-bourg	Logs	0 I	0	0 I	0 I	0 I	60	32	80 I	40 F	40 I	9 I	18	17 I	20 I	20 I	51	14	63	20	20
	Sawn	15 I	10 I	20 I	14 *	14 I	318	250 I	210 I	160 *	160 I	58 I	53 F	62 I	54 *	54 I	275	207	168	120	120
	Ven	3 I	1 I	5 I	5 *	5 I	20	18 F	16 I	8 *	8 I	6 I	7	5 I	4 *	4 I	17	12	16	9	9
	Ply	7 I	4 I	10 I	7 I	7 I	160	139	148 M	130 I	130 I	37 I	54	48 I	50 I	50 I	130	89	110	87	87

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Denmark	Logs	0	0	0 I	0	0 I	3	2	2	2	3 F	0	0 R	0	0 R	0 F	3	2	2	2	3
	Sawn	0	0	1 F	1 F	1 F	34	16	21	19	19 F	4 I	4	4	3	3 F	30	12	18	17	17
	Ven	0	0	0	0	0 I	7	8	5	1	1 I	3 I	2	1	1	1 I	4	6	4	0	0
	Ply	2 I	3 *	0	0 I	0 I	23	40	100 I	40 I	40 I	5 I	7	6 I	6 I	6 I	20	36	94	34	34
France	Logs	0	0	0 I	0 I	0 I	937	878	880 F	895 *	880 I	24 I	14	15 I	15 I	15 F	913	864	865	880	865
	Sawn	245 I	240 I	451 F	445 F	445 F	472	464 *	354 F	360 *	320 F	17 I	21 F	11 F	10 F	10 F	700	683	794	795	755
	Ven	5 I	5 I	0 *	0 *	0 I	20 I	20 F	19 M	20 I	20 I	3 I	3	3 I	3 I	3 I	22	22	16	17	17
	Ply	210 I	200 I	0 *	0 *	0 I	225 I	213 *	193 *	250 *	250 I	89 I	88	30 I	40 I	40 I	346	325	163	210	210
Germany	Logs	0	0	0	0	0 I	356	317	281	260 F	260 I	21 *	24	16	10 F	10 I	335	293	265	250	250
	Sawn	72 I	65 I	50 F	40 F	40 I	410	416	353	380 F	380 I	42 I	40	40 F	30 F	30 I	440	441	363	390	390
	Ven	34 I	30 I	20 I	25 I	25 I	91	85	85	80 I	80 I	29 *	22	19	22 I	22 I	96	93	86	83	83
	Ply	68 I	60 I	60 I	55 I	55 I	161	202	218	230 I	230 I	0	0	3 I	3 I	3 I	229	262	275	282	282
Greece	Logs	0	0	0 I	0 I	0 I	160	170 F	50 I	50 I	50 I	0	0	0	0 I	0 I	160	170	50	50	50
	Sawn	33 I	35 I	25 I	25 I	25 I	28	24 F	51 F	50 F	50 I	4 I	4 F	6 F	0 F	0 I	57	55	70	75	75
	Ven	6 I	7 I	0 I	0 I	0 I	3	4 I	4 I	4 I	4 I	0	0 I	0 I	0 I	0 I	9	11	4	4	4
	Ply	38 I	40 I	0 I	0 I	0 I	4	5 I	4 I	4 I	4 I	10 I	10 I	0 I	0 I	0 I	32	35	4	4	4
Ireland	Logs	0	0	0 I	0 I	0 I	0	0 RW	1 I	1 I	1 I	0	0 W	0 F	0 F	0 I	0	0	1	1	1
	Sawn	0 I	0 I	0 I	0 I	0 I	95	55 I	70 I	70 I	70 I	8 I	4 W	3 I	3 I	3 I	87	51	67	67	67
	Ven	0 I	0 I	0 I	0 I	0 I	0	1 W	1 I	1 I	1 I	0 I	0 DR	0 I	0 I	0 I	0	1	1	1	1
	Ply	0 I	0 I	0 I	0 I	0 I	15	12 W	15 I	15 I	15 I	0 I	0 KW	0 I	0 I	0 I	15	12	15	15	15
Italy	Logs	0	0	0 I	0 I	0 I	802	674	439	439	440 I	0	0	0 F	0 F	0 I	802	674	439	439	440
	Sawn	210 I	175 I	100 *	150 I	150 I	399	363	360	369	350 I	0 I	0 F	0 F	0 I	0 I	609	538	460	519	500
	Ven	175 I	150 I	115 I	115 I	115 I	70	130 I	69	58	100 I	2 I	2 I	2 I	2 I	2 I	243	278	182	171	213
	Ply	15 I	10 I	8 I	5 I	5 I	39	47 M	53	35	50 I	9 I	9 I	9 I	9 I	9 I	45	48	52	31	46
Netherlands	Logs	0	0	0	0 I	0 I	110	117	123	111	111 I	18 I	16	18	11	11 I	92	108	105	100	100
	Sawn	50 I	52	40	43 I	43 I	570 *	525	578	587	587	159 *	167	141	106	106 I	461	433	499	524	524
	Ven	5 I	11	21	10	10 I	11	10	13	13	13 I	7 *	7	6	7	7 I	9	14	24	16	16
	Ply	0 I	0	11	10	10 I	274	287	322	239	239	32 I	36	37	36	36 I	242	251	278	213	213
Portugal	Logs	0	0	0 I	0 I	0 I	394	419	428 F	400 F	400 I	8 I	4	10 F	8 F	8 I	386	415	418	392	392
	Sawn	95 I	120	100 F	100 F	100 I	30	19	35 F	33 F	33 I	9 I	6	5 F	5 F	5 I	116	133	130	128	128
	Ven	30 I	25 I	25 I	25 I	25 I	1	1	1 I	1 I	1 I	3 I	2	2 I	2 I	2 I	28	24	24	24	24
	Ply	70 I	65 I	65 I	65 I	65 I	1	0	0 I	0 I	0 I	0 I	0	0 I	0 I	0 I	71	65	65	65	65
Spain	Logs	0 I	0 I	0 I	0 I	0 I	556	540 I	334	265	265 I	0 I	1 I	0	0	0 I	556	539	334	265	265
	Sawn	80 I	80 I	50 I	40 I	40 I	344	352 F	358 F	282	282 I	0 I	0 I	0 F	1	1 I	424	432	408	321	321
	Ven	50 I	50 I	20 I	10 I	10 I	1	1	1 I	1 I	1 I	0 I	2 I	1 I	1 I	1 I	51	49	20	10	10
	Ply	145 *	140 *	100 I	80 I	80 I	7	9 *	10 I	10 I	10 I	18 *	15 *	0 I	0 I	0 I	134	134	110	90	90

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
United	Logs	0 I	0	0	0	0	37	24	19	19	18	1 *	1	1	1	1	36	22	18	18	17
Kingdom	Sawn	8 I	6	12	10	10	497	435	547	450	430	16 *	10	9	8	8	489	432	550	452	432
	Ven	2 I	1 I	0	0	0	13	11	17	18	23	10 I	8	5	4	3	5	4	12	14	20
	Ply	8 I	4 I	12	5	5	560	536	634	478	429	3 I	3 I	16	13	10	565	537	630	470	424
Finland	Logs	0	0	0	0	0 I	0	0	0	0	2 F	0	0	0	0	0 F	0	0	0	0	2
	Sawn	0	0	0	0	0 F	10	8	6	7	6 F	0	1	0	0	0 F	10	7	6	7	6
	Ven	0	0	0	0	0 I	1	1	1	1	1 I	0	0	0 R	0 R	0 I	1	1	1	1	1
	Ply	0	0	0	0	0 I	1	1	0 R	1	1 I	0	0 R	0	0	0 I	1	1	0	1	1
Japan	Logs	0 I	0	0	0	0	11321	10402	10990	8324	9451	0 I	0	0	0	0	11321	10402	13010	9811	10551
	Sawn	1000 I	1000	1364	1296	1257	1375	1013	1248	1805	1560	7 I	0	0	0	0	2368	2013	2674	3163	2879
	Ven	307 I	303	274	268	242	650	677	192	239	159	0 I	1	12	8	8	957	979	495	558	435
	Ply	6145 I	6062	5477	5367	4831	2810	2941	2882	3864	3953	5 I	6	1	8	8	8950	8997	9176	10400	9625
Nepal	Logs	0 I	0 I	0 I	0 I	0 I	0	0	0 I	5	5 I	0 I	0 I	0 I	0 I	0 I	0	0	0	5	5
	Sawn	0 I	0 I	0 I	0 I	0 I	10	10	10 I	10 I	10 I	0 I	0 I	0 I	0 I	0 I	10	10	10	10	10
	Ven	0 I	0 I	0 I	0 I	0 I	0	0	0 I	2 I	2 I	0 I	0 I	0 I	0 I	0 I	0	0	0	2	2
	Ply	0 I	0 I	0 I	0 I	0 I	0	0	0 I	0 I	0 I	0 I	0 I	0 I	0 I	0 I	0	0	0	0	0
New	Logs	0 I	0	0 I	0 I	0 I	0 I	0 R	0 R	0 R	0 I	0 I	0	0 I	0 I	0 I	0	0	0	0	0
Zealand	Sawn	0 I	0	0 I	0 I	0 I	10 I	9	3	3	3 I	0 I	0	0 I	0 I	0 I	10	9	3	3	3
	Ven	0 I	0 I	0 I	0 I	0 I	0 I	0 I	1	0 R	0 I	0 I	0 I	0 I	0 I	0 I	0	0	1	0	0
	Ply	0 I	0	0 I	0 I	0 I	1 I	1	1	1	1 I	0 I	0	0 I	0 I	0 I	1	1	1	1	1
Norway	Logs	0	0	0 I	0	0	0	0	0 I	0	0	0 I	0	0 I	0	0	0	0	0	0	0
	Sawn	0	0	0 I	0	0	5	4 D	4 I	4	2	0 I	0	0 I	0	0	5	4	4	4	2
	Ven	0	0	0 I	0	0	2	1	1 I	1	0	0 I	0	0 I	0	0	2	1	1	1	0
	Ply	0	0	0 I	0	0	11	11	15 I	12	2	1 I	0	1 I	1	1	10	11	14	11	1
Republic	Logs	0 I	0	0	0	0	3559	3690	3173	2103	2222	0 I	0	0	0	0	3559	3424	2973	1930	2042
of	Sawn	735 I	841	655	525	500	583	747	716	970	970	6 I	2	1 I	0 I	0	1312	1454	1242	1365	1338
Korea	Ven	0 I	0	0	0	0	13	8	17	26	47	0 I	0	0	0	0	13	8	17	26	47
	Ply	1055 I	1134	942	856	900	541	673	648	822	764	7 I	2	4	1	1	1589	1464	1295	1377	1363
Russian	Logs	0	0 I	0 I	0 I	0 I	143	31	10 I	10 I	10 I	0 I	0 I	0 I	0 I	0 I	143	31	10	10	10
Federation	Sawn	40 I	15 I	5 I	5 I	5 I	18 I	10 I	8 I	8 I	8 I	0 I	0 I	0 I	0 I	0 I	58	25	13	13	13
	Ven	0 I	0 I	0 I	0 I	0 I	10 I	8 I	3 I	3 I	3 I	0 I	0 I	0 I	0 I	0 I	10	8	3	3	3
	Ply	30 I	0 I	0 I	0 I	0 I	12 I	10 I	2 I	2 I	2 I	0 I	0 I	0 I	0 I	0 I	42	10	2	2	2
Sweden	Logs	0	0	0	0	0	3	2 F	1	1	1	0 I	0 I	0	0	0	3	2	1	1	1
	Sawn	2 I	1 I	1 I	1 I	1 I	14	9 F	6	6	6	1 I	1 F	0 I	1 I	0	15	9	7	6	7
	Ven	0	0 I	0	0	0 I	2	2 I	1	1	1 I	0 I	0 I	0 R	0	0 I	2	2	1	1	1
	Ply	0	0 I	0	0	0 I	13	13 I	13 I	13 I	10 I	0 I	0 I	0	0	0 I	13	13	13	13	10

Table 1-1. Production, Trade and Consumption of Tropical Forest Products by ITTO Consumers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Switzerland	Logs	0	0	0	0	0 I	22 *	12 *	10	6	5 I	1 *	1 *	0 R	0 R	0 I	21	11	10	6	5
	Sawn	8 I	3 F	6 F	3 I	3 I	19	17 F	14	11	10 I	1 *	1 *	0 R	1	1 I	26	19	20	13	12
	Ven	0 I	0 *	0	0	0 I	8 F	4 *	1	0 R	0 I	0	1 *	0 R	0 R	0 I	8	3	1	0	0
	Ply	0 I	0 *	0	0	0 I	11 *	9 *	7	9	10 I	0	0 *R	0 R	0 R	0 I	11	9	7	9	10
U.S A.	Logs	0	0	0	0	0	13	6	4	4	4	12 I	6 I	11	4	1	1	0	-14	0	3
	Sawn	0	0	0	0	1 I	204	196	193	178	199	27 I	27	39	41	42	177	169	154	137	158
	Ven	0 I	0 I	0	0	0	22	20 A	20 A	15 A	12 A	1 I	1 A	1 A	1 A	1 A	21	19	19	14	11
	Ply	0	0	0	0	0	1074	934	1053	900	707	29 I	54	82	82	73	1045	880	971	818	634
Consu-	Logs	532	489	710	780	700	23118	22933	22771	17537	18775	119	109	97	81	78	23531	23053	25197	19550	20317
mers	Sawn	3165	4012	3887	3631	3529	5974	5777	6612	7401	7059	379	356	341	296	293	8760	9325	10114	10668	10225
Total	Ven	1265	1213	1100	1068	1042	1052	1188	915	1065	1062	64	58	59	56	54	2253	2343	1993	2136	2092
	Ply	8452	8602	7971	7600	7108	7811	8106	8721	9515	9354	511	491	404	384	370	15752	15876	16797	17608	16641

Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Africa	**Logs**	**10440**	**8842**	**8051**	**9184**	**10214**	**0**	**2**	**1**	**0**	**0**	**3914**	**3320**	**2369**	**2903**	**3435**	**6526**	**5524**	**5683**	**6281**	**6779**
Total	**Sawn**	**2073**	**1762**	**1922**	**1837**	**2108**	**36**	**33**	**52**	**36**	**38**	**1201**	**1010**	**1101**	**1040**	**1125**	**908**	**785**	**873**	**833**	**1021**
	Ven	**358**	**302**	**314**	**350**	**350**	**0**	**10**	**0**	**0**	**0**	**195**	**171**	**216**	**221**	**234**	**163**	**141**	**98**	**129**	**116**
	Ply	**240**	**252**	**286**	**272**	**283**	**18**	**20**	**52**	**22**	**23**	**60**	**79**	**207**	**191**	**212**	**198**	**193**	**131**	**103**	**94**
Cameroon	Logs	2476	2290	2096	2815	3916	0	0 [RW]	0	0	0	996	971	652	647	1095	1480	1319	1444	2168	2821
	Sawn	489	277	400	410	725	0	0 [W]	0	0	0	240	179 [W]	150	142	215	249	98	250	268	510
	Ven	50	20 [I]	23	28	38	0	0 [RW]	0	0	0	35	20 [W]	21	26	38	15	0	2	2	0
	Ply	60	85	55	63	78	3	0 [RW]	0	0	0	0	3 [W]	30	40	60	63	82	25	23	18
Congo	Logs	833	572	635 [*]	511 [*]	500 [I]	0	0	0 [I]	0 [I]	0 [I]	386	319	308	240	250	447	253	327	271	250
	Sawn	51	54	53 [I]	40 [I]	40 [I]	9	3	4 [I]	4 [I]	4 [I]	26	27	28 [I]	28 [I]	28 [I]	34	30	29	16	16
	Ven	51	37	45 [I]	40 [I]	40 [I]	0	0	0 [I]	0 [I]	0 [I]	43	32	37	38	37 [I]	8	5	8	2	3
	Ply	0	0	2 [*]	2 [I]	2 [I]	12	16	15 [I]	15 [I]	15 [I]	0	0	0 [I]	0 [I]	0 [I]	12	16	17	17	17
Côte	Logs	2811	2447 [DW]	1994 [*]	1961 [*]	1961 [I]	0	0	0 [*]	0 [*]	0 [I]	409	355 [DW]	248 [*]	320 [*]	320 [I]	2402	2092	1746	1641	1641
d'Ivoire	Sawn	753	753 [DW]	641 [I]	577 [*]	577 [I]	0	0	0 [*]	0 [*]	0 [I]	570	528 [DW]	500 [I]	460 [*]	460 [I]	183	225	141	117	117
	Ven	206	185 [*]	195 [*]	195 [*]	195 [I]	0	0 [*]	0 [*]	0 [*]	0 [I]	88	84 [*]	120 [*]	111 [*]	111 [I]	118	101	75	84	84
	Ply	42	37 [*]	39 [*]	37 [*]	37 [I]	0	0 [*]	0 [*]	0 [*]	0 [I]	23	14 [*]	17 [*]	15 [*]	15 [I]	19	23	22	22	22
Gabon	Logs	1590	1300 [I]	1395	1820	1820 [I]	0	0	0 [R]	0	0 [I]	1050	960	700 [I]	1100 [I]	1100 [I]	540	340	695	720	720
	Sawn	140	66	165	153	153 [I]	0	10	41 [I]	29 [I]	29 [I]	102 [I]	55	156	139	139 [I]	38	21	50	43	43
	Ven	6	12	9 [I]	14 [I]	14 [I]	0	10	0 [R]	0	0 [I]	4	7	8 [I]	14 [I]	14 [I]	2	15	1	0	0
	Ply	100	100	158 [I]	133 [I]	133 [I]	0	2	35 [I]	6	6 [I]	34	59	157 [I]	133 [I]	133 [I]	66	43	36	6	6
Ghana	Logs	1290	1229	1318	1682	1600 [I]	0	0	0	0	0	198	215	182	496	550	1092	1014	1136	1466	1050
	Sawn	436	420	538	546 [I]	500 [I]	0	0	0	0	0	202	183	232	239	251	234	237	306	307	249
	Ven	27	30	28	61	51	0	0	0	0	0	17	19	24	26	28	10	11	4	35	23
	Ply	18	15	20	26	22	0	0	0	0	0	2	1	2	2	3	16	14	18	24	19
Liberia	Logs	970 [I]	593	197	10 [I]	30 [I]	0	0	0 [I]	0 [I]	0 [I]	776	411	183 [I]	0	20 [I]	194	182	14	10	10
	Sawn	85 [I]	75 [I]	7 [I]	5 [I]	5 [I]	0	0	0 [I]	0 [I]	0 [I]	29	15	2 [I]	2 [I]	2 [I]	56	60	5	3	3
	Ven	3 [I]	4 [I]	0 [I]	0 [I]	0 [I]	0	0	0 [I]	0 [I]	0 [I]	3 [I]	4 [I]	0 [I]	0 [I]	0 [I]	0	0	0	0	0
	Ply	3	2 [I]	0 [I]	0 [I]	0 [I]	0	0	0 [I]	0 [I]	0 [I]	1	1	0 [I]	0 [I]	0 [I]	2	1	0	0	0
Togo	Logs	5	20 [I]	36	15	17	0	2	1	0	0	0	0	0	0	0	5	22	37	15	17
	Sawn	2	12	13	6	8	27	20 [I]	7	3	5 [I]	0	0	0	0	0	29	32	20	9	13
	Ven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ply	0	0	0	0	0	2	1 [I]	1	0	1	0	0	0	0	0	2	1	1	0	1
Zaire	Logs	465	391	380 [I]	370 [I]	370 [I]	0	0	0 [I]	0 [I]	0 [I]	99	89	96 [Y]	100 [I]	100 [I]	366	302	284	270	270
	Sawn	117	105	105 [I]	100 [I]	100 [I]	0	0	0 [I]	0 [I]	0 [I]	32	23	33 [Y]	30 [I]	30 [I]	85	82	72	70	70
	Ven	15	14	14 [I]	12 [I]	12 [I]	0	0	0 [I]	0 [I]	0 [I]	5	5	6 [Y]	6 [I]	6 [I]	10	9	8	6	6
	Ply	17	13	12 [I]	11 [I]	11 [I]	1	1 [I]	1 [I]	1 [I]	1 [I]	0 [R]	1 [I]	1 [I]	1 [I]	1 [I]	18	13	12	11	11

Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Asia	**Logs**	**99143**	**101190**	**103542**	**97555**	**95617**	**4024**	**4265**	**3418**	**2680**	**3407**	**21579**	**20832**	**19795**	**12279**	**12806**	**81588**	**84623**	**87165**	**87956**	**86218**
Pacific	**Sawn**	**28566**	**28905**	**29021**	**28027**	**27955**	**1565**	**1556**	**1873**	**2389**	**3186**	**5702**	**6037**	**6290**	**5903**	**5581**	**24429**	**24424**	**24604**	**24513**	**25560**
Total	**Ven**	**723**	**952**	**1512**	**2323**	**2389**	**8**	**6**	**15**	**21**	**22**	**423**	**543**	**821**	**761**	**612**	**308**	**415**	**706**	**1583**	**1799**
	Ply	**10930**	**11682**	**12439**	**13525**	**13948**	**42**	**33**	**410**	**397**	**412**	**9701**	**10172**	**10532**	**12078**	**12487**	**1271**	**1543**	**2317**	**1844**	**1873**
India	Logs	18350	18350 I	18000 I	18000 I	18000 I	1300	1500 I	734 Y	734 I	734 I	8	6 I	3 Y	3 I	3 I	19642	19844	18731	18731	18731
	Sawn	8800	8800 I	8800 I	8800 I	8800 I	20	25 I	3 Y	3 I	3 I	0	0 I	7 Y	7 I	7 I	8820	8825	8796	8796	8796
	Ven	4	4 I	4 I	4 I	4 I	0	0 I	4 Y	4 I	4 I	1	1 I	1 I	1 I	1 I	3	3	7	7	7
	Ply	360	360 I	360 I	360 I	360 I	4	5 I	360 Y	360 I	360 I	4	4 I	13 Y	13 I	13 I	360	361	707	707	707
Indonesia	Logs	36000 I	37000 I	37000 I	37000 I	36000 I	0	0	14 Y	10 I	10 I	0	0	0 I	0 I	0 I	36000	37000	37014	37010	36010
	Sawn	8632 *	8500 *	8300 I	8200 *	8000 *	0	0	0 I	0 Y	0 Y	615	936	711 Y	328 *	300 *	8017	7564	7589	7872	7700
	Ven	44	50 *	55 I	60 *	60 I	0	0 *	0 I	0 Y	0 I	40	31 *	30 I	30 I	30 I	4	19	25	30	30
	Ply	8860 I	9300 I	9500 I	10050 *	10000 *	0 I	0 *	0 I	0 Y	0 Y	8502	8863	8761	9598	9550 I	358	437	739	452	450
Malaysia	Logs	39100	39840	43510	37126	36000 I	9 I	8	138 I	22 I	34 I	20336	19320	17797	9382	9700 I	18773	20528	25851	27766	26334
	Sawn	8400	8970	9458	9223	9000 I	52	20	85 I	125 I	187 I	4908	4932	5417	5371	5050 I	3544	4058	4126	3977	4137
	Ven	480	694	1302	2122	2200 I	6	3	2	2 *	2	330	477	765	720	576 I	156	220	539	1404	1626
	Ply	1135	1429	2062	2565	3100 I	15 I	20 I	8 I	11	12	1017	1186	1670	2421	2904 I	133	263	400	155	208
Myanmar	Logs	1250 I	1250 I	1250	1279	1552	0 I	0 I	0	0	0	100 I	100 I	95	191	203	1150	1150	1155	1088	1349
	Sawn	600 I	600 I	600 I	550 I	650 I	0 I	0 I	0	0	0	50 I	50 I	50	57	44	550	550	550	493	606
	Ven	0 I	0 I	0 R	0 R	0 R	0 I	0 I	0	0	0	0 I	0 I	0 R	0 R	0 R	0	0	0	0	0
	Ply	7 I	7 I	7	7	7	0 I	0 I	0	0	0	0 I	0 I	0 R	1	1	7	7	7	6	6
Papua New Guinea	Logs	1450	2600	2225	3200	3500	0	0	0	0	0	1084	1404	1900 I	2700 I	2900 I	366	1196	325	500	600
	Sawn	124	320	140	150	160	0	1 I	3 I	10 I	3 I	4	3	5 I	10 I	14 I	120	318	138	150	149
	Ven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ply	18	15	13	13	13	0	4	0 I	0	0	0	0	0	0	0	18	19	13	13	13
Philippines	Logs	2502	1919	1438	885	545	365	357	500	550 I	625 I	51	2	0	1	0	2816	2274	1938	1434	1170
	Sawn	841	726	647	388	233	4	10	43	463	912	77	58	56	80	114	768	678	634	771	1031
	Ven	49	54	80	65	53	0	0 R	0	3	5	47	30	22	7	2	2	24	58	61	56
	Ply	397	321	331	250	189	3	2	1	2	4	176	118	85	40	18	224	205	247	212	175
Thailand	Logs	491	231	119	65	20	2350 I	2400 I	2032	1364	2004	0	0	0	2	0	2841	2631	2151	1427	2024
	Sawn	1169	989	1076	716	1112	1489	1500	1739	1788	2081	48	58	44	50	52	2610	2431	2771	2454	3141
	Ven	146	150	71	72	72	2	3	9	12	11	5	4	3	3	3	143	149	77	81	80
	Ply	153	250 I	166	280	279	20	2 *	41	24	36	2	1 *	3	5	1	171	251	204	299	314

Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Latin	**Logs**	**29042**	**25301**	**28317**	**27743**	**28084**	**126**	**12**	**32**	**53**	**39**	**5**	**5**	**77**	**69**	**85**	**29163**	**25308**	**28272**	**27727**	**28038**
America	**Sawn**	**9568**	**8814**	**10899**	**11325**	**11432**	**324**	**286**	**160**	**204**	**185**	**544**	**394**	**619**	**732**	**756**	**9348**	**8706**	**10440**	**10797**	**10861**
Caribbean	**Ven**	**251**	**253**	**245**	**345**	**346**	**35**	**35**	**18**	**22**	**21**	**56**	**51**	**118**	**294**	**294**	**230**	**237**	**145**	**73**	**73**
Total	**Ply**	**1592**	**1442**	**1481**	**1706**	**1786**	**107**	**86**	**68**	**74**	**74**	**288**	**381**	**545**	**818**	**824**	**1411**	**1147**	**1004**	**962**	**1036**
Bolivia	Logs	342 *	419	301	301 I	301 I	0	0	0	0 I	0 I	0	0	0	0 I	0 I	342	419	301	301	301
	Sawn	138	138	120 I	120 I	120 I	0	0	0	0 I	0 I	66	118	91 Y	91 I	91 I	72	20	29	29	29
	Ven	14	26	10 I	10 I	10 I	0	0	0	0 I	0 I	3	9	6	6 I	6 I	11	17	4	4	4
	Ply	2	15	10 I	10 I	10 I	0	0	0	0 I	0 I	1	0	5	5 I	5 I	1	15	5	5	5
Brazil	Logs	22900	19500 *	22200 I	22000 I	22000 I	123	8 *	20 *	10 *	10 I	0	0	71	62	62 I	23023	19508	22149	21948	21948
	Sawn	7000	6500 *	8500 *	9100 *	9100 I	280	250 *	150 I	160 I	160 I	446	230 *	484	590	590 I	6834	6520	8166	8670	8670
	Ven	213 P	210 P	220 I	320 I	320 I	30	30 *	11 I	15 I	15 I	53	40 *	109	285	285 I	190	200	122	50	50
	Ply	1200	1100 *	1150 I	1350 I	1350 I	2	4	1 I	1 I	1 I	248	350 *	509	774	774 I	954	754	642	577	577
Colombia	Logs	1200	1350	1615	1243	1324	0	0	6	20	22	0	0	0 R	0 R	0 R	1200	1350	1621	1263	1346
	Sawn	387	521	514	332	361	6	13	0 R	5	6	2	9	5	3	3	391	525	509	334	364
	Ven	4	6	5	5	5	0	0 R	1	1	0 R	0	0 R	0	0	0	4	6	6	6	5
	Ply	66	83	48	54	60	3	2	1	5	5	19	6	5	2	2	50	79	44	57	63
Ecuador	Logs	2626	2001	2138 *	2225 *	2311 *	0	0	0 *	0 *	0 *	0	0 R	0 *	0 *	0 *	2626	2001	2138	2225	2311
	Sawn	1258	865	913 *	949 *	986 *	0	0 R	0 I	0 I	0 I	19	18	20 *	22 *	24 *	1239	847	893	927	962
	Ven	4	8	9 *	9 *	10 *	0	0	0 *	0 *	0 *	0	2	3 *	3 *	3 *	4	6	6	6	7
	Ply	165	87	91 *	94 *	98 *	0	0 R	0 R	0 R	0 R	18	23	25 *	28 *	30 *	147	64	66	66	68
Guyana	Logs	125 I	129	151	225	288	0 I	0	0	0	0	4 I	4	1	5	12	121	125	150	220	276
	Sawn	27 I	37 I	14	20	24	0 I	0	0	0	0	4 I	12	10	11	12	23	25	4	9	12
	Ven	0 I	0	0	0	0	0 I	0	0	0	0	0 I	0	0	0	0	0	0	0	0	0
	Ply	0 I	1 I	9	17	79	0 I	0	0	0	0	0 I	0 AR	1	7	11	0	1	8	10	68
Honduras	Logs	44 P	37	36	6	27	0	0	0	15	0 I	0	0	0	0	1 I	44	37	36	21	26
	Sawn	1 P	3	8	1	1	15	0	0	0	0 I	0	0	0	0 I	0 I	16	3	8	1	1
	Ven	0	0	0 I	0 I	0 I	0	0	0 I	0 I	0 I	0	0	0 I	0 I	0 I	0	0	0	0	0
	Ply	3 P	0	0 I	2 I	2 I	2	2 I	2 I	2 I	2 I	0	0	0 I	0 I	0 I	5	2	2	4	4
Panama	Logs	140	130 I	100 I	115 I	120 I	1	1	3 W*	1 W	1 I	0	0	1 W	1 W*	1 I	141	131	102	115	120
	Sawn	62	57	36 *	40 *	43 *	5	5	7 W*	10 W	10 I	1	1	3 W	4 W*	4 I	66	61	40	46	49
	Ven	0	0	0 I	0 I	0 I	0	0	3 W*	3 W	3 I	0	0	0 I	0 I	0 I	0	0	3	3	3
	Ply	12	12	18 *	20 *	22 *	5	5	2 W*	3 W	3 I	1	1	0 I	0 I	0 I	16	16	20	23	25
Peru	Logs	867	945	952	952	1000	0	0 R	1	1	2	0	0	0	0	0	867	945	953	953	1002
	Sawn	422	423	496	496	521	0	0	0 R	0 R	0 R	1	1	5	3	4	421	422	491	493	517
	Ven	16	3	1	1	1	2	2	0 R	0 R	0 R	0	0	0	0 I	0 I	18	5	1	1	1
	Ply	24	24	30	30	31	0	0	0 R	0 R	0 R	0	0	0 R	1	1	24	24	30	29	30

Table 1-2. Production, Trade and Consumption of Tropical Forest Products by ITTO Producers (1000 m3)

		Production					Imports					Exports					Domestic Consumption				
Country	Product	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
Trinidad	Logs	48	40 I	59	36	33	0	1 I	0	4	2 I	0	0 I	3	0	8 D	48	41	56	40	27
and	Sawn	23 I	20 I	27	27	26	15 P	15 I	0	26	6	5 P	5 I	1	8	28	33	30	26	45	4
Tobago	Ven	0	0 I	0 I	0 I	0 I	0	0 I	0 I	0 I	0 I	0	0 I	0 I	0 I	0 I	0	0	0	0	0
	Ply	0 I	0 I	0 I	0 I	0 I	42 P	20 I	9	10 I	10 I	1 P	1 I	0	1 I	1 I	41	19	9	9	9
Venezuela	Logs	750 I	750 I	765 *	640 *	680 *	2 I	2 I	2 *	2 I	2 I	1 I	1 I	1 *	1 I	1 I	751	751	766	641	681
	Sawn	250 I	250 I	271 I	240 I	250 I	3 I	3 I	3 *	3 I	3 I	0 I	0 I	0 *	0 I	0 I	253	253	274	243	253
	Ven	0 I	0 I	0 *	0 *	0 *	3 I	3 I	3 *	3 I	3 I	0 I	0 I	0 R	0 I	0 I	3	3	3	3	3
	Ply	120 I	120 I	125 *	129 *	134 *	53 I	53 I	53 *	53 I	53 I	0 I	0 I	0 R	0 I	0 I	173	173	178	182	187
Producers	Logs	138625	135333	139910	134482	133915	4150	4279	3451	2733	3446	25498	24157	22241	15251	16326	117277	115455	121120	121964	121035
Total	Sawn	40207	39481	41842	41189	41495	1925	1875	2085	2629	3409	7447	7441	8010	7675	7462	34685	33915	35917	36143	37442
	Ven	1332	1507	2071	3018	3085	43	51	33	43	43	674	765	1155	1276	1140	701	793	949	1785	1988
	Ply	12762	13376	14206	15503	16017	167	139	530	493	509	10049	10632	11284	13087	13523	2880	2883	3452	2909	3003
ITTO	Logs	139157	135822	140620	135262	134615	27268	27212	26222	20270	22221	25617	24266	22338	15332	16404	140808	138508	146317	141514	141352
Total	Sawn	43372	43493	45729	44820	45024	7899	7652	8697	10030	10468	7826	7797	8351	7971	7755	43445	43240	46031	46811	47667
	Ven	2597	2720	3171	4086	4127	1095	1239	948	1108	1105	738	823	1214	1332	1194	2954	3136	2942	3921	4080
	Ply	21214	21978	22177	23103	23125	7978	8245	9251	10008	9863	10560	11123	11688	13471	13893	18632	18759	20249	20517	19644

Appendix 2

Direction of Trade in 1992

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Appendix 2.

Table 2-1-1. Tropical Logs Exported from Africa in 1992 (m3)

Importers / Exporters	*ASIA-PACIFIC*							TOTAL
	India	*Malaysia*	*China*	*(Taiwan)*	*Japan*	*New Zealand*	*Rep. of Korea*	
Cameroon		**526** W*		**1293** W*	**27467** W*		**2707** W*	**655000** *
		110			*26000*		*3000*	
Congo								**470000** Y
					3000			
Côte d'Ivoire		**7**						**308000**
			190					
Gabon	**91**	**1**	**20**	**12185**	**30076**	**0**	**8252**	**700000** I
		579	*35822*		*67000*		*8000*	
Ghana	**4040**		**70**					**182000**
						19		
Liberia								**183000** I
Togo								**0**
Zaire								**96000** Y
					2000			
Others								
			1631		*2000*		*100000*	
TOTAL	*734000* Y	*138000* I	*1976000*	*3961000* *	*10990000*	*0* R	*3173000*	

Table 2-1-2. Tropical Logs Exported from Africa in 1992 (m3)

Importers / Exporters	EUROPE											TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Greece*	*Italy*	*Netherlands*	*Portugal*	*Spain*	*UK*	*Switzerland*	
Cameroon	**13160** W*	**3378** W*	**117920** W*	**31299** W*	**34898** W*	**136684** W*	**73461** W*	**101576** W*	**68301** W*	**8082** W*	**60** W*	**655000** *
	25000 F	*400*	*99000* F	*62000*		*182200*	*57000*	*95000* F	*68000* F	*7088*	*3500*	
Congo												**470000** Y
	2000 F	*400*	*73000* F	*42000*		*55200*		*114000* F	*23000* F	*573*		
Côte d'Ivoire	**458** *	**85** *	**36860** *	**2553** *		**31984** *	**468** *		**91434** *	**5183** *	**3559** *	**308000**
	1000 F		*44000* F	*4000*		*41600*	*2000*	*39000* F	*80000* F	*2847*	*30*	
Gabon			**94932**	**13312**	**13387**	**43695**	**633**	**56204**	**9577**			**700000** I
	5000 F		*396000* F	*26000*		*54000*	*23000*	*89000* F	*14000* F	*4025*	*1600*	
Ghana	**240**		**11090**	**89510**	**5680**	**40470**	**19870**	**3000**	**4440**	**470**		**182000**
			1000 F	*103000*		*45900*	*13000*		*2000* F	*506*	*70*	
Liberia	**200**		**132300**	**17400**		**19400**	**2500**		**8800**	**2100**		**183000** I
						19400	*2000*			*2112*		
Togo												**0**
Zaire												**96000** Y
				1000		*14800*				*514*	*3400*	
Others												
				12000		*14000*	*18000*			*1713*	*200*	
TOTAL	*80000* I	*2000*	*880000* F	*281000*	*50000* I	*439000* F	*123000*	*428000* F	*334000*	*19000*	*10000*	

Table 2-1-3. Tropical Logs Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	*ASIA-PACIFIC*								TOTAL
	India	*Malaysia*	*Philippines*	*Thailand*	*China*	*(Taiwan)*	*Japan*	*Rep. of Korea*	
China						58	547		1000
		12							
(Taiwan)							4969 *	58 *	5000 *
		130					*7000*		
India									3000 Y
		11							
Indonesia									0 I
		77360			*104551*		*6000*	*1000*	
Malaysia	734500		488600	692200	1499000	3240500	8571000	2006500	17797000
				646000	*1471074*	*3375124* *	*8571000*	*2239000*	
Myanmar	45490			5770			14480	40	95000
		344			*233836*	*18754* *	*22000*	*1000*	
PNG	17000	17000	41000	16000	36000	22000	1013000	654000	1900000 I
		22751		*16000*	*54347*		*1068000*	*720000*	
Philippines									0
		74							
Thailand									0
		22318			*17196*	*3300* *			
Others									
		10077		*1369000*	*57266*		*387000*	*182000*	
Total	*734000* Y	*138000*	*500000*	*2032000*	*1976000*	*3961000* *	*10990000*	*3173000*	

Table 2-1-4. Tropical Logs Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	*EUROPE*							*NORTH AMERICA*		TOTAL
	Belgium	*Germany*	*Netherlands*	*UK*	*Austria*	*Sweden*	*Switzerland*	*Canada*	*US*	
China										**1000**
					66		*30*			
(Taiwan)										**5000** *
									58	
India										**3000** Y
Indonesia										**0** I
					1			*45*	*82*	
Malaysia		**3000**								**17797000**
	1000 F	*3000*	*1000*		*29*		*100*	*48*	*569*	
Myanmar	**440**	**1460**	**230**	**20**						**95000**
	1000 F	*1000*			*66*	*52*			*292*	
PNG										**1900000** I
Philippines										**0**
									316	
Thailand										**0**
									301	
Others										
		1000			*36*				*369*	
Total	*80000* I	*281000*	*123000*	*19000*	*2000*	*1000*	*10000*	*2000*	*4000*	

Table 2-2-1. Tropical Sawnwood Exported from Africa in 1992 (m3)

Importers / Exporters	*EUROPE (EU)*											TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Greece*	*Ireland*	*Italy*	*Netherlands*	*Portugal*	*Spain*	*UK*	
Cameroon	**8679** W*	**269** W*	**20635** W*	**3379** W*	**1788** W*	**829** W*	**17147** W*	**29022** W*	**3980** W*	**75231** W*	**6813** W*	**226000** *
	8000 F	*1001* W	*21000* F	*4000*			*21100*	*25000*	*5000* F	*98000* F	*4991*	
Congo												**28000** I
		143 W	*1000* F	*1000*			*2200*	*1000*		*20000* F	*173*	
Côte d'Ivoire												**500000** I
	4000 F	*1716* W	*63000* F	*6000*		*25000* F	*144600*	*10000*	*23000* F	*90000* F	*17054*	
Gabon			**14**						**127**			**156000**
											545	
Ghana	**6290**	**120**	**13200**	**46040**	**1660**	**27630**	**11580**	**24190**	**1840**	**18870**	**25270**	**232000**
	4000 F	*572* W	*12000* F	*59000*		*27000* F	*9700*	*19000*	*2000* F	*24000* F	*33162*	
Liberia			**800**	**400**				**300**		**500**	**100**	**2000** I
											61	
Togo												**0**
							100					
Zaire												**33000** Y
	10000 F		*1000* F	*3000*			*10100*		*8000* F	*5000* F	*7197*	
Others												
		57 W		*7000*			*17700*	*5000*			*28995*	
TOTAL	*210000* I	*21000*	*354000* F	*353000*	*51000* F	*70000* I	*360000* F	*578000*	*35000* F	*358000* F	*547000*	

Table 2-2-2. Tropical Sawnwood Exported from Africa in 1992 (m3)

Importers / Exporters	*ASIA-PACIFIC*		*EUROPE*					TOTAL
	Japan	*New Zealand*	*Austria*	*Finland*	*Russian Fed.*	*Sweden*	*Switzerland*	
Cameroon	**913** [W*]			**2445** [W*]			**10** [W*]	**226000** [*]
	1000		*1043*	*400*		*124*		
Congo								**28000** [I]
			4			*55*		
Côte d'Ivoire								**500000** [I]
		18	*296*	*3100*		*1493*	*200*	
Gabon								**156000**
			25			*5*	*100*	
Ghana	**290**	**190**			**50**	**170**		**232000**
		137	*2412*	*100*		*268*	*800*	
Liberia								**2000** [I]
	0							
Togo								**0**
	0							
Zaire								**33000** [Y]
			32			*17*	*50*	
Others								
	2000	*4*	*96*				*100*	
TOTAL	*1248000*	*3000*	*17000*	*6000*	*8000* [I]	*6000*	*14000*	

Table 2-2-3. Tropical Sawnwood Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	*ASIA-PACIFIC*								*NORTH AMERICA*		TOTAL
	Philippines	*Thailand*	*Australia*	*China*	*(Taiwan)*	*Japan*	*New Zealand*	*Rep. of Korea*	*Canada*	*US*	
China					**297**	**2978**		**176**			**5000**
										48	
(Taiwan)					**8928** *					**115** *	**12000** *
						34000			*42*	*86*	
India											**7000** ¥
						0				*15*	
Indonesia			**1770**			**1920**		**30**	**90**		**711000** ¥
		1000	*7000*	*177119*	*86671* *	*377000*	*1005*	*15000*	*163*	*6570*	
Malaysia	**31400**	**1221600**	**65300**	**229800**	**362200**	**615900**	**900**	**529900**	**200**	**21700**	**5417000**
	39877	*1287000*	*132000*	*303836*	*479869* *	*696000*	*818*	*692000*	*832*	*33721*	
Myanmar		**1000**		**9900**		**690**			**20**		**50000**
				24254		*1000*			*26*	*917*	
PNG	**12**	**100**	**2000**			**30**	**1000**				**5000** ¹
			2000				*290*	*1000*		*32*	
Philippines											**56000**
			3000		*34152* *	*41000*			*555*	*9591*	
Thailand						**17000**				**3000**	**44000**
				10073	*3834* *	*20000*	*7*		*187*	*2332*	
Others	*										
	29		*27000*	*32647*			*159*	*6000*	*28*	*5628*	
Total	*43000*	*1739000*	*145000*	*559000*	*709000* *	*1248000*	*3000*	*716000*	*19000*	*193000*	

Table 2-2-4. Tropical Sawnwood Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	EUROPE (EU)												TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*Spain*	*UK*	*Austria*	*Finland*	*Sweden*	*Switzerland*	
China													**5000**
					2000								
Taiwan)													**12000** [4]
								599					
ndia													**7000** [Y]
					100			*36*	*64*		*0*		
ndonesia													**711000** [Y]
	120000 [F]	*429* [W]	*15000* [F]	*13000*	*47600*	*46000*	*5000* [F]	*23974*	*1385*	*400*	*127*	*100*	
Malaysia	**156600**	**1900**	**107100**	**56100**	**58200**	**467200**	**13100**	**155000**	**100**		**100**	**1100**	**5417000**
	141000 [F]	*3289* [W]	*162000* [F]	*215000*	*67600*	*393000*	*12000* [F]	*187981*	*5728*	*200*	*1254*	*800*	
Myanmar	**20**			**5090**		**230**		**220**					**50000**
		6006 [W]	*2000* [F]	*1000*	*1800*			*2119*	*7*	*100*	*498*	*30*	
NG				**200**				**300**					**5000** [I]
								497					
hilippines													**56000**
						1000		*27139*	*4*				
hailand		**1000**		**5000**	**2000**	**2000**		**1000**		**1000**	**1000**		**44000**
		572 [W]			*500*			*789*		*200*	*48*		
Others													
		2574 [W]		*22000*		*30000*		*9430*	*999*	*100*	*214*	*300*	
Total	*210000* [I]	*21000*	*354000* [F]	*353000*	*360000*	*578000*	*358000* [F]	*547000*	*17000*	*6000*	*6000*	*14000*	

Table 2-2-5. Tropical Sawnwood Exported from Latin America/Caribbean in 1992 (m3)

Importers / Exporters	EUROPE (EU)									TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*Portugal*	*Spain*	*UK*	
Bolivia										**91000** [Y]
					200			*1000* [F]	*69*	
Brazil	**9950**	**600**	**54180**	**2520**	**11660**	**13600**	**19040**	**98910**	**51200**	**484000**
	3000 [F]	*1716* [W]	*74000* [F]	*4000*	*18900*	*12000*	*41000* [F]	*53000* [F]	*79321*	
Colombia				**8**						**5000**
Ecuador	**44** [*]	**15** [*]	**242** [*]	**335** [*]	**510** [*]	**2** [*]	**2** [*]	**726** [*]	**203** [*]	**20000** [*]
				1000	*200*				*1225*	
Guyana									**3271**	**10000**
									3015	
Honduras										**0**
									1400	
Panama										**3000** [*W]
					900					
Peru					**70**			**100**		**5000**
					200				*19*	
Trinidad										**1000**
		143 [W]			*100*				*71*	
Venezuela										**0** [*]
					100					
Others										
				1000	*11800*	*2000*			*77570*	
Total	*210000* [I]	*21000*	*354000* [F]	*353000*	*360000*	*578000*	*35000* [F]	*358000* [F]	*547000*	

Table 2-2-6. Tropical Sawnwood Exported from Latin America/Caribbean in 1992 (m3)

Importers / Exporters	EUROPE				ASIA-PACIFIC				NORTH AMERICA		TOTAL
	Austria	Finland	Sweden	Switzerland	Australia	China	(Taiwan)	Japan	Canada	US	
Bolivia											**91000** [Y]
			42						239	21161	
Brazil		30590			840	20	1320	3170	460	103630	484000
	112	200	145	90	2000			6000	8061	92075	
Colombia										100	5000
Ecuador	6 *	61 *	3 *	0 *R	11 *	253 *		306 *	206 *	13036 *	20000 *
	24	600	6					1000	209	6848	
Guyana									31	4283	10000
										2389	
Honduras											0 [1]
	1		3						27	518	
Panama											3000 *W
	1			30						8	
Peru					20			60		3960	5000
								0	1823	2261	
Trinidad											1000
									28	46	
Venezuela											0 *
										84	
Others											
	65		3	70		212		9000		5020	
Total	17000	6000	6000	14000	145000	559000	709000 [1]	1248000	19000	193000	

Table 2-3-1. Tropical Veneer Exported from Africa in 1992 (m3)

Importers / Exporters	*EUROPE*										*N. AMERICA*	TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*UK*	*Finland*	*Sweden*	*Swizerland*	*US*	
Cameroon	**524** W*	**49** W	**3454** W*	**294** W*	**16433** W*		**591** W*				**52** W*	**37000** *
	738 F	*133* W	*2926* F	*1000*	*29500*		*489*			*20*		
												35000 I
Congo											*161*	
	379 F	*1064* W	*5013* F	*12000*	*3200*	*7000*	*389*		*270*	*300*		
												120000 *
Côte d'Ivoire											*2000* F	
	1676 F	*266* W	*1979* F	*40000*	*20600*		*94*	*100*	*285*			
											11	**80000** I
Gabon			**80**									
							200					
											80	**24000**
Ghana	**220**		**4010**	**7590**	**5700**	**1350**	**3140**		**160**			
	184 F			*11000*	*6100*		*772*	*300*				
												6000 Y
Zaire											*4*	
		133 W		*2000*	*100*		*1445*					
Others											*54*	
				1000	*800*	*1000*	*1512*					
Total	*16000* I	*5000*	*19000* M	*85000*	*68700*	*13000*	*17000*	*1000*	*1000*	*1000*	*20000* A	

Table 2-3-2. Tropical Veneer Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	*ASIA-PACIFIC*							*NORTH AMERICA*		TOTAL
	Thailand	*Australia*	*China*	*(Taiwan)*	*Japan*	*New Zealand*	*Rep. of Korea*	*Canada*	*US*	
Australia										**1000**
						85				
China					**161**		**250**		**122**	**1000**
				46 *						
India										**1000** [1]
								16		
Indonesia										**0** [1]
	2000		*27405*	*2389* *			*1000*	*6*	*510*	
Japan				**2000**			**1000**		**0**	**12000**
				104 *					*4*	
Malaysia	**8900**	**700**	**248600**	**232900**	**220200**		**15500**		**9500**	**765000**
	6000	*200*	*186454*	*221963* *	*176000*	*1*	*16000*	*27*	*5201*	
Philippines										**22000**
		3000		*203* *	*4000*			*79*	*5392*	
Thailand							**1000**			**3000**
								28	*56*	
Others										
		2000	*2888*		*0*	*155*			*240*	
Total	*9000*	*2000*	*217000*	*226000* *	*192000*	*1000*	*17000*	*1000*	*20000* [A]	

Table 2-3-3. Tropical Veneer Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	EUROPE										TOTAL
	Denmark	*France*	*Germany*	*Italy*	*Netherlands*	*UK*	*Austria*	*Finland*	*Sweden*	*Switzerland*	
Australia											**1000**
						6			*4*		
China											**1000**
				100							
India											**1000** [1]
				300		*21*			*8*		
Indonesia											**0** [1]
	133 [W]	*14700* [M]	*1000*	*1100*		*55*		*200*	*1*		
Japan			**60**								**12000**
Malaysia			**60**		**2500**	**2900**					**765000**
		1575000 [M]			*2000*	*381*	*21*			*60*	
Philippines											**22000**
		600 [M]				*199*	*24*				
Thailand	**1000**					**1000**					**3000**
	1064 [W]			*200*		*715*		*100*			
Others											
			1000			*304*					
Total	*5000*	*19000* [M]	*85000*	*68700*	*13000*	*17000*	*1000*	*1000*	*1000*	*1000*	

Table 2-3-4. Tropical Veneer Exported from Latin/North America in 1992 (m3)

Importers / Exporters	ASIA-PACIFIC			EUROPE					N. AMERICA		TOTAL
	China	Japan	Rep. of Korea	Denmark	Germany	Netherlands	UK	Sweden	Canada	US	
Brazil		70		2150	14200	550	200	30	30	58470	109000
		0		399 [W]	16000	1000	101	34	172	6038	
Colombia										70	0
Ecuador	236 *		937 *					299 *		515 *	3000 *
										54	
Honduras											0 [I]
								2	81	0 [R]	
Other L. America											
		8000						4		12	
Canada		1	25			1	1			107	0
										85	
US											1000 [A]
	207			133 [W]					527		
Total	217000	192000	17000	5000	85000	13000	17000	1000	1000	20000 [A]	

Table 2-3-5. Tropical Veneer Exported from Europe in 1992 (m3)

Importers / Exporters	EUROPE											TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*Spain*	*UK*	*Austria*	*Sweden*	*Switzerland*	
Belgium			6000 F	7000 F	1000 F	4000 F	1000 F	1000 F	1000 F	1000 F		5000 I
					700	*1000*			*47*	*2*		
Denmark				133 W	133 W	133 W		133 W		399 W		1000
									1	*66*		
France	3000 F	3000 F		9000 F	19000 F	1000 F	7000 E	1000 F	1000 F	1000 F	1000 F	3000 I
	5000 F	*133 W*			*300*				*16*		*4*	
Germany												19000
	6000 F	*798 W*	*100 M*			*1000*			*233*	*361*	*200*	
Italy												2000 I
		665 W	*100 M*						*75*	*41*	*5*	
Netherlands	2000							1000				6000
			1700 M							*6*		
Spain			12000 F									1000 I
					2900				*2*			
UK												5000
											1	
Austria				6							15	0
					100						*20*	
Sweden		45		3		6						0 R
Switzerland				40					4			0 R
									4			
Total	*16000 I*	*5000*	*19000 M*	*85000*	*68700*	*13000*	*1000 I*	*17000*	*1000*	*1000*	*1000*	

Table 2-4-1. Tropical Plywood Exported from Africa and Latin America in 1992 (m3)

Importers / Exporters	EUROPE									N. AMERICA		TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*Spain*	*UK*	*Sweden*	*Canada*	*US*	
Cameroon			**1497** W*		**1064** W*		**243** W*					**3000** I
	100 M		*2200* M		*1000*							
Congo												**0** I
Gabon	**488**		**9096**		**208**	**612**	**384**	**130**				**157000** I
			15000 M		*1000*							
Ghana				**440**		**5**						**2000**
Other Africa												
				1000	*800*			*3443*		*5*		
Brazil	**49060**	**7050**	**5050**	**9040**	**10640**	**8090**	**1350**	**113480**	**4530**	**20**	**165300**	**509000**
	28400 M		*9500* M	*16000*		*6000*		*114856*	*741*	*173*	*73018*	
Colombia		**100**						**200**				**5000**
								140				
Ecuador			**97** *		**47** *		**523** *	**873** *	**153** *	**83** *	**10996** *	**25000** *
											4075	
Total	*148000* M	*100000* I	*193000* *	*218000*	*52800*	*322000*	*10000* I	*634000*	*13000* I	*58000*	*1053000*	

Table 2-4-2. Tropical Plywood Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	ASIA-PACIFIC								N. AMERICA		TOTAL
	India	Thailand	Australia	China	(Taiwan)	Japan	New Zealand	Rep. of Korea	Canada	US	
China						180					0 [I]
										158	
(Taiwan)						6794 [*]					159000 [*]
						3000			778	14019	
India											13000 [Y]
						1000		1000	804	1481	
Indonesia	3230	18310	33980	1629670	695760	2722620	570	1003560	34180	989810	8761000
		13000	29000	1209560	659000 [F]	2777000	40	642000	48406	764893	
Malaysia	3000	11100	1900	294000	127300	100600	400	2000		190300	1670000
		14000	5000	175398	91470 [*]	93000	271	5000	164	180707	
Philippines											85000
						1000	184		622	7175	
Thailand											3000
					340 [*]	0					
Others											
		3000	7000	36339			176			1060	
Total	360000 [Y]	41000	28000	1424000 [I]	741000 [*]	2882000	1000	648000	58000	1053000	

Table 2-4-3. Tropical Plywood Exported from Asia-Pacific in 1992 (m3)

Importers / Exporters	EUROPE										TOTAL
	Belgium	*Denmark*	*France*	*Germany*	*Italy*	*Netherlands*	*Spain*	*UK*	*Austria*	*Sweden*	
China								**522**			**0** [T]
					100			*2507*			
(Taiwan)								**4897** [•]			**159000** [•]
				1000	*100*			*5269*		*166*	
India											**13000** [Y]
										165	
Indonesia	**302960**	**93970**	**173620**	**82810**	**13270**	**166600**	**950**	**291820**		**1100**	**8761000**
	96400 [M]		*169900* [M]	*176000*	*19200*	*164000*		*302318*	*548*	*4958*	
Malaysia	**6600**	**3100**	**500**	**2500**	**5600**	**8800**	**400**	**124400**	**27900**	**2300**	**1670000**
	9400 [M]		*2400* [M]	*5000*	*1900*	*10000*		*114882*	*53*	*518*	
Philippines											**85000**
			900 [M]	*3000*		*12000*		*151*		*95*	
Thailand										**1000**	**3000**
			200 [M]								
Others											
				14000	*900*	*20000*		*24243*	*26*	*420*	
Total	*148000* [M]	*100000* [I]	*193000* [•]	*218000*	*52800*	*322000*	*10000* [I]	*634000*	*2000*	*13000* [I]	

Table 2-4-4. Tropical Plywood Exported from Europe and North America in 1992 (m3)

Importers / Exporters	EUROPE									N. AMERICA		TOTAL
	Belgium	Denmark	France	Germany	Italy	Netherlands	UK	Austria	Switzerland	Canada	US	
Belgium			**44000** F	**30000** F		**28000** F	**20000** F					**48000** I
			6500 M			*18000*						
France	**10000** F	**1000** F		**52000** F	**20000** F	**52000** F	**4000** F	**4000** F	**9000** F			**30000** I
	14000 F				*13600*	*6000*		*572*	*4200*		*35*	
Germany												**3000** I
	9000 F		*9600* M		*500*			*88*	*300*		*9*	
Italy	**1000** F		**9000** F	**53000** F		**3000** F	**4000** F	**4000** F	**8000** F		**1000** F	**9000** I
	1000 F		*11660* M					*32*	*600*		*358*	
Netherlands	**26000**		**6000**	**3000**			**1000**					**37000**
			1400 M					*2*	*200*	*51*	*574*	
Finland							**200**					**0** E
					500						*582*	
Canada											**4773**	**6000**
											4145	
US												**82000**
								34		*7165*		
Total	*148000* M	*100000* I	*193000* *	*218000*	*52800*	*322000*	*634000*	*2000*	*7000*	*58000*	*1053000*	

Appendix 3

Value of Trade in Tropical Timber Products in 1992

Table 3-1. ITTO Consumers 82
Table 3-2. ITTO Producers 83

Appendix 3

Table 3-1. Value of Trade in Tropical Timber Products by ITTO Consumers in 1992 (1000 $)

Country	Reported Currency	Rate [a]	Logs		Sawnwood		Veneer		Plywood		Total	
			Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Australia	A$	0.735				75215		5973		19880		101069
Austria	US$		0	1000	1000	12000	0	2000	0	1000	1000	16000
Canada	US$		2	549	586	8193	299	1560	2186	20511	3073	30813
China	US$		600	244218	3295	75629	372	51689	995	377379	5262	748915
Egypt	US$			1061		608		25959				27628
EU												
Denmark [b]	D Krone	0.166	0	909	4112	14278	3884	10310	11496	164325	19492	189822
Netherlands	Guilder	0.570	5130	27929	58137	265607	6840	9120	29639	167572	99745	470228
UK	Pound	1.766		5897		27635		28919		278489		340941
Finland	US$				24	5069	70	1292	1	210	95	6571
Japan	US$			1746113	84	655009	11065	87650	693	772885	11842	3261657
New Zealand	NZ$	0.538		61		1661		884		458		3065
Republic of Korea	US$			423833	73	175722	2	5470	2814	234490	2889	839515
Sweden	US$		37	475	882	3960	520	1664	130	5940	1569	12039
Switzerland	US$		8	3501	240	9025	151	703	141	7215	540	20444
United States	US$			2145		97649		24785		425689		550268
ITTO Consumers			**5777**	**2457690**	**68434**	**1427262**	**23203**	**257978**	**48094**	**2476044**	**145507**	**6618975**

a) Average conversion rate from foreign currency to U.S. dollars, from FAO 1992 Yearbook of Forest Products. b) Includes non-tropical imports

Table 3-2. Value of Trade in Tropical Timber Products by ITTO Producers in 1992 (1000 $)

Country	Reported Currency	Rate [a]	Logs		Sawnwood		Veneer		Plywood		Total	
			Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Africa			**154053**	**59**	**72931**	**900**	**17230**	**5**	**4336**	**218**	**248549**	**1182**
Gabon	US$		129190		141	159	141	0	3618	63	133089	222
Ghana	US$		24863		72790		17089		718		115460	
Togo	US$			59		741		5		155		960
Asia-Pacific			**1687637**	**353179**	**1428842**	**444668**	**213824**	**8096**	**4115840**	**26403**	**7446144**	**832346**
Indonesia	US$				3591				3548013		3551604	
Malaysia	Ringgit	0.393	1502487	3211	1338917	5644	194045		534459		3569910	8855
Myanmar	US$		27996		22997						50993	
PNG [b]	US$		157150		12	40					157162	40
Philippines [b]	US$			61408	14542	11340	7525	186	31487	815	53554	73749
Thailand	US$		4	288560	48782	427644	12254	7910	1881	25588	62921	749702
Latin America			**18001**	**35204**	**215594**	**1628**	**39505**	**216**	**165674**	**3903**	**438775**	**40951**
Bolivia	US$				44917		1084		932		46933	
Brazil	US$		3408		143661		37180		150412		334661	
Colombia	US$			1602	995		39		3154	538	4188	2140
Ecuador *	US$				16398		1203		9557		27157	
Guyana	US$		15		3790						3805	
Honduras	US$		14578	16	895	9			1523	167	16996	192
Peru [b]	US$			122	4938	270		216	96	306	5034	914
Trinidad	US$					1349				2891		4240
Venezuela *	US$			33464								33464
ITTO Producers			**1859691**	**388442**	**1717366**	**447196**	**270560**	**8318**	**4285851**	**30523**	**8133468**	**874479**
ITTO Total			**1865468**	**2846133**	**1785799**	**1874458**	**293762**	**266296**	**4333946**	**2506567**	**8278975**	**7493454**

a) Average conversion rate from foreign currency to U.S. dollars, from FAO 1992 Yearbook of Forest Products. b) Includes non-tropical imports.

Appendix 4

Major Species Traded in 1992-93

Table 4-1. Imports by Consumers 86
Logs 86
Sawnwood 88
Veneer 90
Plywood 90
Table 4-2. Exports by Producers 91
Logs 91
Sawnwood 95
Veneer 97
Plywood 98

Appendix 4.

Table 4-1-1. Major Tropical Log Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Egypt	*Khaya anthoteca*	Acajou (African Mahogany)		
	Khaya senegalensis	Acajou (African Mahogany)		
	Toona spp.	Toone		
Japan	*Shorea spp.*	Red Meranti	1905.00	315
	Dipterocarpus spp. / Dryobalanops spp.	Keruing, Kapur	1252.00	301
	Parashorea spp.	White Seraya	1093.00	325
	Shorea robusta	Sal	2.50	200
	Dipterocarpus spp.	Malaysian Dipterocarpus	2.00	200
Netherlands	*Lophira alata*	Azobé	62.00	
	Aucoumea klaineana	Okoumé	37.00	
	Dicorynia guianensis	Basralocus	5.00	
	Triplochiton scleroxylon	Obeche	5.00	
	Entandrophragma cylindricum	Sapelli	3.00	
	Entandrophragma utile	Sipo	3.00	
	Nauclea diderrichii	Bilinga	3.00	
	Tieghemella heckelli	Makoré	2.00	
	Tectona grandis	Teak	1.00	
	Swietenia spp.	Mahogany	1.00	
	Heritiera utilis	Niangon	1.00	
Rep. of Korea	*Dipterocarpus spp.*	Keruing	185.00	269
	Dyera costulata	Jelutong	29.00	304
	Dryobalanops spp.	Kapur	7.00	237
	Tectona grandis	Teak	1.00	613
USA	*Tectona grandis*	Teak		
	Koompasia malaccensis	Kempas		
	Intsia spp.	Merbau		
	Gonystylus bancanus	Ramin		
	Dyera costulata	Jelutong		
	Dryobalanops spp.	Kapur		
	Dipterocarpus spp.	Keruing		
	Dactylocladus stenostachys	Jongkong		
		Subtotal	**2.60**	**503**
	Triplochiton scleroxylon	Obeche		
	Tieghemella heckelli	Makoré		
	Khaya spp.	Acajou (African Mahogany)		
	Entandrophragma utile	Sipo		
	Entandrophragma cylindricum	Sapelli		
	Chlorophora excelsa	Iroko		
	Aucoumea klaineana	Okoumé		
		Subtotal	**1.52**	**262**
	Shorea spp.	Yellow Meranti		
	Shorea spp.	White Lauan		
	Shorea spp.	White Meranti		
	Shorea albida	Alan		
	Parashorea spp.	White Seraya		
		Subtotal	**0.25**	**656**

Table 4-1-1. Major Tropical Log Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
	Shorea spp.	Dark Red Meranti		
	Shorea spp.	Light Red Meranti		
	Shorea rugosa	Meranti Bakau		
		Subtotal	**0.17**	**538**
	Terminalia superba	Limba		
	Pycnanthus angolensis	Ilomba		
	Mansonia altissima	Mansonia		
	Lovoa trichilioides	Dibétou		
	Lophira alata	Azobé		
	Entandrophragma angolense	Tiama		
		Subtotal	**0.03**	**1071**

Table 4-1-2. Major Tropical Sawnwood Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Egypt	*Khaya senegalensis*	Acajou (Khaya)	2.58	236
	Khaya mahogani	Acajou (Mahogany)		
	Toona spp.	Toone		
Japan	*Shorea spp.*	Red / White Meranti	96.00	512
Netherlands	*Shorea spp.*	Meranti	415.00	
	Shorea spp.	Balau	45.00	
	Intsia spp.	Merbau	39.00	
	Lophira alata	Azobé	25.00	
	Chlorophora spp.	Iroko	13.00	
	Gonystylus bancanus	Ramin	9.00	
	Dipterocarpus spp.	Keruing	9.00	
	Heritiera spp.	Mengkulang	4.00	
	Tectona grandis	Teak	2.00	
	Parashorea spp.	White Seraya	2.00	
	Nauclea diderrichii	Bilinga	1.00	
		Total	3.00	664
New Zealand	*Tectona grandis*	Teak		
	Shorea spp.	Lauan		
	Shorea spp.	White Seraya		
	Shorea spp.	Meranti		
	Shorea albida	Alan		
	Koompasia malaccensis	Kempas		
	Dryobalanops spp.	Kapur		
	Gonystylus bancanus	Ramin		
	Dyera costulata	Jelutong		
	Intsia spp.	Merbau		
	Dipterocarpus spp.	Keruing		
	Dactylocladus stenostachys	Jongkong		
		Subtotal	**3.00**	**664**
USA	*Swietenia macrophylla*	Mahogany	98.29	543
	Shorea spp.	White Lauan		
	Shorea spp.	Yellow Meranti		
	Dyera costulata	Jelutong		
	Shorea spp.	Light Red Meranti		
	Shorea spp.	White Meranti		
	Shorea rugosa	Meranti Bakau		
	Shorea spp.	Dark Red Meranti		
	Shorea albida	Alan		
	Intsia spp.	Merbau		
	Koompasia malaccensis	Kempas		
	Parashorea spp.	White Seraya		
	Gonystylus bancanus	Ramin		
	Dactylocladus stenostachys	Jongkong		
	Dryobalanops spp.	Kapur		
		Subtotal	**22.28**	**493**

Table 4-1-2. Major Tropical Sawnwood Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
	Dipterocarpus spp.	Keruing	21.58	449
	Tectona grandis	Teak	15.56	697
	Virola spp. / Ocotea spp.	Virola (Baboen), Imbuia	10.78	300
	Ochroma pyramidale	Balsa	8.93	341
	Pycnanthus angolensis	Ilomba		
	Terminalia superba	Limba		
	Triplochiton scleroxylon	Obeche		
	Tieghemella heckelli	Makoré		
	Entandrophragma cylindricum	Sapelli		
	Mansonia altissima	Mansonia		
	Lovoa trichilioides	Dibétou		
	Lophira alata	Azobé		
	Khaya spp.	Acajou (African Mahogany)		
	Chlorophora excelsa	Iroko		
	Entandrophragma utile	Sipo		
	Aucoumea klaineana	Okoumé		
	Entandrophragma angolense	Tiama		
		Subtotal	**3.32**	**320**

Table 4-1-3. Major Tropical Veener Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Egypt	*Khaya senegalensis*	Acajou (Khaya)	0.14	1860
	Toona spp.	Toone		
	Albizia lebbeck	Kokko (Albizia)		
	Khaya mahogani	Acajou (Mahogany)		
Japan	*Shorea spp.*	Red / White Meranti	239.00	
USA	*Aniba roseadora*	Bois de Rose Femelle		
	Aucoumea klaineana	Okoumé		
	Dalbergia spp.	Palissandre du Bresil		
	Entandrophragma cylindricum	Sapelli		
	Entandrophragma utile	Sipo		
	Khaya spp.	Acajou (African Mahogany)		
	Shorea spp.	Light Red Meranti		
	Shorea spp.	Dark Red Meranti		
	Shorea spp.	White Lauan		
	Swietenia macrophylla	Mahogany		
	Terminalia superba	Limba		
	Triplochiton scleroxylon	Obeche		
	Virola spp.	Virola (Baboen)		
		Subtotal	**14.95**	**1000**

Table 4-1-4. Major Tropical Plywood Species Imported by ITTO Consumers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Egypt	*Eucalyptus spp.*	Eucalypt		
	Khaya mahogani	Acajou (Mahogany)		
	Khaya senegalensis	Acajou (Khaya)		
Japan	*Shorea spp.*	Red / White Meranti	7945.00	241
USA	*Entandrophragma cylindricum*	Sapelli		
	Entandrophragma utile	Sipo		
	Khaya spp.	Acajou (African Mahogany)		
	Aniba roseadora	Bois de Rose Femelle		
	Aucoumea klaineana	Okoumé		
	Dalbergia spp.	Palissandre du Bresil		
	Terminalia superba	Limba		
	Triplochiton scleroxylon	Obeche		
	Virola spp.	Virola (Baboen)		
	Swietenia macrophylla	Mahogany		
	Shorea spp.	Light Red Meranti		
	Shorea spp.	White Lauan		
	Shorea spp.	Dark Red Meranti		
		Subtotal	**900.20**	**472**
	Cedrela spp.	Cedro (Spanish Cedar - Face ply)	15.46	395
	Kalopanax pictus	Sen (Face ply)	2.30	733
	Swietenia macrophylla	Mahogany (Face ply)	0.80	708
	Kalopanax pictus	Sen (Face ply)	0.40	634
	Swietenia macrophylla	Mahogany (Decorative Plywood)	0.14	560

Table 4-2-1. Major Log Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Cameroon	*Triplochiton scleroxylon*	Obeche (Ayous)	325.20	223
	Entandrophragma cylindricum	Sapelli (Assié)	235.71	317
	Lophira alata	Azobé (Akoga)	45.62	202
	Entandrophragma utile	Sipo (Asseng-Assié)	42.95	423
	Afzelia bipindensis	Doussié (M'banga, Lingué)	13.02	692
	Chlorophora excelsa	Iroko (Abang)	69.39	240
	Terminalia superba	Limba (Frake)	80.78	251
	Baillonella toxisperma	Moabi (Adjap)	27.66	327
	Pericopsis elata	Afrormosia (Obang)	16.64	281
	Lovoa trichilioides	Dibétou (Bibolo)	18.50	289
Côte d'Ivoire *	*Brachystegia cynometroides*	Naga	27.29	131
	Heritiera utilis	Niangon	23.94	236
	Pycnanthus angolensis	Ilomba	22.98	94
	Terminalia ivorensis	Framiré	21.60	200
	Antiaris africana	Ako (Chenchen)	16.95	113
	Terminalia superba	Limba	14.30	108
	Piptadeniastrum africanum	Dabéma	13.35	107
	Albizia ferruginea	Iatandza	12.07	114
	Triplochiton scleroxylon	Obeche (Samba)	11.93	125
Gabon	*Baillonella toxisperma*	Moabi	39.66	48
	Guibourtia tessmannii	Bubinga (Kevazingo)	39.08	44
	Distemonanthus benthamianus	Movingui	20.57	24
	Heritiera densiflora	Niangon	19.08	61
	Hallea ciliata	Abura (Bahia)	18.53	39
	Guibourtia arnoldiana	Mutényé	15.80	44
	Pterocarpus soyauxii	Padouk	14.51	22
	Tieghemella africana	Makoré (Douka)	14.51	62
	Gossweilerodendron balsamiferum	Tola	12.92	46
	Dacryodes igaganga	Igaganga	12.70	32
	Chlorophora excelsa	Iroko	10.02	44
	Khaya ivorensis	Acajou (African Mahogany)	7.86	71
	Entandrophragma cylindricum	Sapelli	6.80	84
	Lovoa trichilioides	Dibétou	6.29	74
	Afzelia bipindensis	Doussié	6.11	73
	Dacryodes buettneri	Ozigo	5.31	642
	Entandrophragma utile	Sipo	4.44	115
	Aucoumea klaineana	Okoumé	0.75	80
Ghana	*Ceiba pentandra*	Fuma (Ceiba)	167.49	92
	Antiaris africana	Ako (Chenchen)	98.53	99
	Triplochiton scleroxylon	Obeche (Wawa)	55.93	131
	Terminalia superba	Limba (Ofram)	40.72	128
	Pycnanthus angolensis	Ilomba (Otie)	30.51	107
	Canarium schweinfurthii	Aiélé (African Canarium)	21.74	101
	Daniellia ogea	Faro (Shedua)	16.27	93
	Lophira alata	Azobé (Ekki)	13.61	125
	Pterygota macrocarpa	Koto (Kyere)	9.58	266
	Piptadeniastrum africanum	Dabéma (Dahoma)	8.83	100
	Nauclea diderrichii	Bilinga (Kussia)	6.86	116
	Rhodognaphalon brevicuspe	Kondroti (Bombax)	6.25	109
	Celtis mildbraedii	Ohia (Celtis)	6.02	117
	Amphimas pterocarpoides	Lati (Yaya)	3.70	94
	Cynometra ananta	Apomé (Ananta)	2.03	100

Table 4-2-1. Major Log Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Ghana	*Guarea cedrata*	Bossé (Guarea)	1.14	192
	Petersianthus macrocarpus	Essia	1.07	95
Malaysia (Sabah)	*Shorea spp.*	Red Seraya	41.16	148
	Parashorea spp.	White Seraya	23.77	150
	Dryobalanops spp.	Kapur	10.75	123
	Shorea spp.	Yellow Meranti (Yellow Seraya)	8.17	151
	Lithocarpus spp.	Lithocarpus	8.00	75
	Shorea spp.	Balau (Selangan Batu)	7.99	116
	Dipterocarpus spp.	Keruing	7.22	123
	Koompasia malaccensis	Kempas (Menggeris)	4.44	72
	Shorea spp.	White Meranti (Melapi)	4.39	147
	Octomeles sumatrana	Benuang (Binuang)	3.82	83
	Lauraceae	Medang	3.52	78
	Mezzettia spp.	Mempisang (Karai)	3.26	74
	Shorea spp.	Red Balau (Selangan Batu Merah)	3.25	146
	Intsia bijuga	Merbau	3.12	187
	Agathis spp.	Agathis (Mengilan)	2.87	163
	Cratoxylum spp.	Geronggang	2.81	82
	Shorea spp.	Red Meranti (Tengkawang)	2.29	120
	Duabanga moluccana	Magas	2.14	81
	Endospermum spp.	Sesendok (Takaliu)	2.07	83
	Koompasia malaccensis	Kempas (Impas)	2.01	84
	Alstonia spp.	Pulai	1.94	74
		Obah	1.66	87
	Calophyllum spp.	Bintangor (Calophyllum)	1.56	108
	Hopea spp.	Merawan (Gagil)	1.39	119
	Canarium spp.	White Dhup (Kedongong)	1.37	172
	Dialium platysepalum	Keranji	1.16	171
	Pterospermum spp.	Bayur	1.07	73
	Lophopetalum spp.	Perupok	1.04	155
	Shorea pauciflora	Dark Red Meranti (Obar Suluk)	0.91	134
		Bawang-Bawang	0.86	95
		Ranggu	0.66	73
	Dyera costulata	Jelutong	0.63	81
	Dillenia spp.	Simpoh	0.62	69
	Palaquium spp.	Nyatoh	0.60	142
	Vatica spp.	Resak	0.58	75
	Mangifera spp.	Machang (Asam)	0.51	71
	Nauclea orientalis	Bangkal	0.50	70
	Heritiera spp.	Mengkulang (Kembang)	0.48	122
	Durio spp.	Durian	0.48	72
	Gluta spp.	Rengas	0.44	71
		Perapat Hutan	0.41	74
	Campnosperma spp.	Terentang	0.41	66
	Sindora spp.	Sepetir	0.38	82
	Anisoptera spp.	Mersawa (Kayu Pengiran)	0.38	102
	Scaphium macropodum	Kembang Semangkok	0.34	82
		Terap	0.28	72
	Castanopsis acuminatissima	Berangan	0.26	83
		Darah-Darah	0.23	72
		Teluto	0.20	70
	Palaquium spp.	Nyatoh (Putat Daya)	0.19	75

Table 4-2-1. Major Log Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Malaysia (Sabah)	*Palaquium spp.*	Limpasa Ranggu	0.17	58
		Lamau-Lamau	0.16	70
	Anthocephalus chinensis	Kadam (Laran)	0.13	79
	Garcinia spp.	Kandis	0.09	77
	Mezzettia spp.	Mempisang (Pisang Pisang)	0.08	82
		Talisai	0.07	78
	Gonystylus macrophyllus	Ramin (Gaharu)	0.05	70
		Geriting	0.02	70
	Gonystylus spp.	Ramin (Garu-Garu)	0.02	80
		Morogis	0.01	80
	Hopea spp.	Merawan (Mata Kucing Hitam)	0.01	65
	Cratoxylum cochinchinense	Pelawan-Pelawan	0.00	65
Malaysia (Sarawak)	*Shorea spp.*	Meranti	4103.00	146
	Dryobalanops spp.	Kapur	974.00	139
	Dipterocarpus spp.	Keruing	718.00	128
	Shorea spp.	Selangan batu	433.00	122
	Shorea albida	Alan	236.00	83
	Dactylocladus spp.	Jongkong	187.00	83
	Sindora spp.	Sepetir	85.00	90
Myanmar	*Tectona grandis*	Teak	160.00	422
	Swintonia floribunda	Taung thayet	22.00	94
	Diptercarpus kerrii	Keruing (Gurjun)	15.00	92
	Pterocarpus macrocarpus	Padauk	5.00	333
	Dalbergia oliveri	Palissandre d'Asie (Tamalan)	1.00	530
Philippines		Igem	1.00	245
Papua New Guinea	*Calophyllum spp.*	Bintangor (Calophyllum)	173.66	232
	Homalium foetidum	Malas	160.79	140
	Pometia pinnata	Kasai (Taun)	114.04	205
	Terminalia spp.	Terminalia	79.56	182
	Anisoptera spp.	Mersawa	66.84	232
	Palaquium spp.	Nyatoh (Pencil Cedar)	50.57	238
	Buchanania spp.	Pink Satinwood	43.88	133
	Canarium indicum	White Dhup (Canarium)	42.77	170
	Octomeles sumatrana	Benuang (Erima)	40.57	163
	Dillenia spp.	Simpoh (Dillenia)	39.10	119
	Endospermum spp.	Sesendok (Basswood)	33.26	148
	Pterocymbium beccarii	Amberoi	27.86	124
	Syzygium spp.	Kelat (Water Gum)	23.88	123
	Celtis spp.	Ohia (Celtis)	22.89	120
	Burckella spp.	Nyatoh	21.29	186
	Intsia spp.	Merbau (Kwila)	19.88	229
	Mastixiodendrum spp.	Garo Garo	14.61	122
	Campnosperma spp.	Terentang (Campnosperma)	13.96	118
	Dysoxylum spp.	Dysox	13.59	114
	Albizia spp.	Kokko (Albizia)	12.40	105
	Dracontomelum dao	Paldao (Walnut)	11.95	190
	Cryptocarya spp.	Cryptocarya	11.62	114
	Pterygota horsfieldii	White Tulip Oak	10.95	130
	Garcinia spp.	Kandis	10.71	136
	Flindersia spp.	Ash Silver (Silkwood)	10.34	110
	Planchonella Kaenbandkina	Planchonella (White)	6.50	266
	Planchonella torricellensis	Planchonella (Red)	5.83	216

Table 4-2-1. Major Log Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Trinidad & Tobago	*Cedrela odorata*	Cedar	0.01	700
	Tectona grandis	Teak	0.40	1400
	Swietenia macrophylla	Mahogany	0.11	720
	Mora excelsa	Mora	0.02	900
	Nectandra surinamensis	Laurier mattack	0.00	400
	Hieronyma caribaea	Pilon (Tapana)	0.00	1200
	Sterculia caribaea	Kobé (Maho)	0.01	600

Table 4-2-2. Major Sawnwood Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Bolivia	*Swietenia macrophylla*	Mahogany (Mara)	160.00	300
	Amburana cearensis	Cerejeira (Roble)	45.00	200
	Cedrela spp.	Cedro	22.00	200
Cameroon	*Triplochiton scleroxylon*	Obeche (Ayous)		279
	Entandrophragma cylindricum	Sapelli (Assié)		721
	Chlorophora excelsa	Iroko (Abang)		538
	Entandrophragma utile	Sipo (Asseng-Assié)		915
	Terminalia superba	Limba (Frake)		286
	Afzelia bipindensis	Doussié (M'banga, Lingué)		996
	Khaya ivorensis	Acajou		634
	Baillonella toxisperma	Moabi (Adjap)		692
	Pericopsis elata	Afrormosia (Obang)		
	Guarea cedrata	Bossé (Ebangbemva)		346
Colombia	*Prioria copaifera*	Cativo	1.54	325
	Bombacopsis quinatum	Saqui-Saqui (Ceiba tolua)	0.31	179
	Cariniana pyriformis	Abarco	0.14	235
	Samanea saman	Compano	0.13	164
	Carapa guianensis	Andiroba (Guino)	0.03	161
Gabon	*Khaya ivorensis*	Acajou (African Mahogany)	50.76	68
	Entandrophragma angolense	Tiama	37.54	54
	Entandrophragma utile	Sipo	27.72	114
	Lovoa trichilioides	Dibétou	11.45	73
	Diospyros crassiflora	Ebenè (Ebony)	8.88	88
	Nauclea diderrichii	Bilinga	2.40	32
Ghana	*Triplochiton scleroxylon*	Obeche (Wawa)	108.78	235
	Chlorophora excelsa	Iroko (Odum)	45.24	360
	Khaya ivorensis	Acajou (African Mahogany)	19.09	409
	Terminalia superba	Limba (Ofram)	6.97	241
	Entandrophragma angolense	Tiama (Edinam)	6.76	356
	Terminalia ivorensis	Framiré (Emeri)	6.20	394
	Entandrophragma utile	Sipo (Utile)	5.73	566
	Piptadeniastrum africanum	Dabéma (Dahoma)	5.73	248
	Entandrophragma cylindricum	Sapelli (Sapele)	5.33	442
	Heritiera utilis	Niangon (Nyankom)	5.08	453
	Tieghemella heckelli	Makoré (Baku)	4.09	429
	Afzelia africana	Doussié (Papao)	4.04	461
	Pterygota macrocarpa	Koto (Kyere)	3.40	415
	Nauclea diderrichii	Bilinga (Kussia)	1.72	254
	Guarea cedrata	Bossé (Guarea)	1.12	356
	Lovoa trichilioides	Dibétou (African Walnut)	1.04	415
Guyana	*Ocotea rodiaei*	Greenheart	7.71	360
	Eperua falcata	Walaba (Wallaba)	2.21	154
	Peltogyne pubescens	Amarante (Purpleheart)	0.99	348
	Ocotea puberula	Silverballi	0.18	229
	Mora excelsa	Mora	0.15	262
	Carapa guianensis	Andiroba (Crabwood)	0.08	271
	Hymenaea courbaril	Courbaril (Locust)	0.01	338
	Diplotropis purpurea	Sucupira (Tatabu)	0.00	173

Table 4-2-2. Major Sawnwood Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Malaysia (Sabah)	*Shorea spp.*	Red Seraya	0.52	422
	Parashorea spp.	White Seraya	0.20	528
	Dipterocarpus spp.	Keruing	0.17	335
	Shorea spp.	Yellow Seraya	0.13	347
	Dryobalanops spp.	Kapur	0.10	310
	Calophyllum spp.	Bintangor (Calophyllum)	0.07	258
	Agathis spp.	Agathis (Mengilan)	0.06	632
	Shorea spp.	Selangan batu	0.05	322
	Dialium platysepalum	Keranji	0.02	216
Malaysia (Sarawak)	*Shorea spp.*	Meranti	247.91	216
	Gonystylus bancanus	Ramin	102.91	411
	Dryobalanops spp.	Kapur	102.14	254
	Dipterocarpus spp.	Keruing	84.17	235
	Shorea spp.	Selangan batu	66.39	291
	Shorea albida	Alan	30.19	228
Myanmar	*Tectona grandis*	Teak	50.63	399
Liberia	*Heritiera utilis*	Niangon	1.90	180
	Entandrophragma utile	Sipo	0.04	220
	Nauclea diderrichii	Bilinga (Kussia)	0.01	80
	Terminalia ivorensis	Framiré	0.06	160
Philippines	*Shorea spp.*	Lauan	1.00	301
		Red meranti, Ramin, Kapur	25.00	417
	Shorea negrosensis	Red Lauan (Tangile)	1.00	500
	Dipterocarpus spp.	Keruing (Apitong)	1.00	376
	Paraserianthes falcataria	Falcata (Moluccan sau)	28.00	103

Table 4-2-3. Major Veneer Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Gabon	*Aucoumea klaineana*	Okoumé	844.40	167
Ghana	*Aningeria altissima*	Aningré (Aningeria)	7.88	822
	Ceiba pentandra	Fuma (Ceiba)	4.44	268
	Tieghemella heckelli	Makoré (Baku)	2.43	673
	Daniellia ogea	Faro (Shedua)	2.10	1411
	Khaya ivorensis, K. anthotheca	Acajou (African Mahogany)	1.55	584
	Entandrophragma cylindricum	Sapelli (Sapele)	1.42	857
	Pycnanthus angolensis	Ilomba (Otie)	1.41	319
	Pterygota macrocarpa	Koto (Kyere)	1.40	672
	Entandrophragma angolense	Tiama (Edinam)	0.77	599
	Entandrophragma candollei	Kosipo (Omu)	0.49	659
	Triplochiton scleroxylon	Obeche (Wawa)	0.33	1900
	Antiaris africana	Ako (Chenchen)	0.33	868
	Terminalia superba	Limba (Ofram)	0.29	713
Malaysia (Sabah)	*Shorea spp.*	Red Seraya	305.75	358
	Shorea spp.	Yellow Seraya	35.08	371
	Parashorea spp.	White Seraya	26.78	468
	Octomeles sumatrana	Benuang (Binuang)	8.36	418
	Dryobalanops spp.	Kapur	6.18	337
	Dipterocarpus spp.	Keruing	2.34	353
	Agathis spp.	Agathis (Mengilan)	1.13	303
	Calophyllum spp.	Bintangor (Calophyllum)	1.04	251
	Anthocephalus chinensis	Kadam (Laran)	0.78	364
	Dillenia spp.	Simpoh	0.42	514
	Endospermum spp.	Sesendok (Takaliu)	0.40	396
	Parashorea spp.	White Meranti (Melapi)	0.40	361
	Lauraceae	Medang	0.12	283
	Gonystylus bancanus	Ramin	0.05	297
	Scaphium macropodum	Kembang Semangkok	0.04	283
	Palaquium spp.	Nyatoh	0.01	1563
Philippines	*Shorea spp.*	Lauan	13.00	383

Table 4-2-4. Major Plywood Species Exported by ITTO Producers, 1992 - 1993

COUNTRY	SCIENTIFIC NAME	VERNACULAR NAME	VOLUME 1000 m3	VALUE $/m3
Ghana	*Ceiba pentandra*	Fuma (Ceiba)	1.75	373
	Khaya ivorensis	Acajou (African Mahogany)	0.34	293
	Antiaris africana	Ako (Chenchen)	0.15	247
	Entandophragma spp.	Mixed Red Wood	0.12	427
	Triplochiton scleroxylon	Obeche (Wawa)	0.02	246
	Celtis mildbraedii	Ohia (Celtis)	0.02	389
	Rhodognaphalon brevicuspe	Kondroti (Bombax)	0.01	389
	Pterygota macrocarpa	Koto (Kyere)	0.01	389
	Daniellia ogea	Faro (Shedua)	0.00	389
Malaysia (Sabah)	*Shorea spp.*	Red Seraya	204.67	390
	Parashorea spp.	White Seraya	30.13	499
	Shorea spp.	Yellow Seraya	19.85	341
	Dryobalanops spp.	Kapur	5.57	450
	Endospermum spp.	Sesendok (Takaliu)	0.95	336
	Dipterocarpus spp.	Keruing	0.87	587
	Agathis spp.	Agathis (Mengilan)	0.50	300
	Lauraceae	Medang	0.11	296
	Octomeles sumatrana	Benuang (Binuang)	0.10	395
	Duabanga moluccana	Magas	0.06	297
Malaysia (Sarawak)	*Dryobalanops spp.*	Kapur		455
	Shorea spp.	Meranti		455
Myanmar	*Parashorea stellata*	Gerutu (Thingadu)	4.83	350
	Diptercarpus spp.	Keruing (Kanyin)	4.83	350
	Swintonia floribunda	Taung thayet	4.83	350
	Diptercarpus tuberculatus	Keruing (In)	4.83	350
Philippines	*Pterocarpus indicus/Dracontomelum d*	Padauk/Paldao (Narra/Dao)		1750
	Shorea spp.	Lauan	71.00	390

Appendix 5

Prices of Tropical Timber Products 1990-94

ABBREVIATIONS

LOG SPECIES CHARTS:

CI	=	Industrial Quality
FAQ	=	Fair Average Quality
FLAT	=	Flat Price
LM	=	Loyal et Marchand
LQ	=	Low Quality
SQ	=	Standard Quality

SAWNWOOD SPECIES CHARTS:

AD	=	Air Dried
C&S	=	Common and Selects
FAS	=	First and Seconds
GR	=	Green
KD	=	Kiln Dried
LG	=	Low Grade
LM	=	Loyal et Marchand
SELBET	=	Selects and Better
STANBET	=	Standard and Better
STD	=	Standard

PLYWOOD CHARTS:

mm	=	millimeters
MR	=	Moisture Resistant

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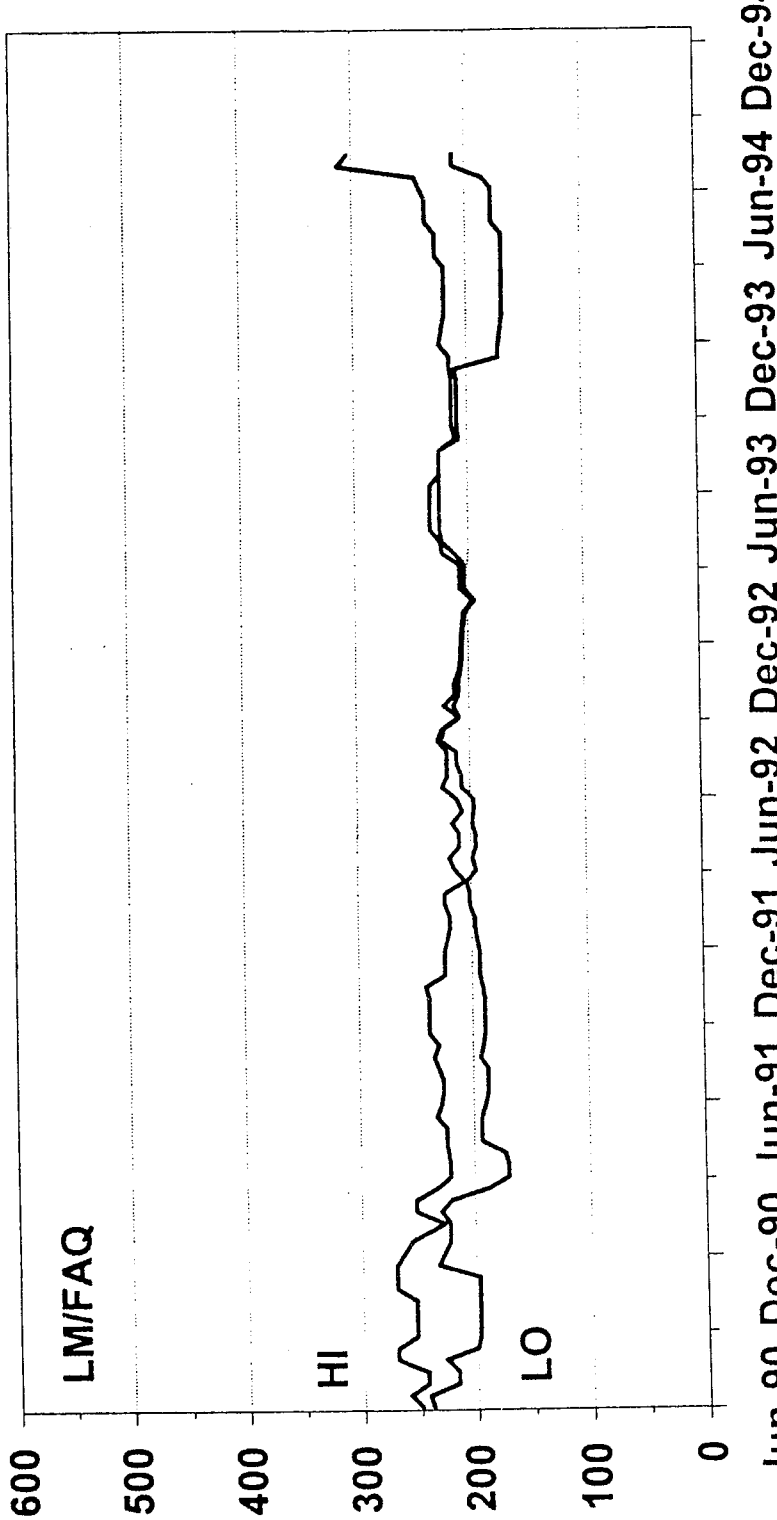
Table 5.6. Plywood 161

5.1 African Logs ($/m^3 FOB, 1990 dollars)

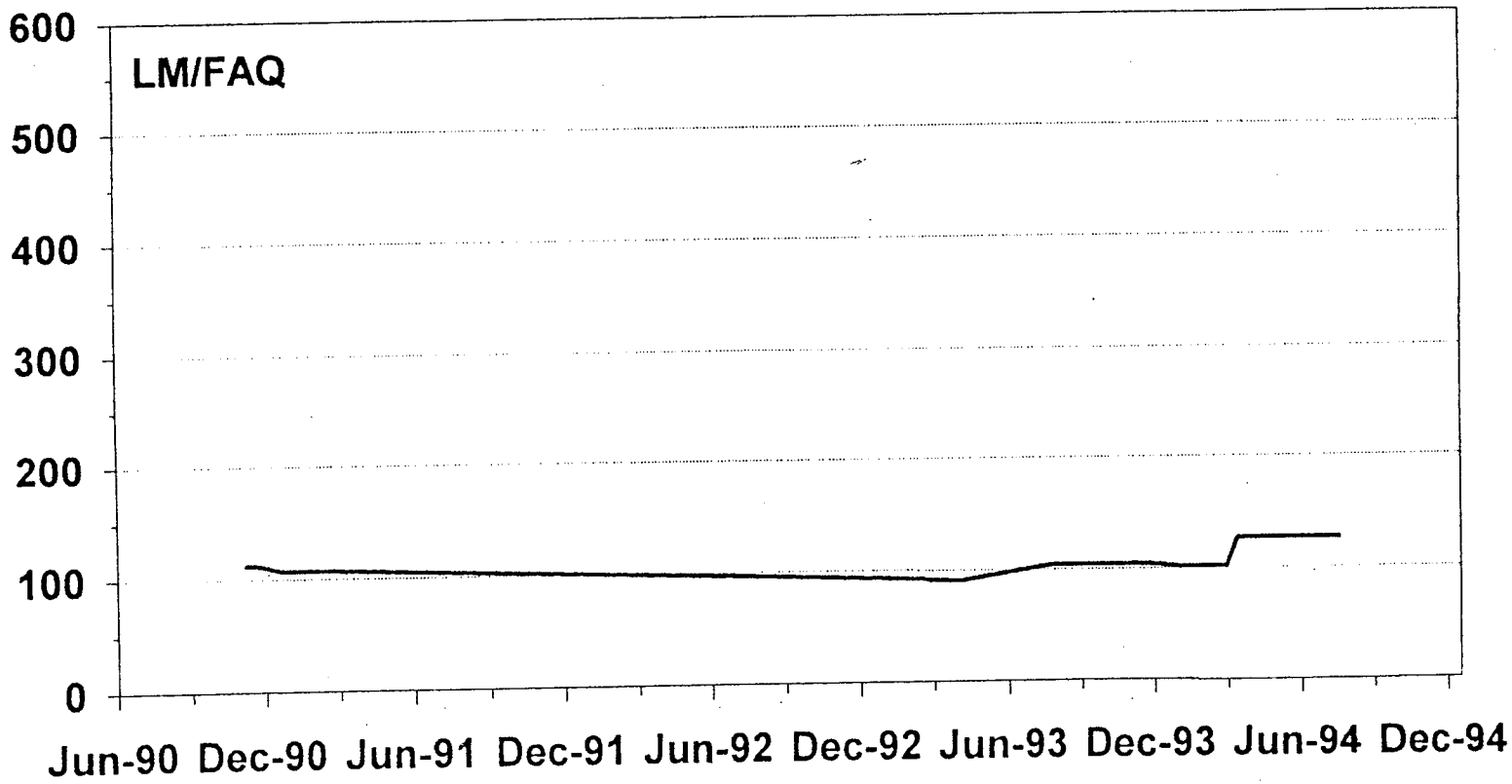
ACAJOU

Khaya spp. (Meliaceae)



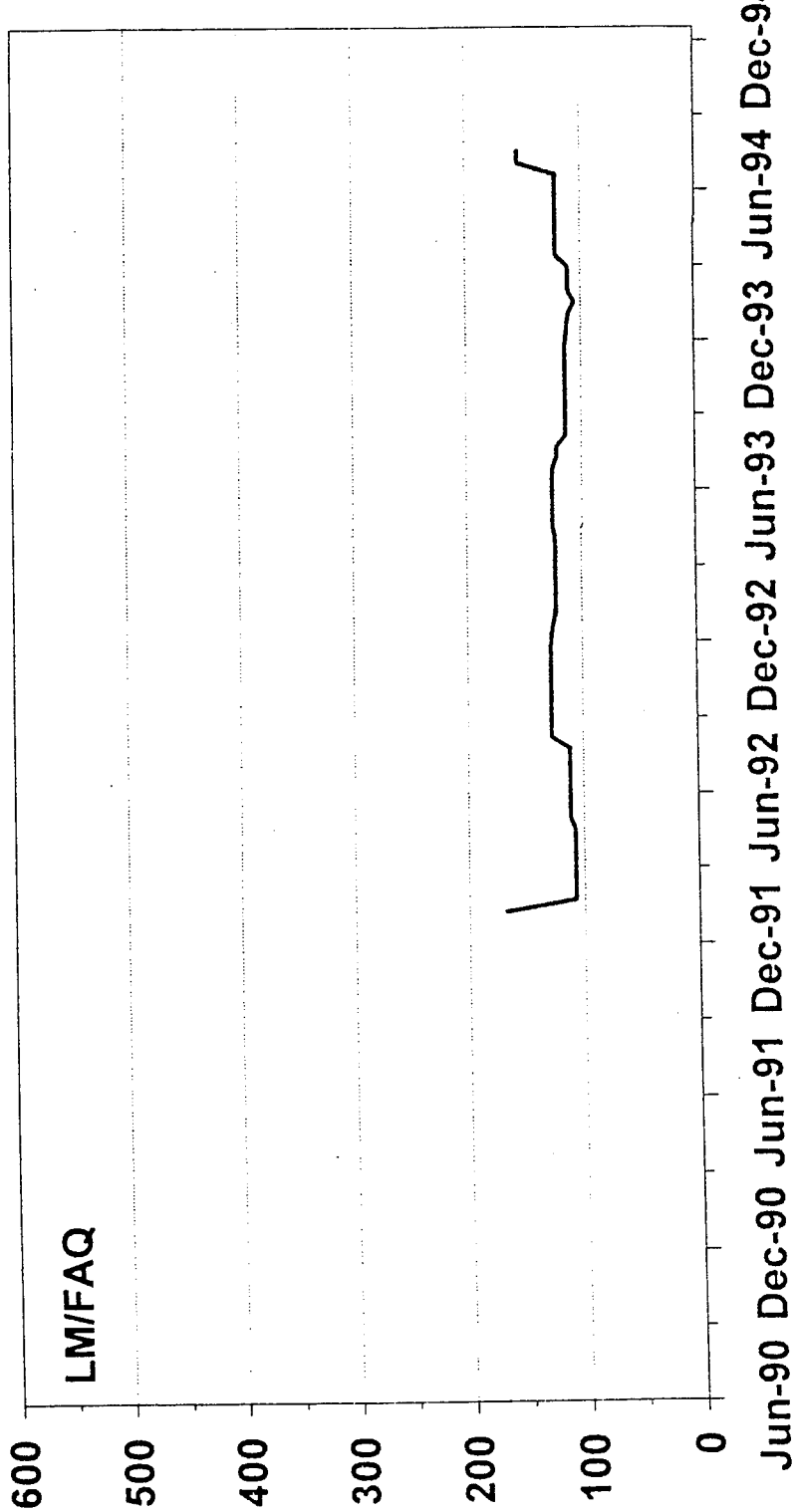
AIELE

Canarium schweinfurthii (Burseraceae)



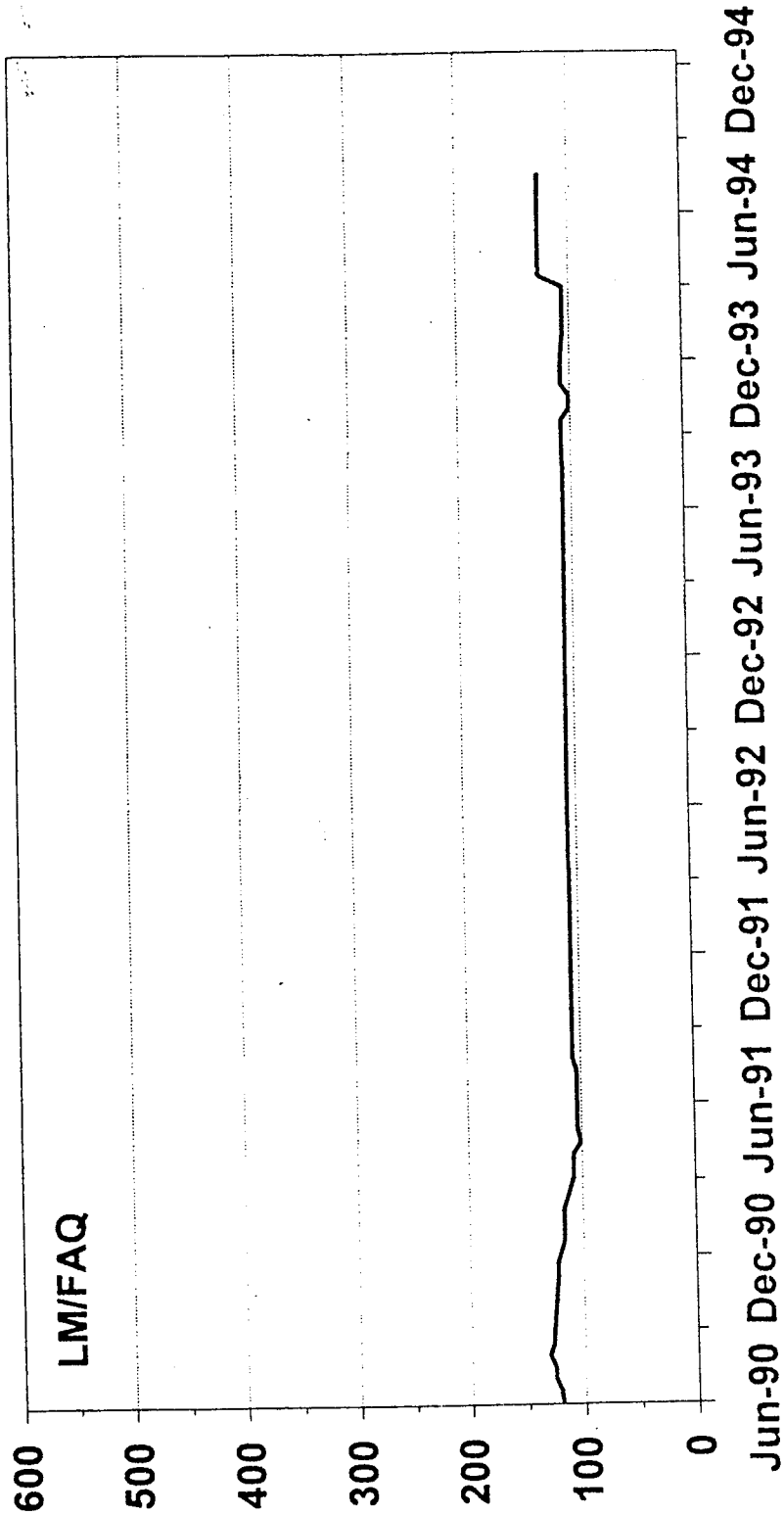
AZOBÉ

Lophira alata (Ochnaceae)



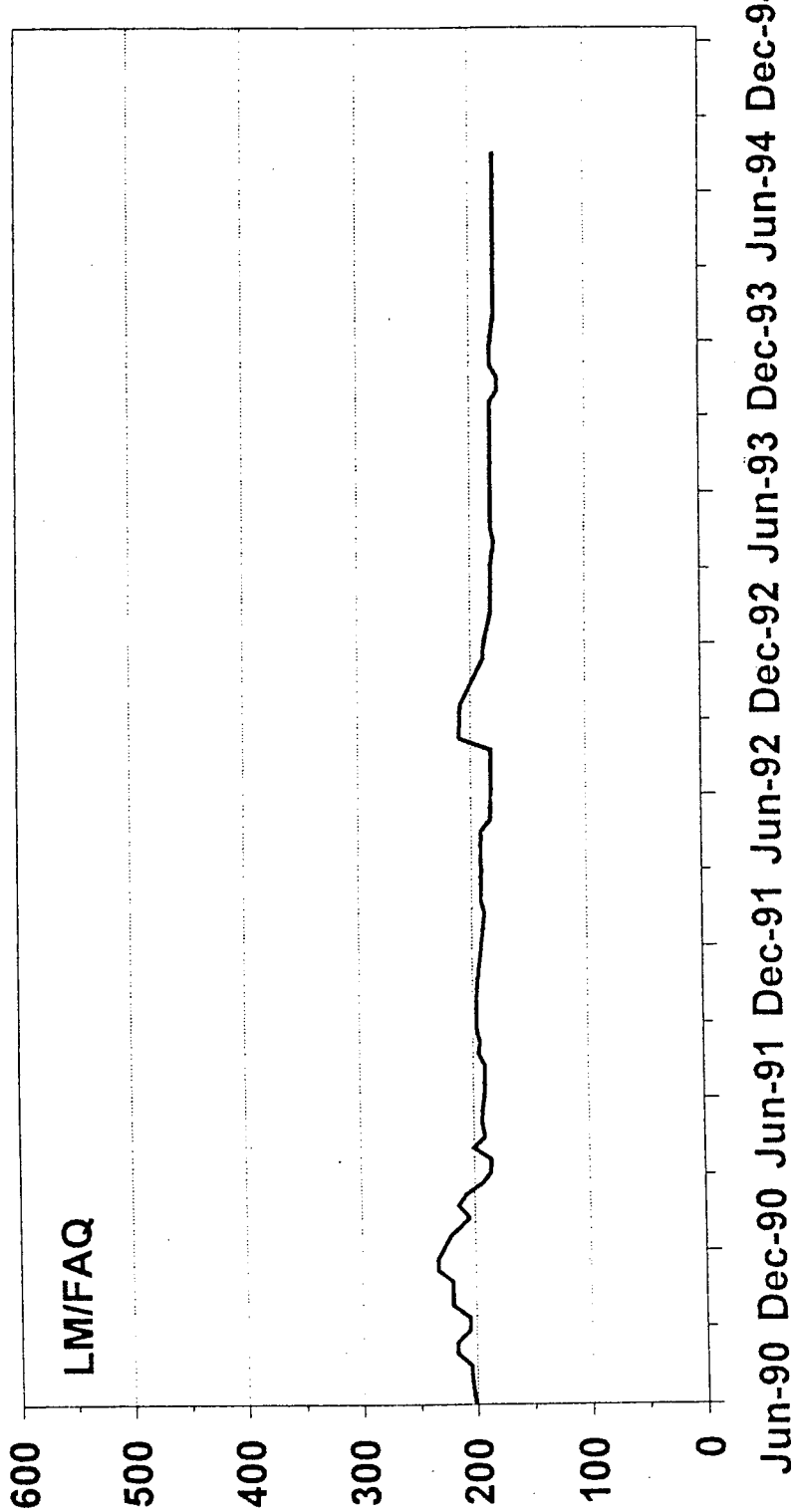
BILINGA

Nauclea spp. (Rubiaceae)



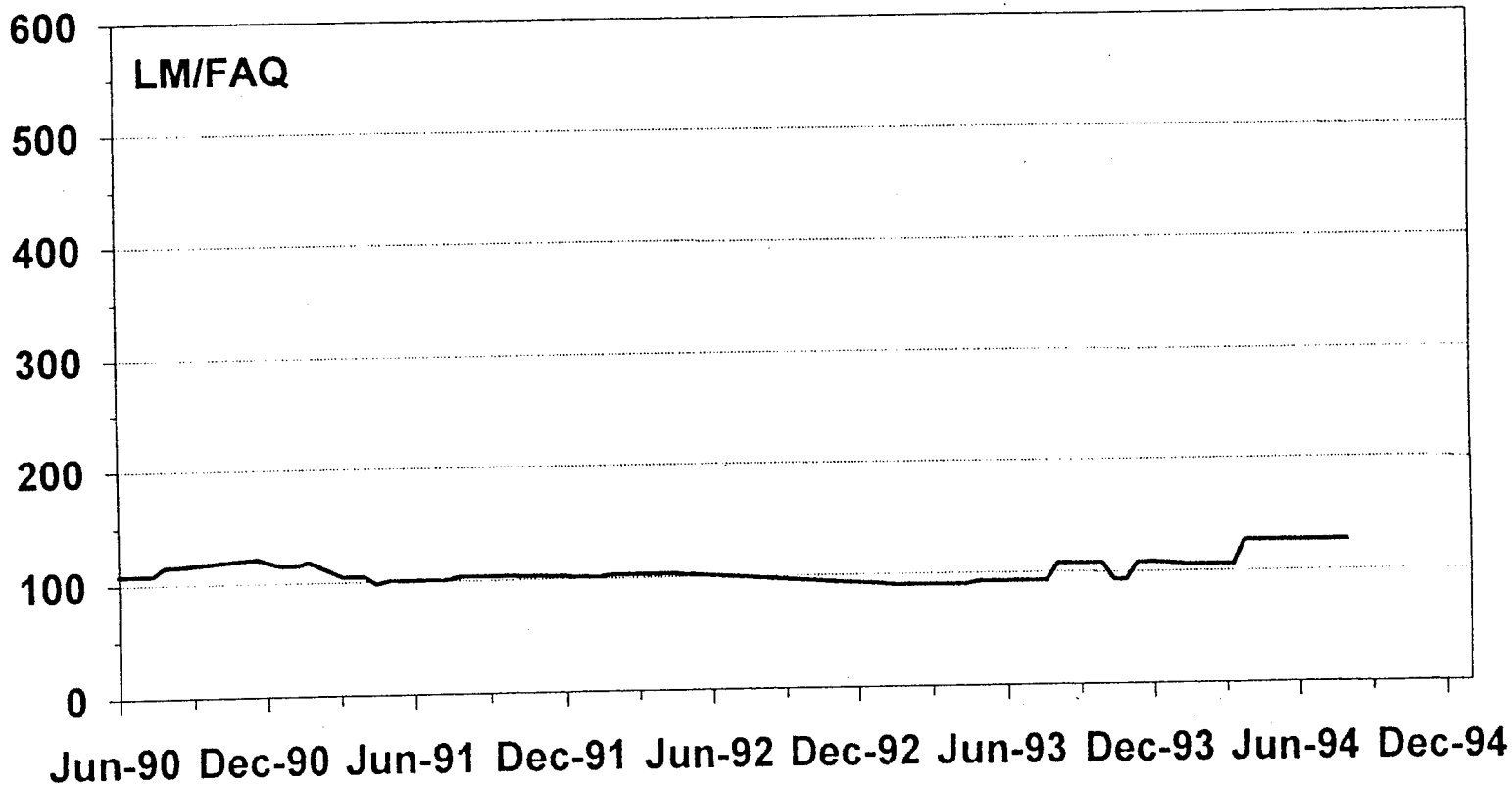
BOSSÉ

Guarea laurentii (Meliaceae)



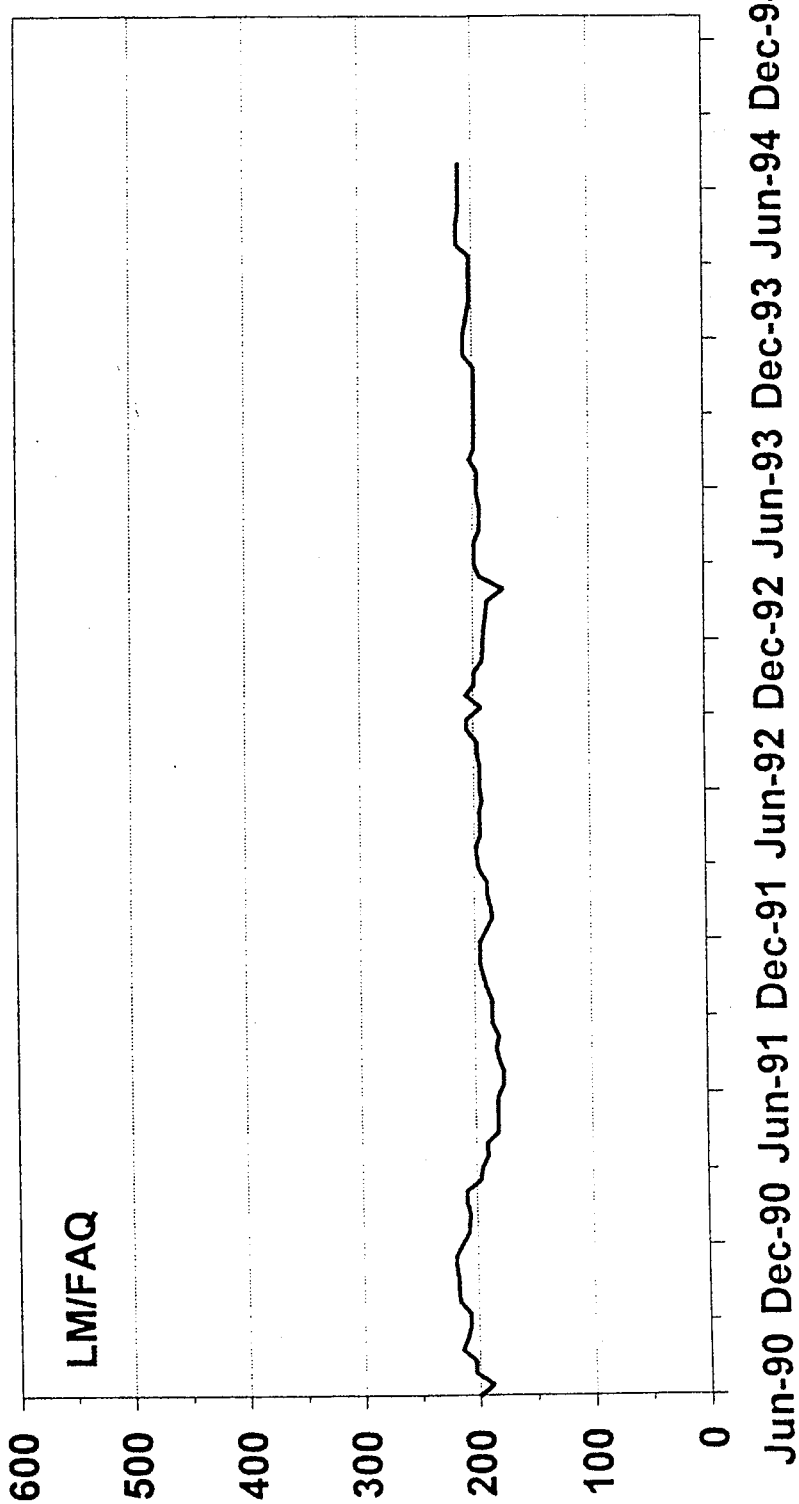
DABÉMA

Piptadeniastrum africanum (Mimosaceae)



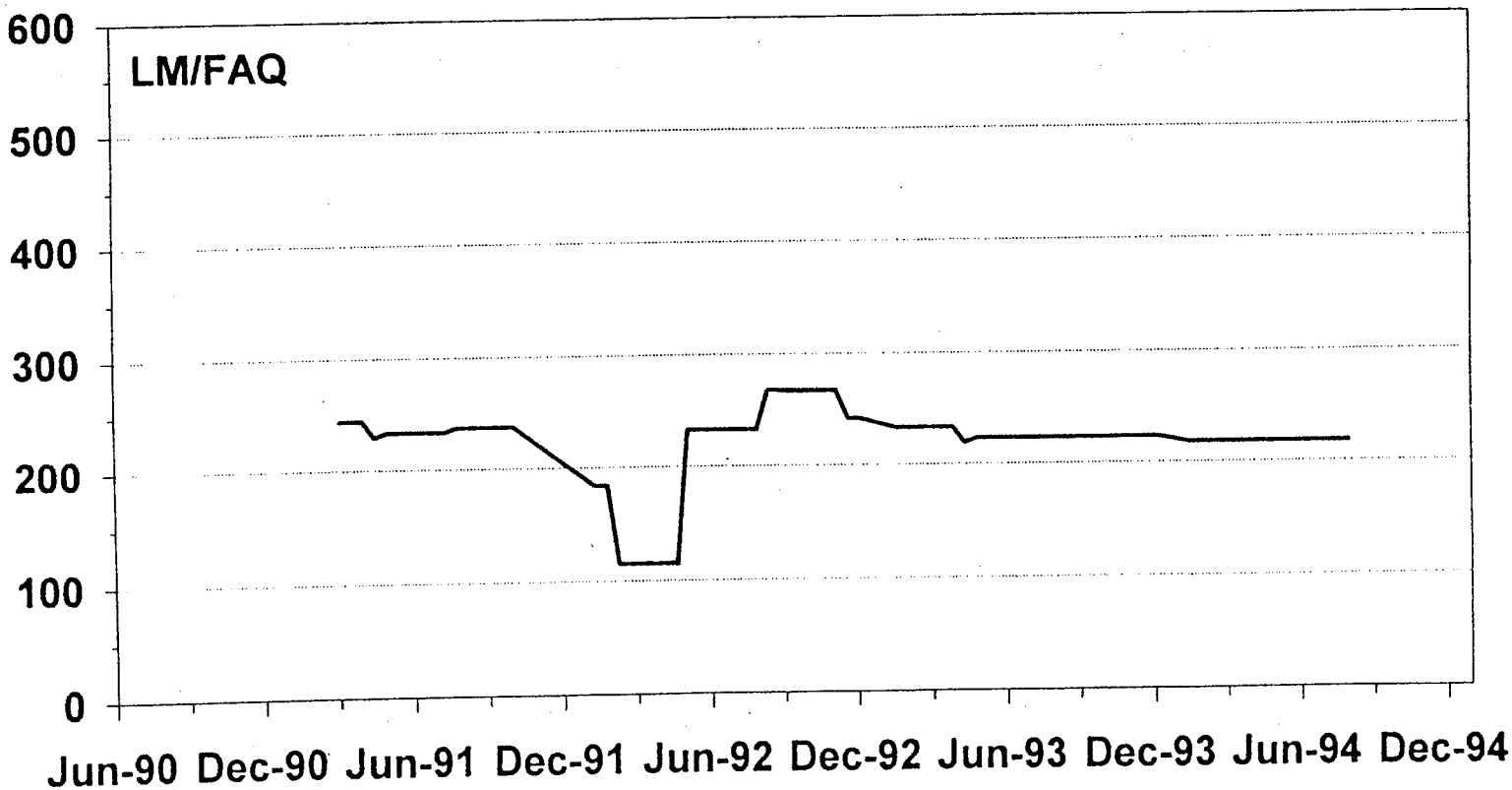
DIBETOU

Lovoa trichilioides (Meliaceae)



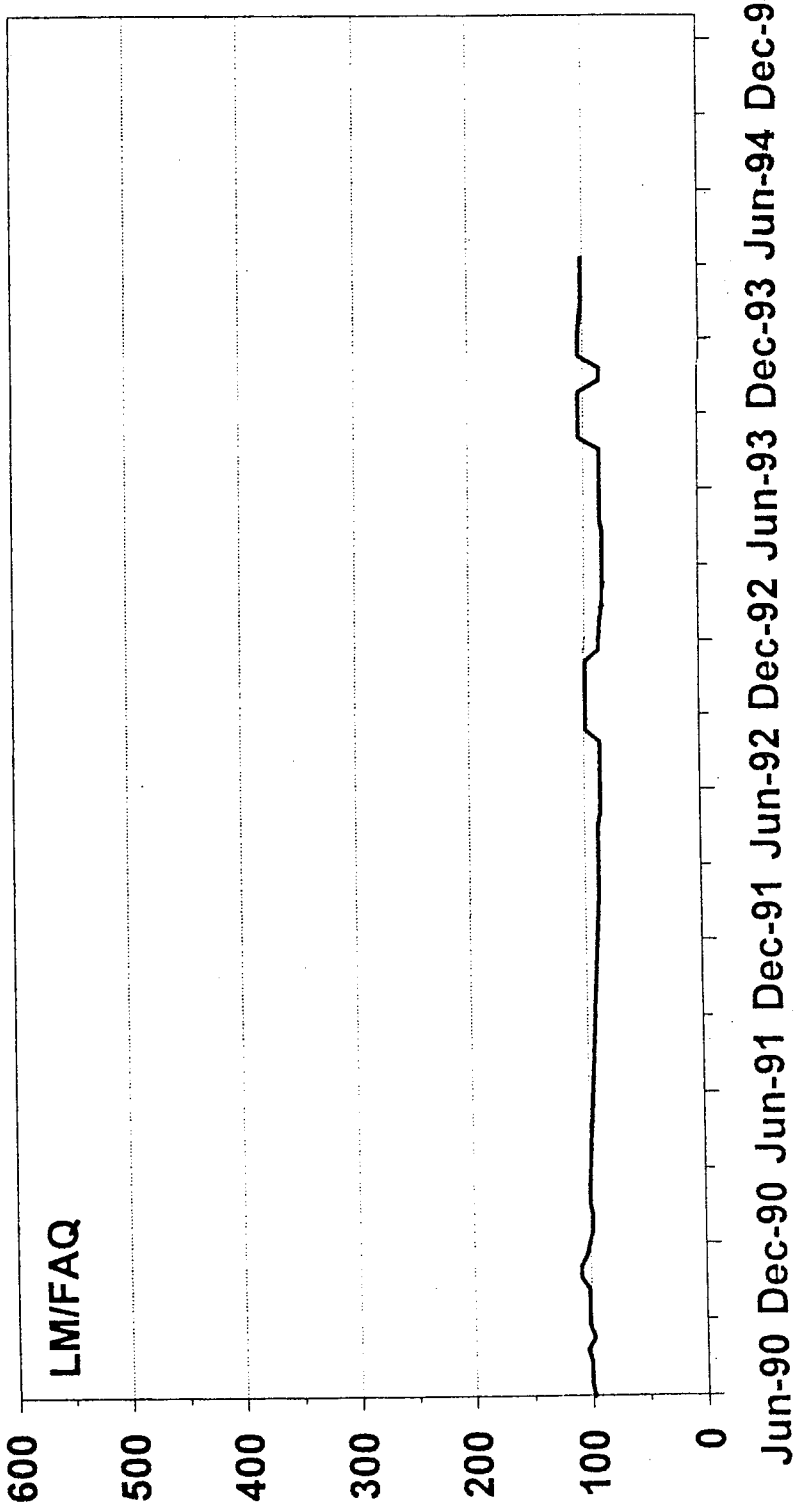
DOUSSIÉ

Afzelia spp. (Caesalpiniaceae)



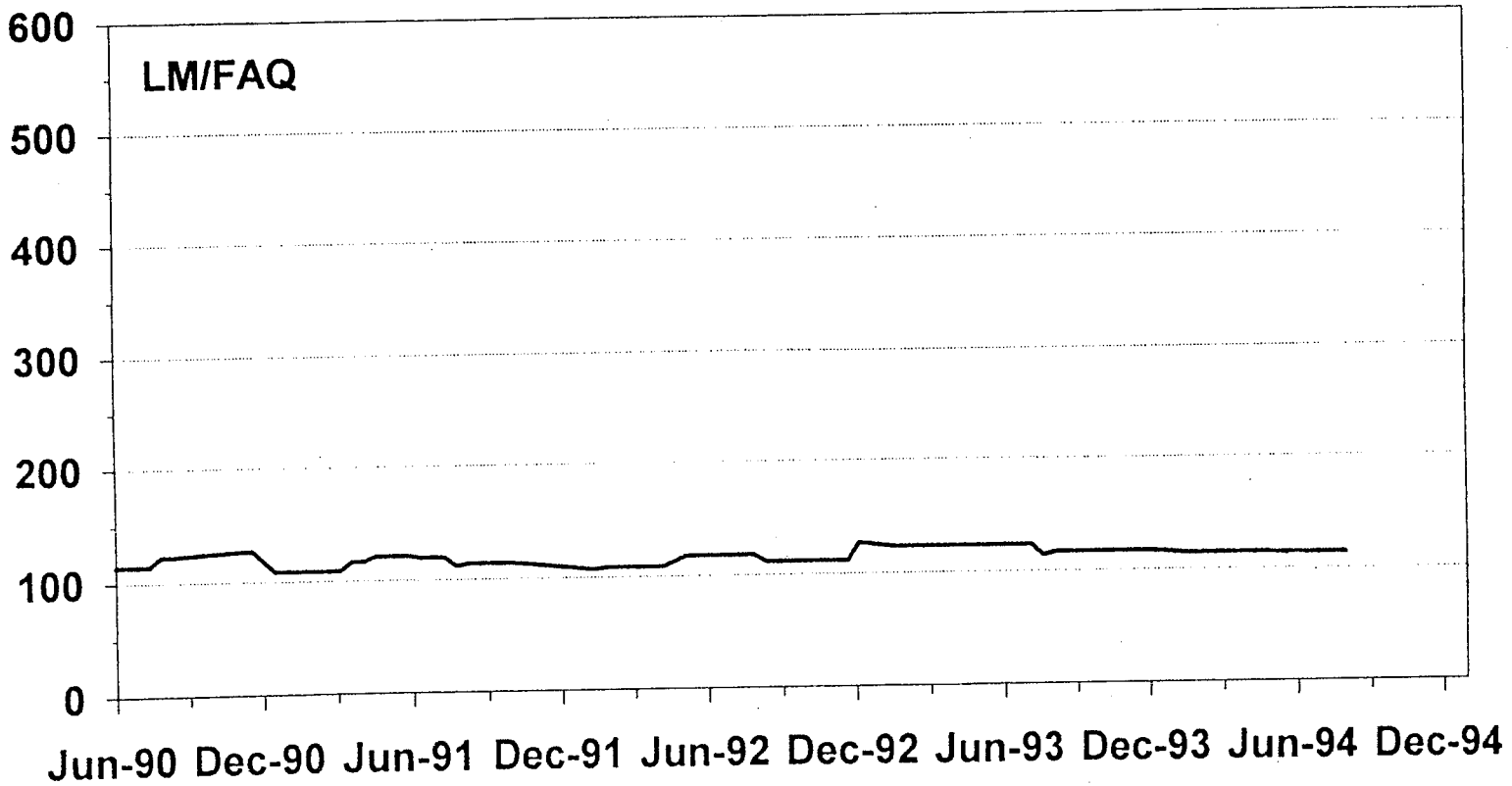
FUMA

Ceiba pentandra (Bombacaceae)



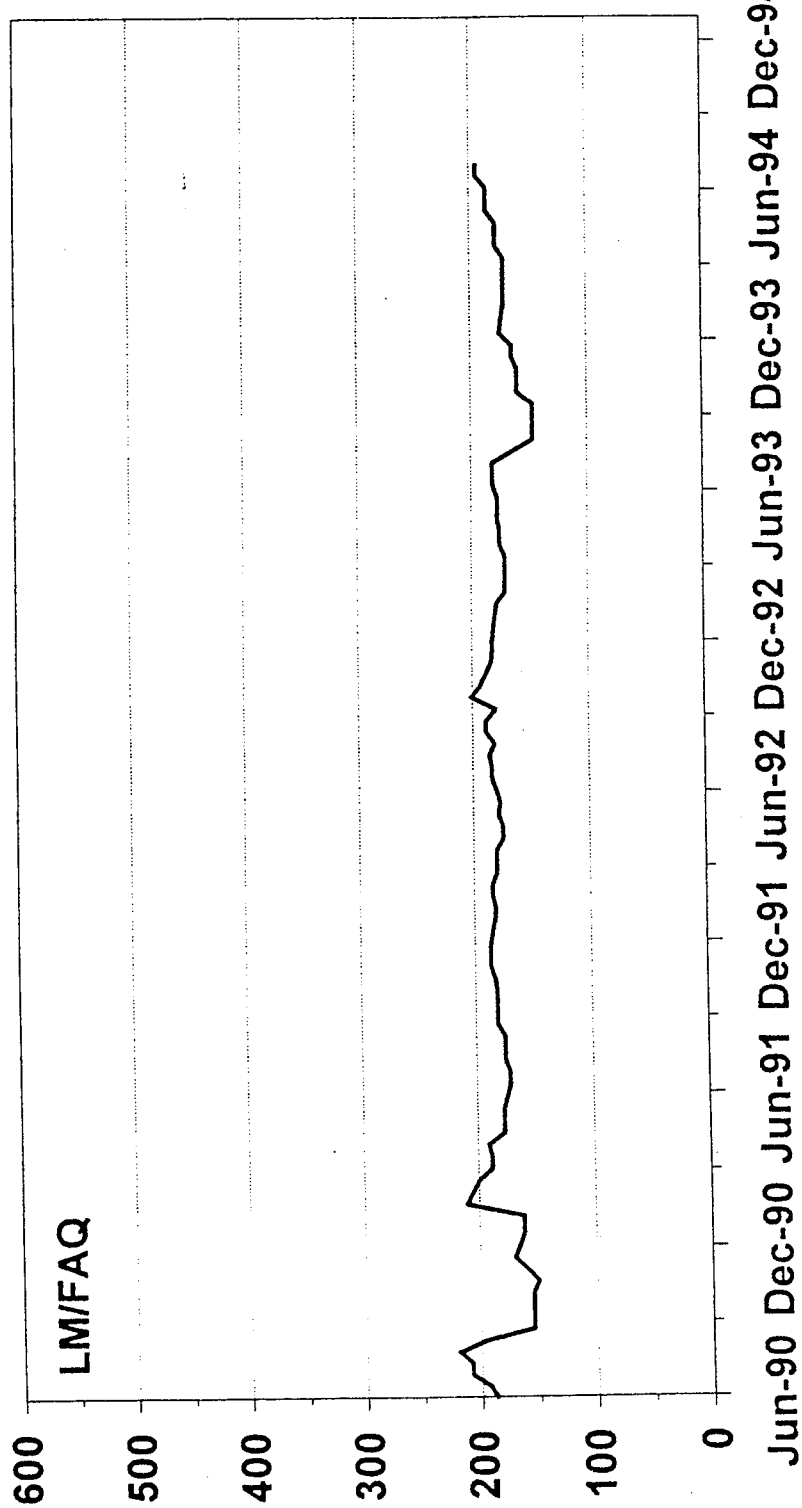
IATANDZA

Albizia ferruginea (Mimosaceae)



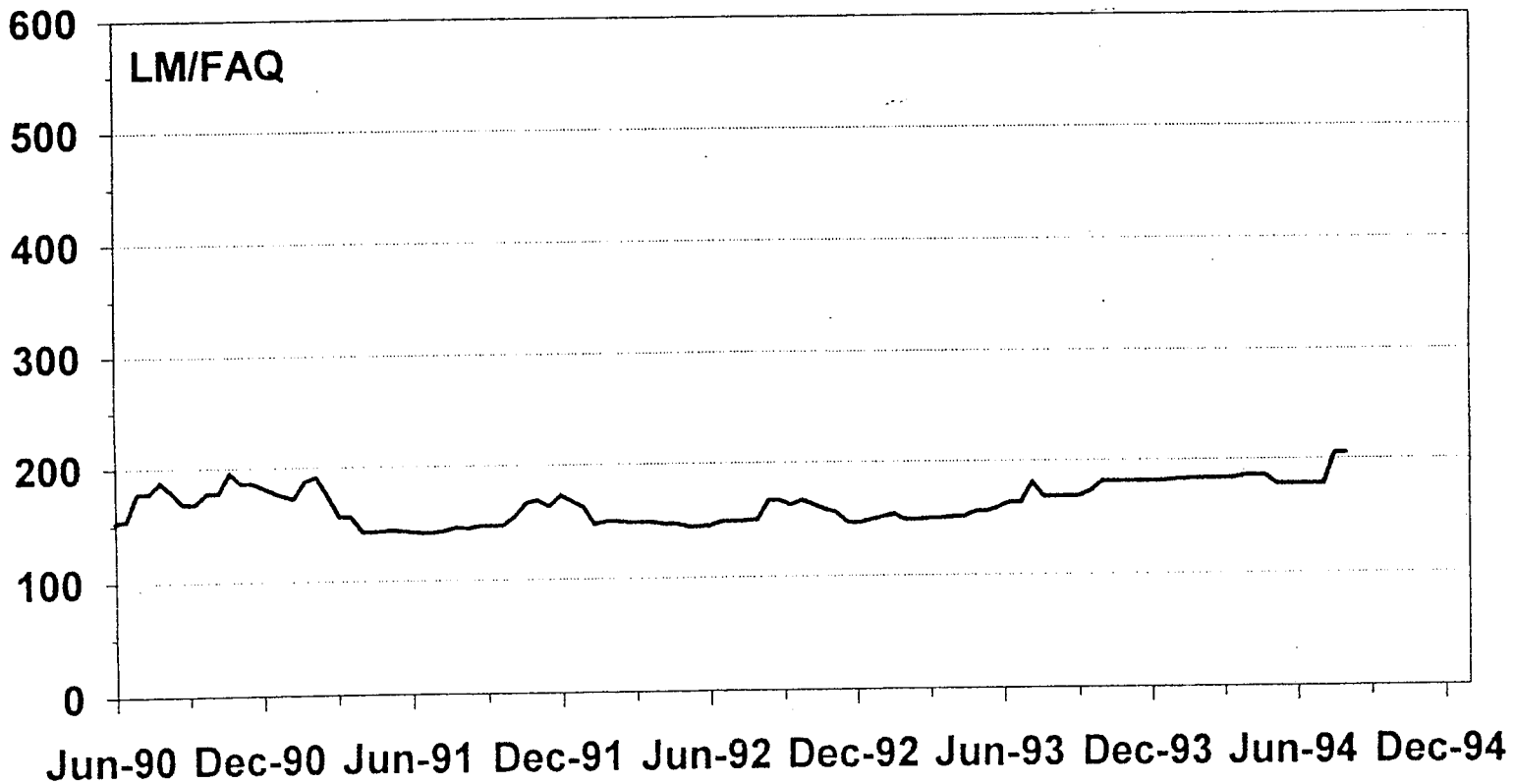
LIMBA

Terminalia superba (Combretaceae)



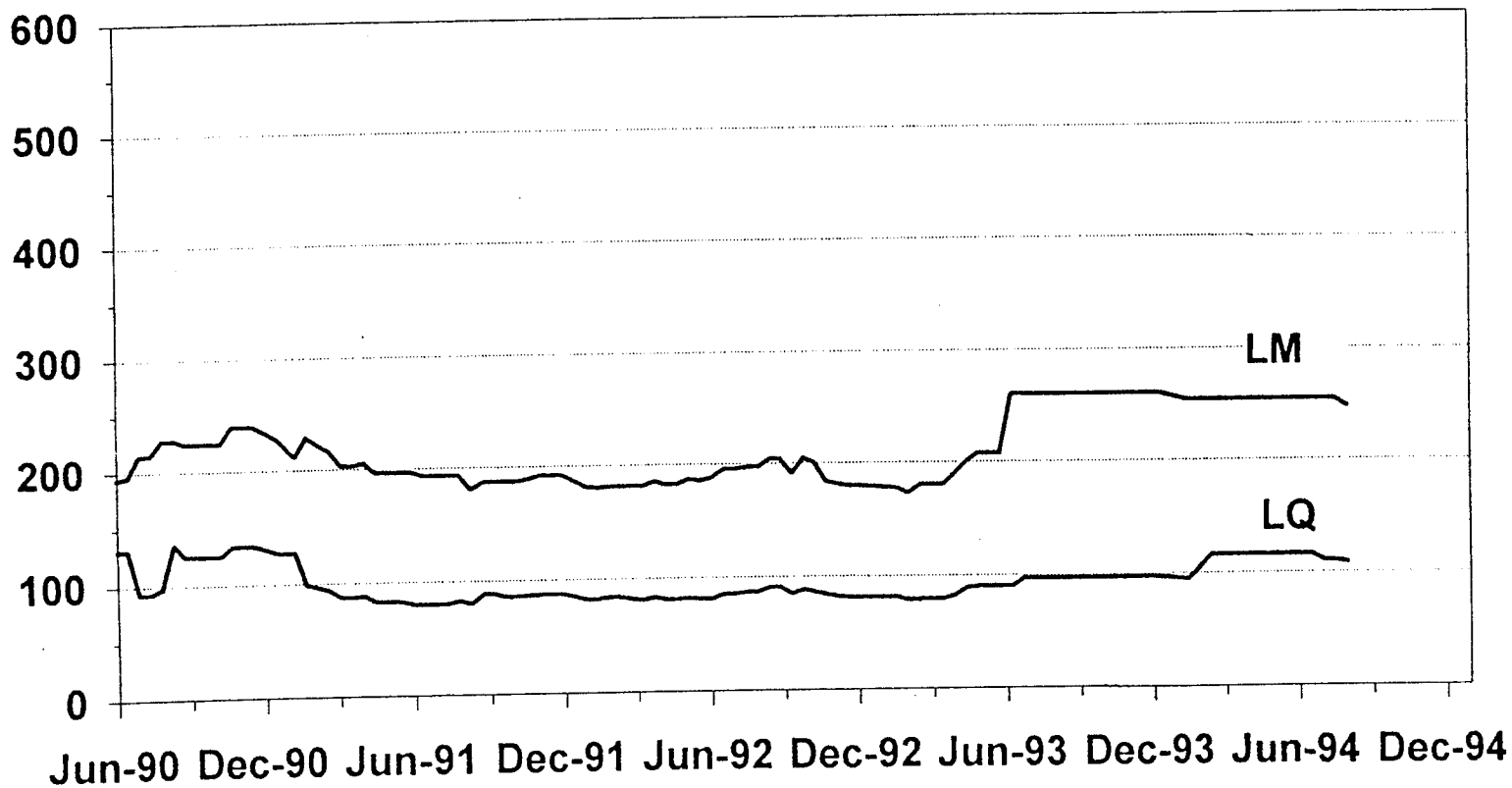
OBECHE

Triplochiton spp. (Sterculiaceae)



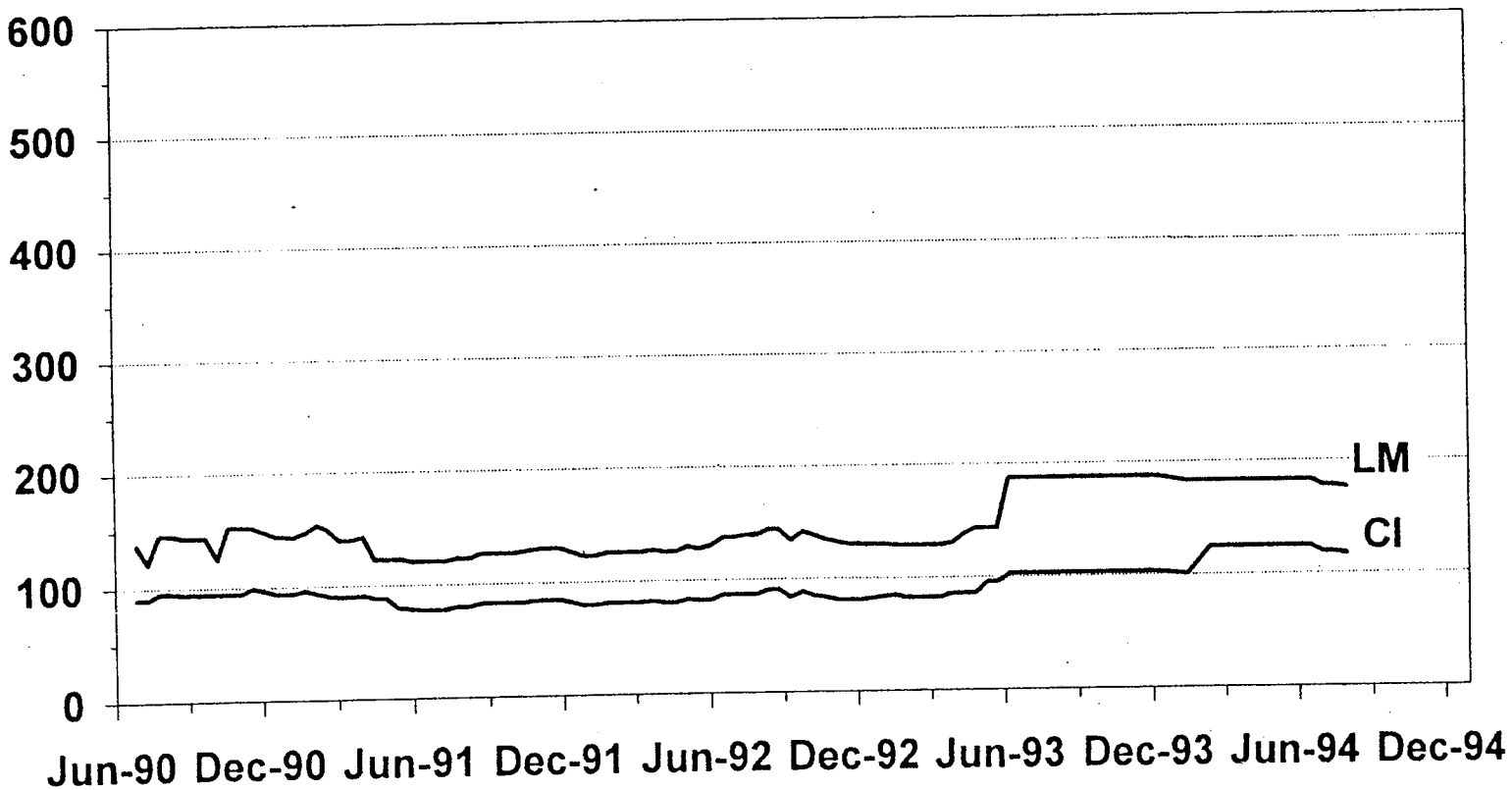
OKOUMÉ

Aucoumea klaineana (Burseraceae)



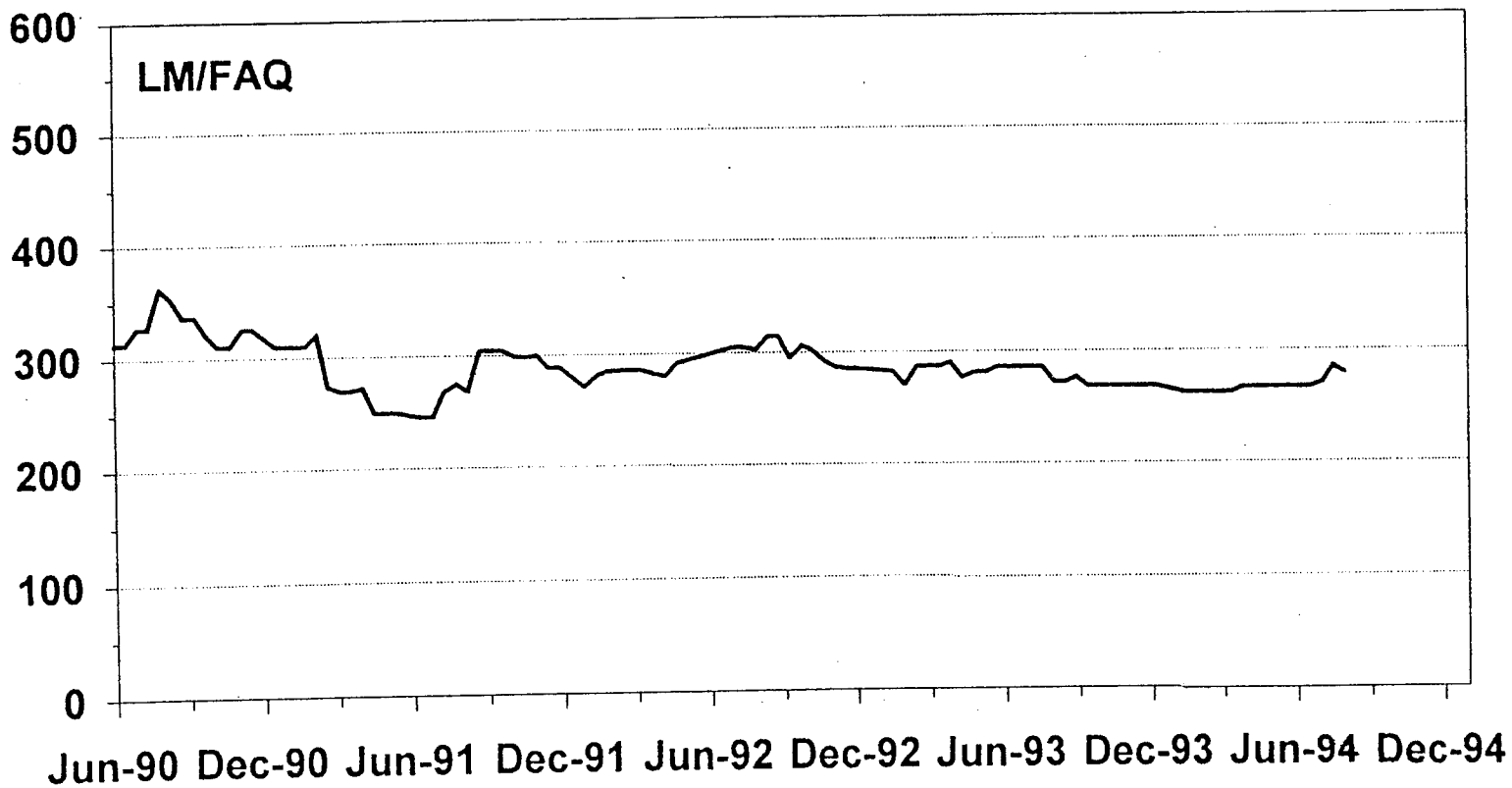
OZIGO

Dacryodes buettneri (Burseraceae)



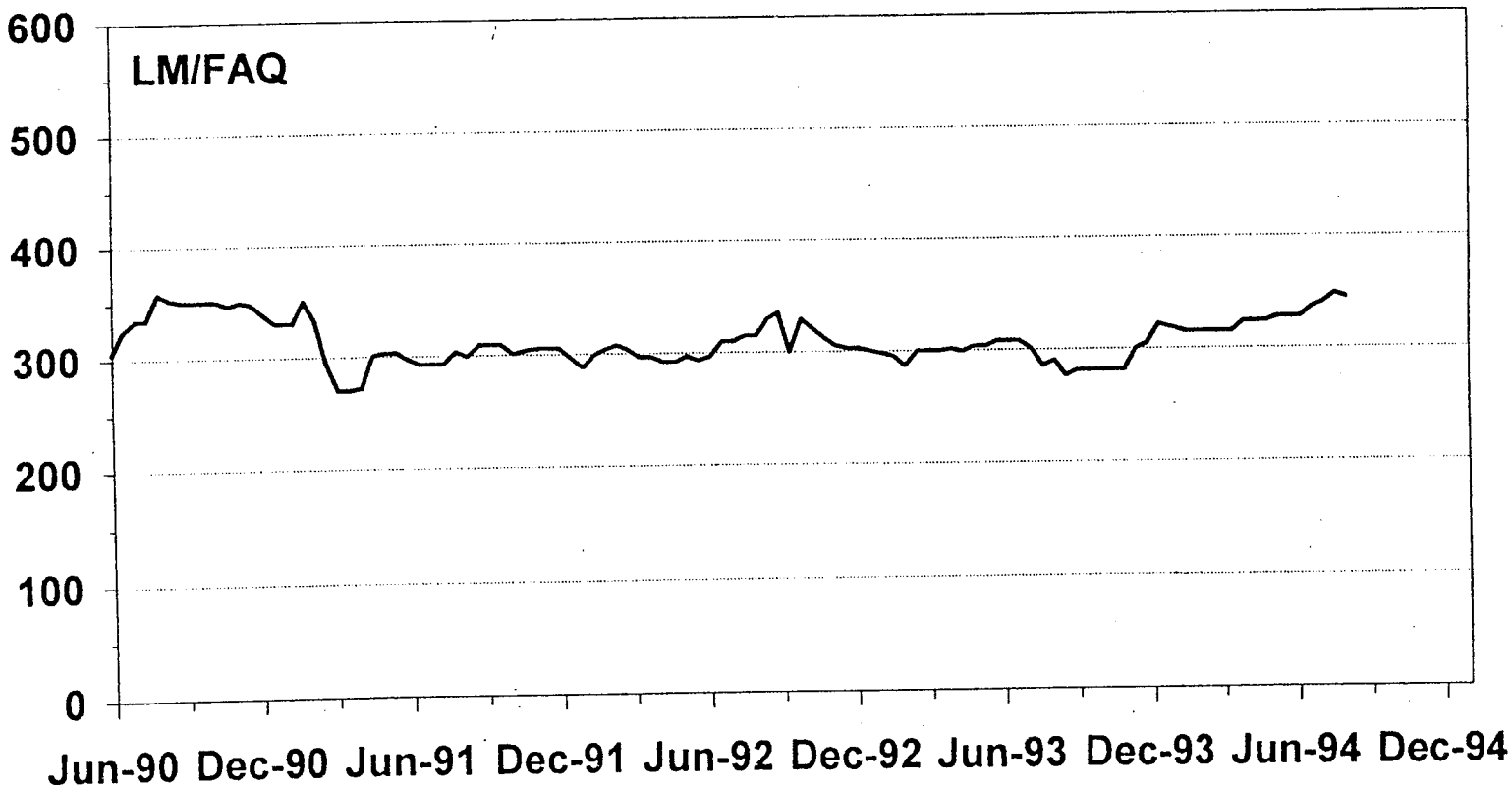
SAPELLI

Entandrophragma cylindricum(Meliaceae)



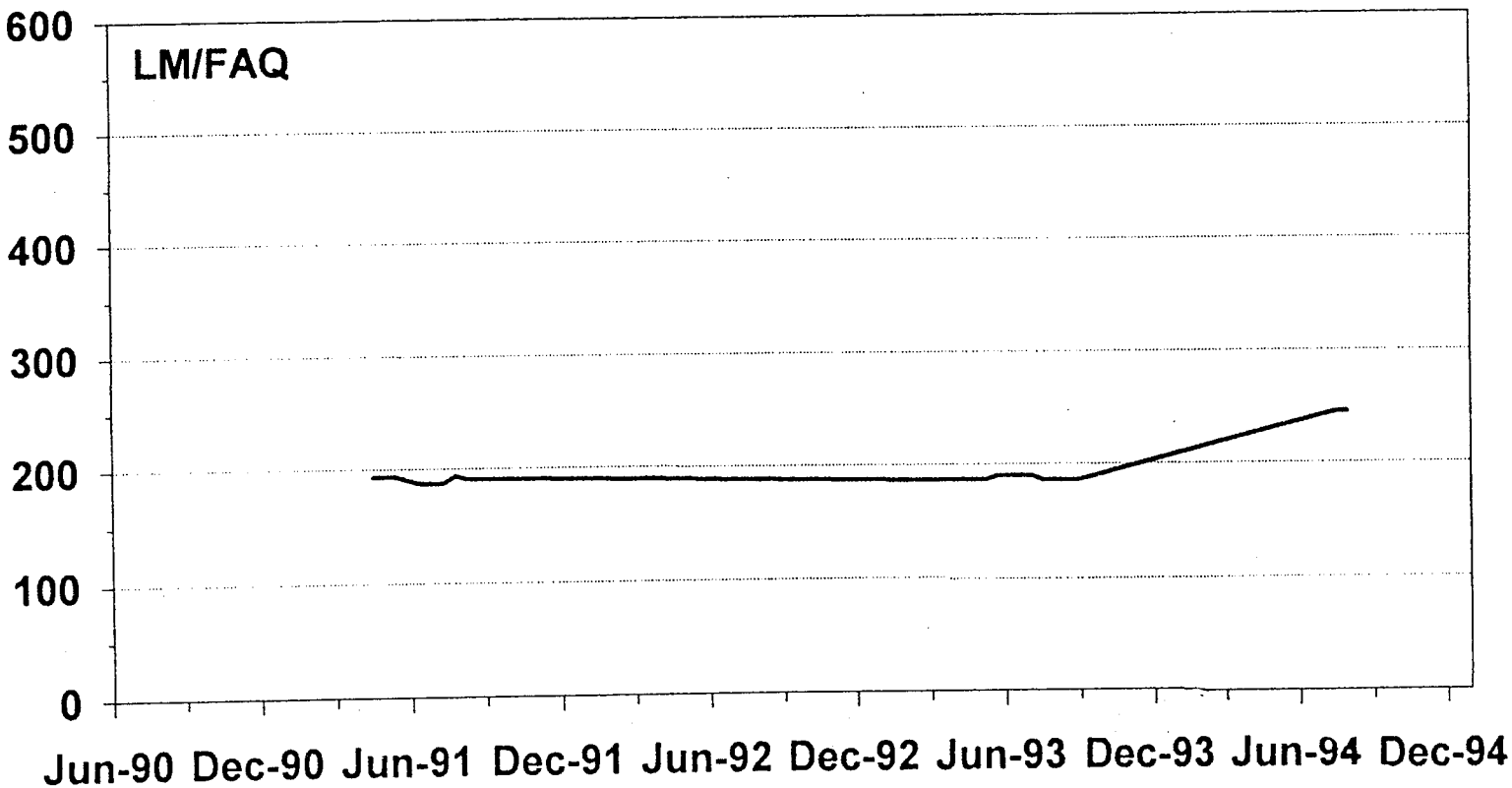
SIPO

Entandrophragma utile (Meliaceae)



TIAMA

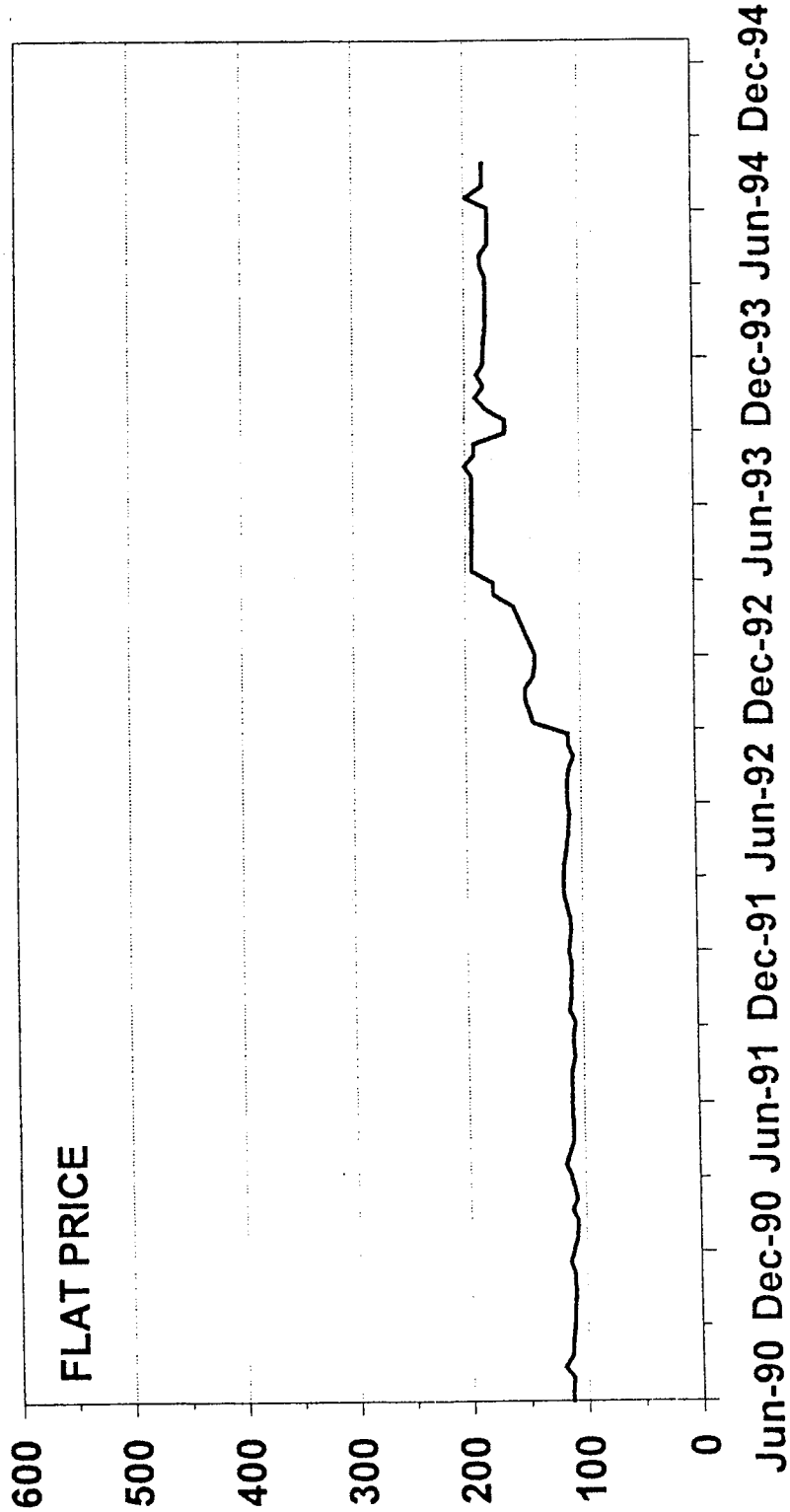
Entandrophragma congoense (Meliaceae)



5.2 Asian Logs ($/m^3 FOB, 1990 dollars)

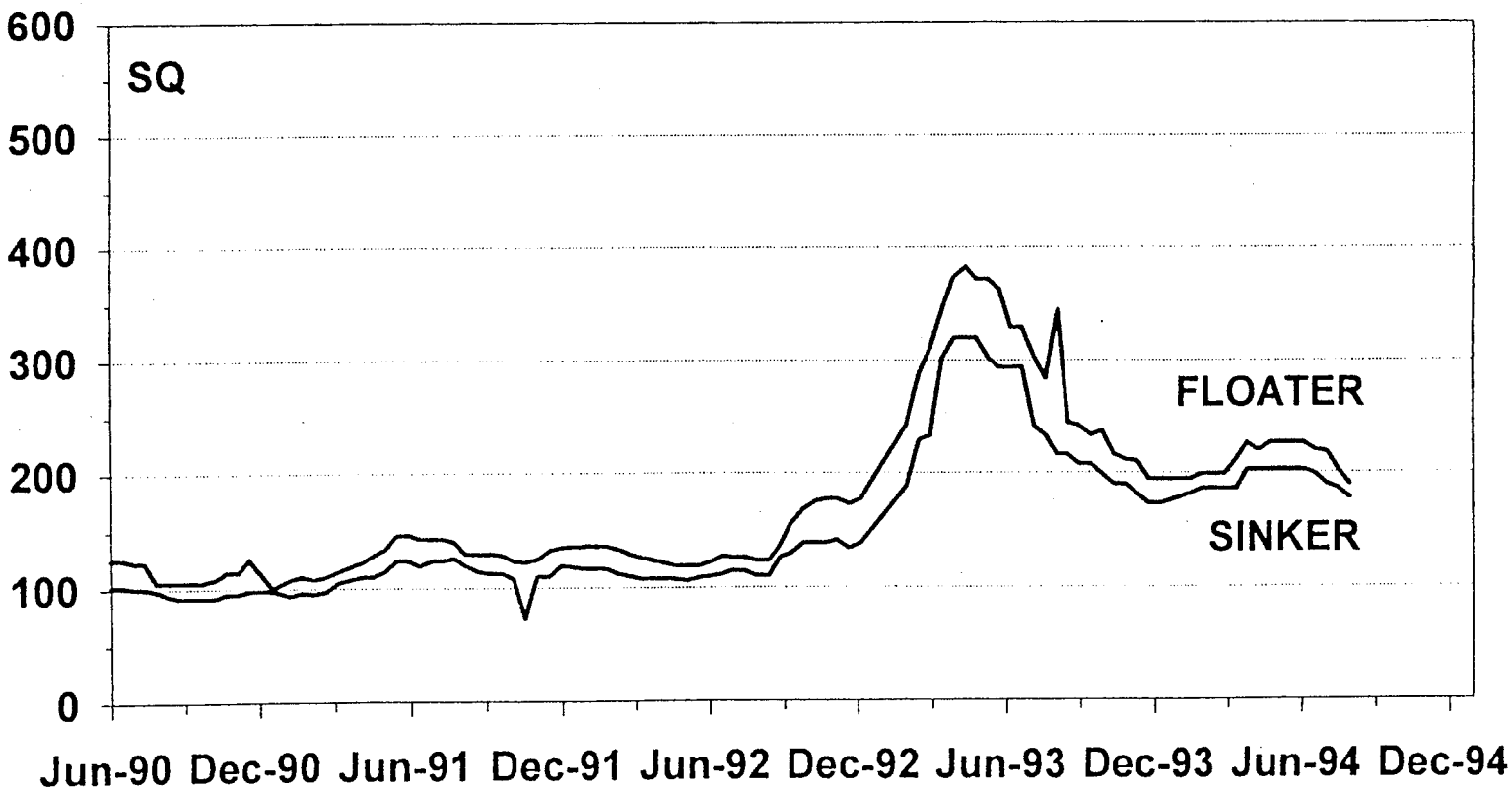
BALAU

Shorea glauca (Dipterocarpaceae)



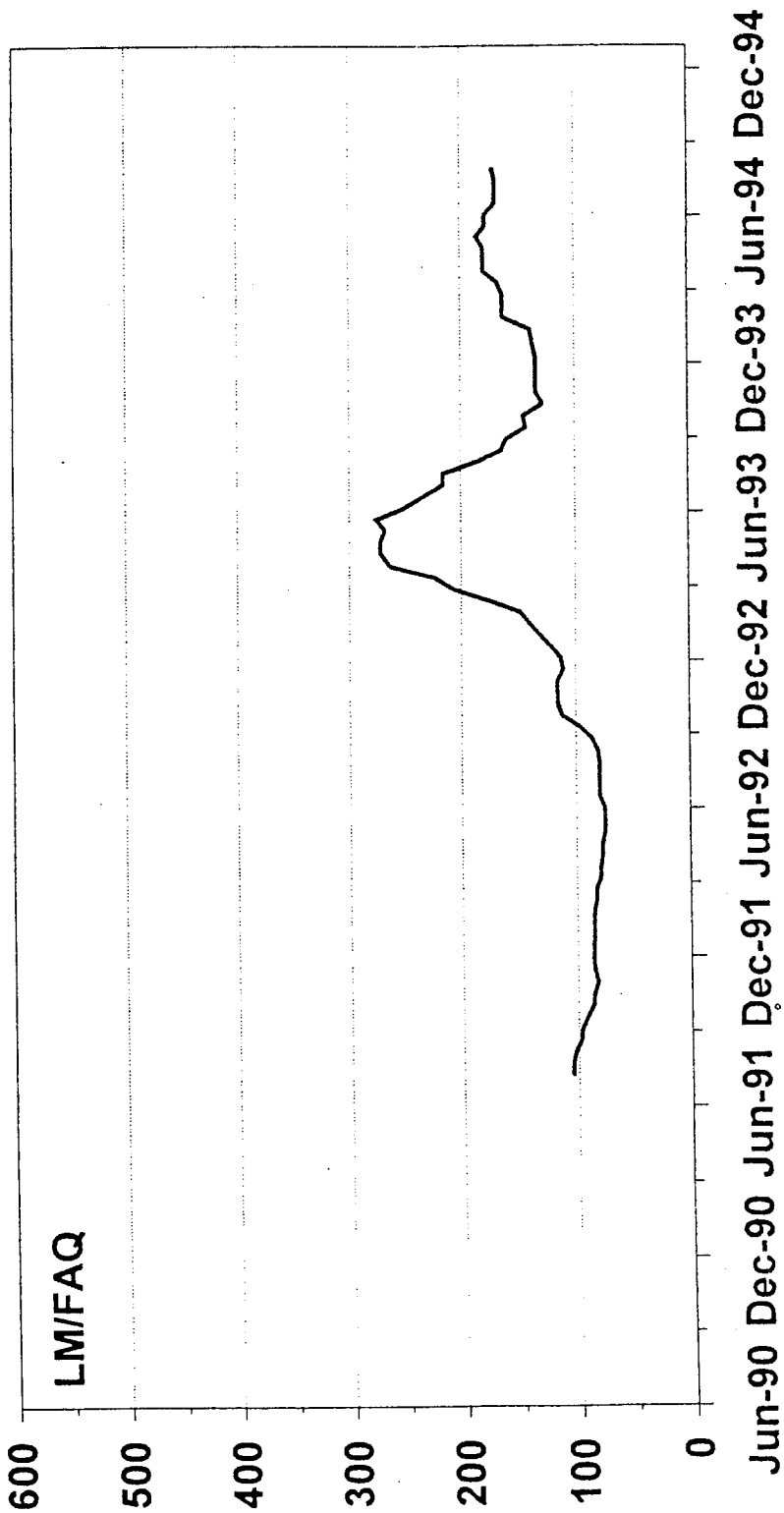
KAPUR

Dryobalanops spp. (Dipterocarpaceae)



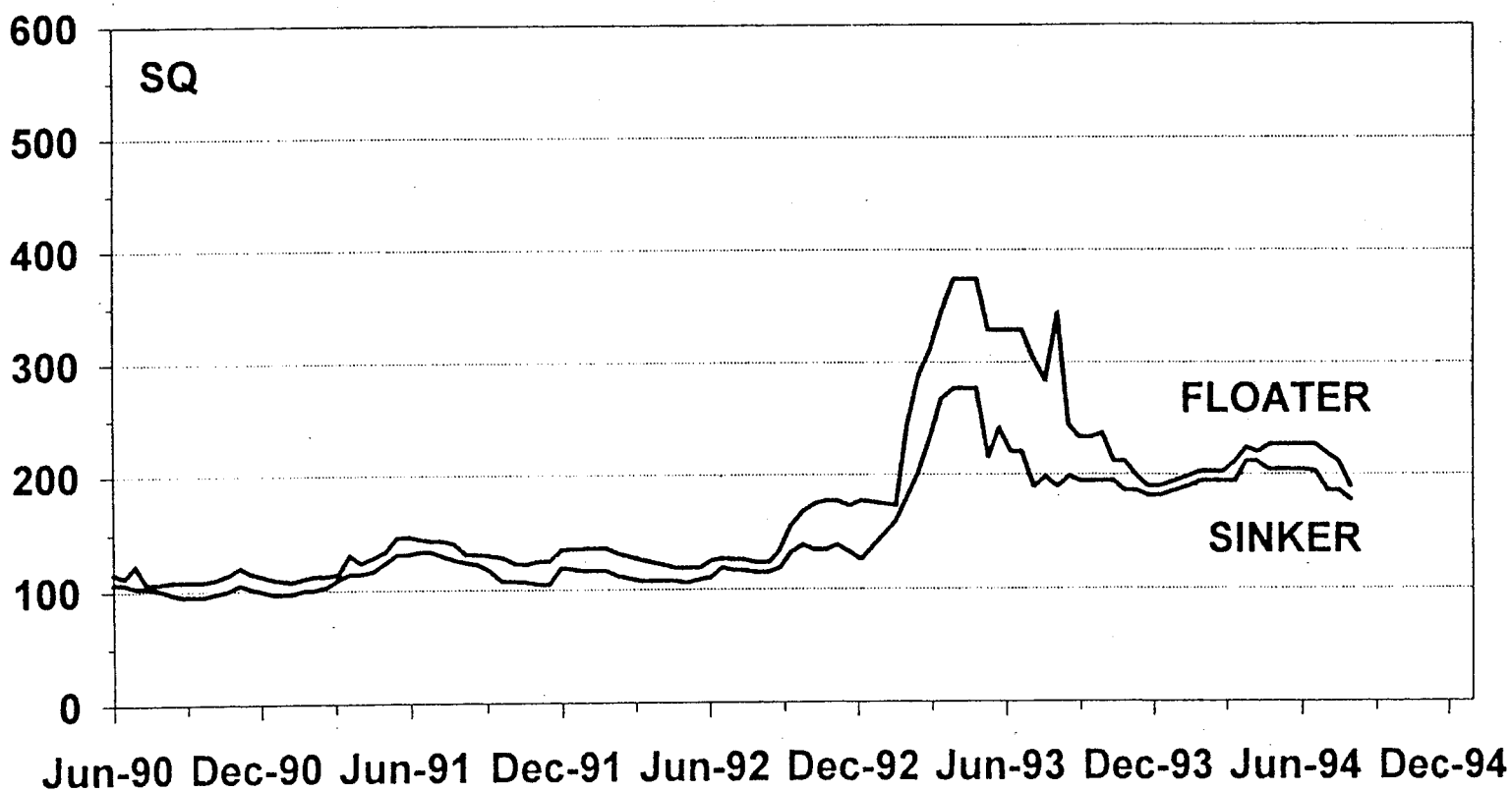
KASAI

Pometia pinnata (Sapindaceae)



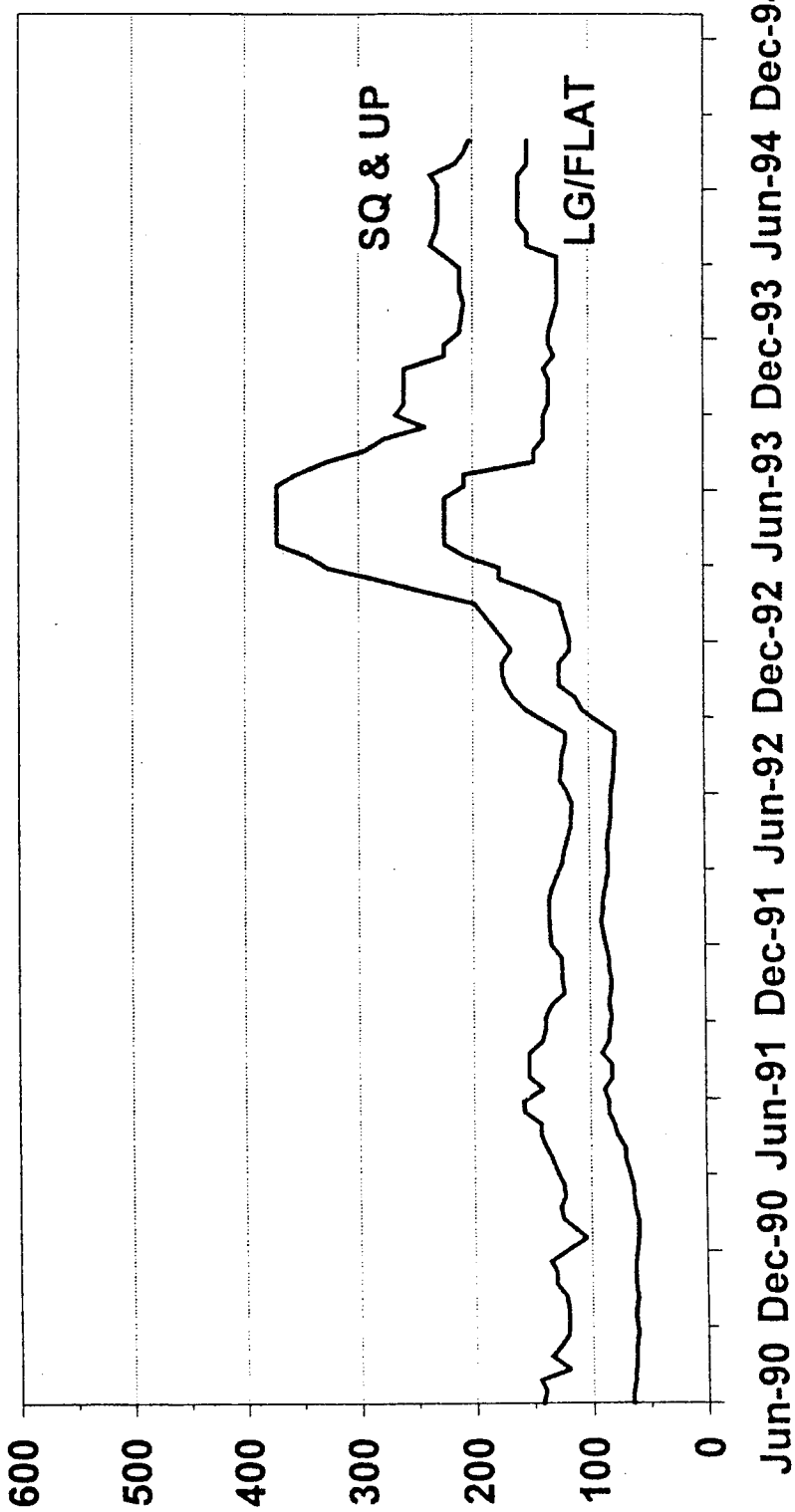
KERUING

Dipterocarpus spp. (Dipterocarpaceae)



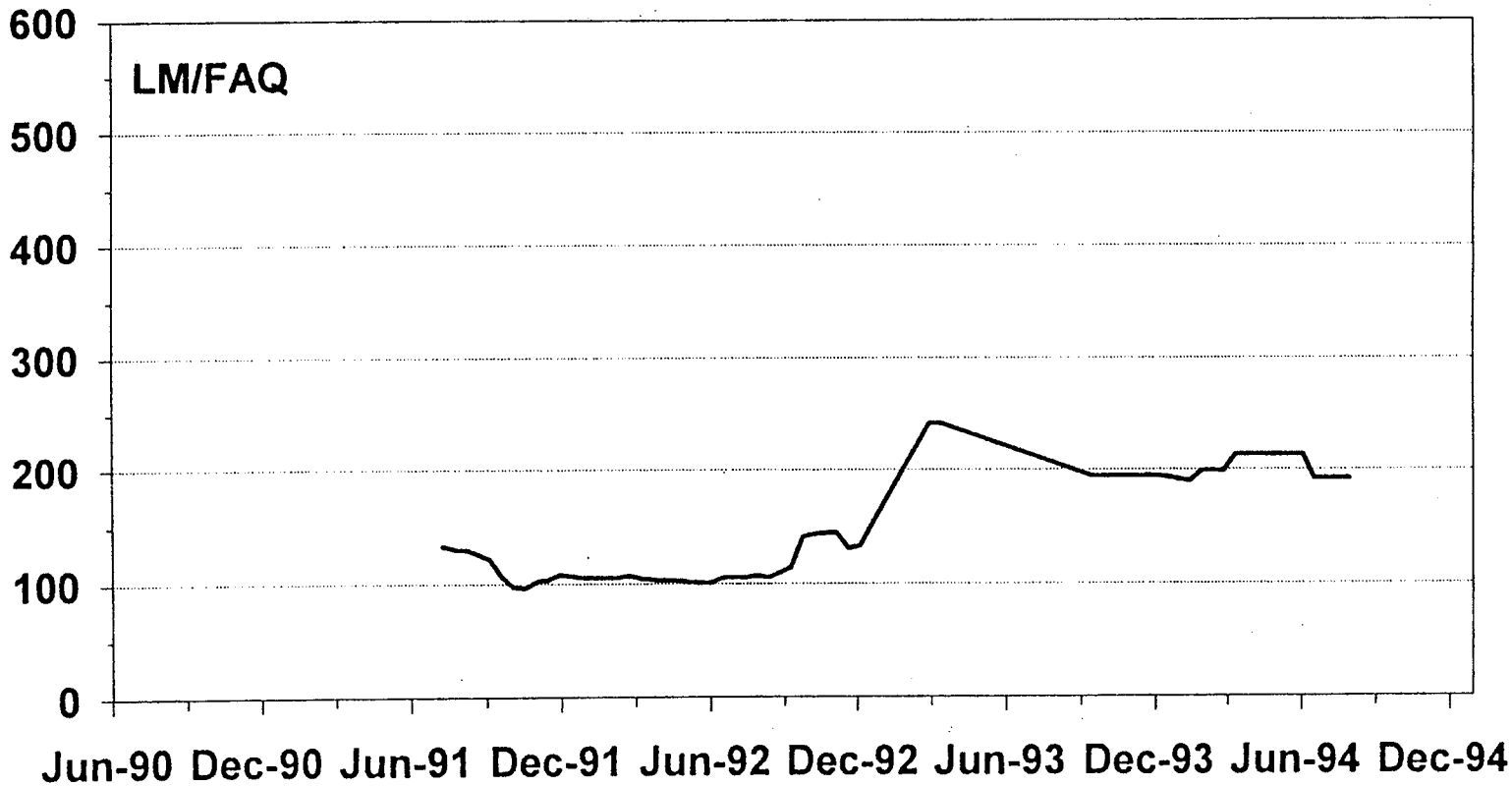
MERANTI

Shorea spp. (Dipterocarpaceae)



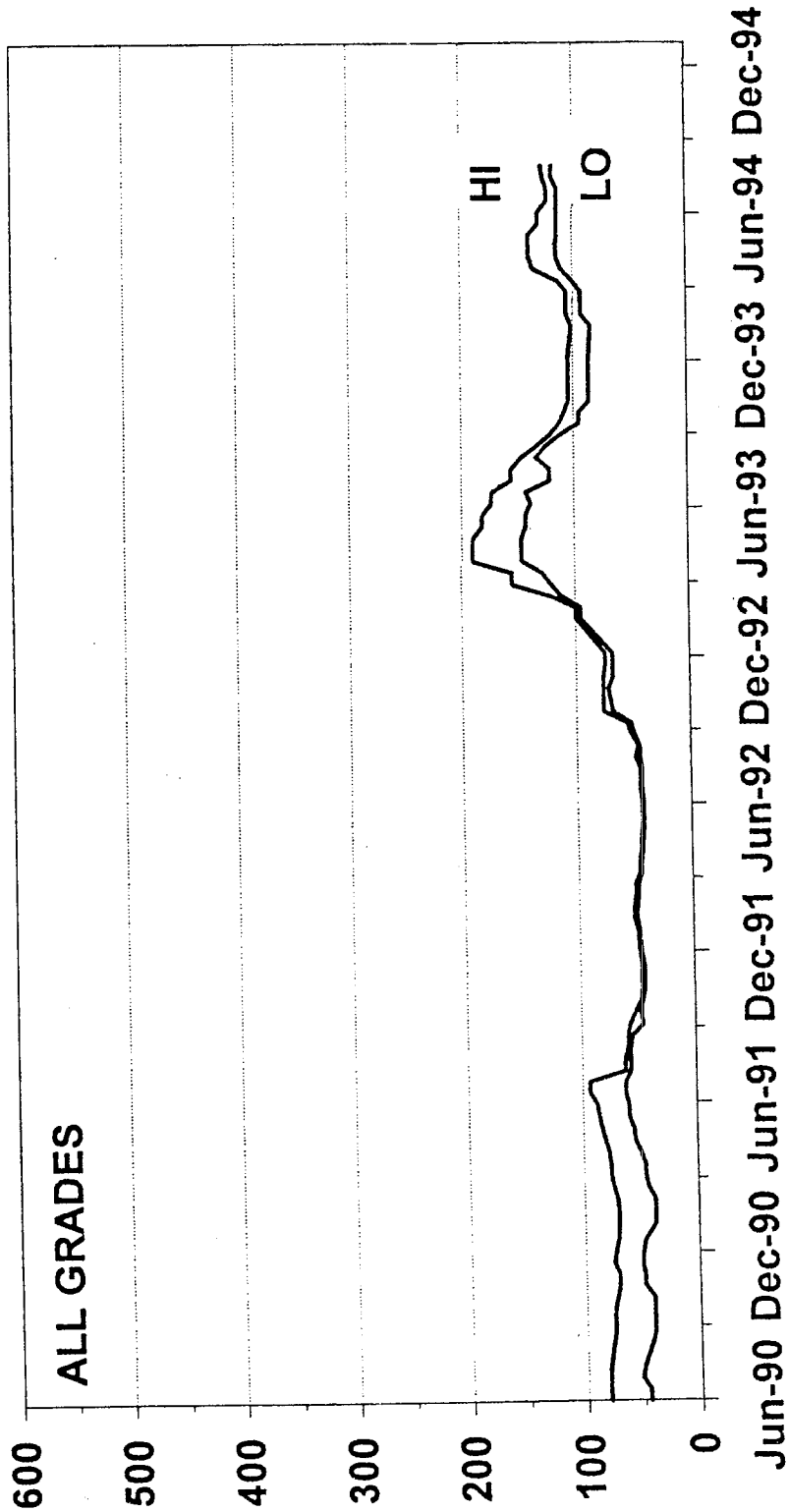
NYATOH

Palaquium spp. (Sapotaceae)



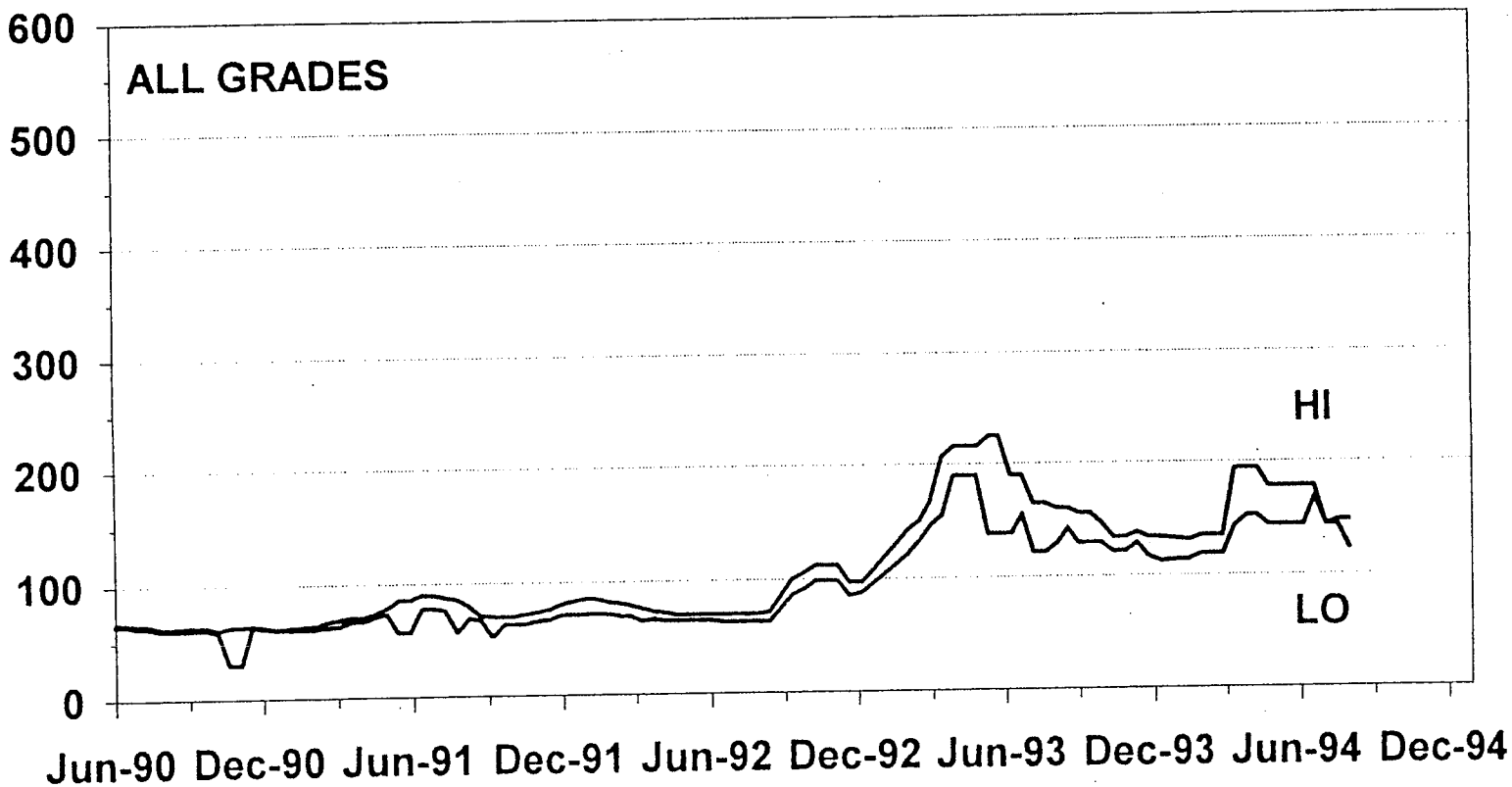
MIXED LOGS

Papua New Guinea



MIXED LOGS

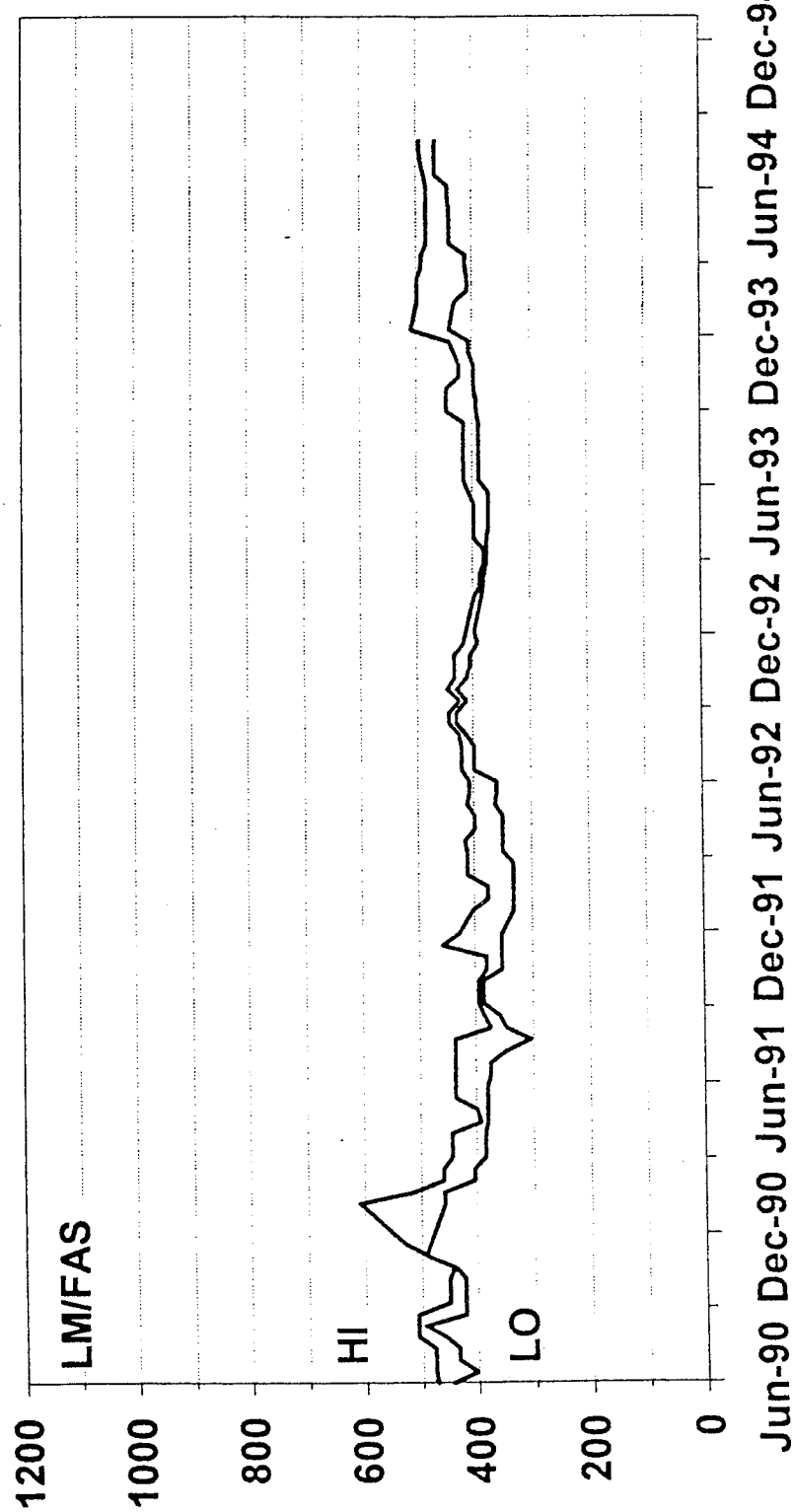
Sarawak



5.3 African Sawnwood ($/m^3 FOB, 1990 dollars)

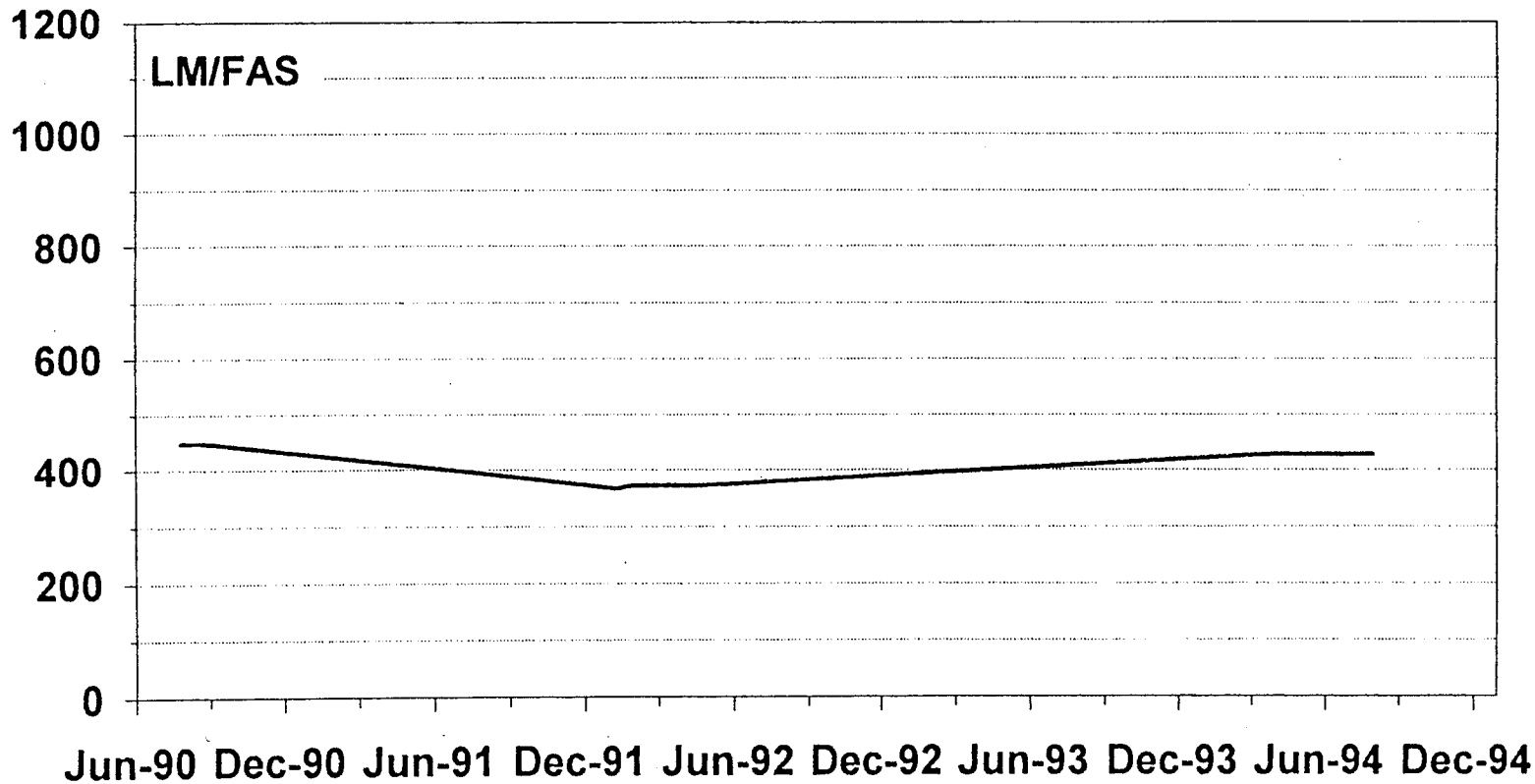
ACAJOU

Khaya spp. (Meliaceae)



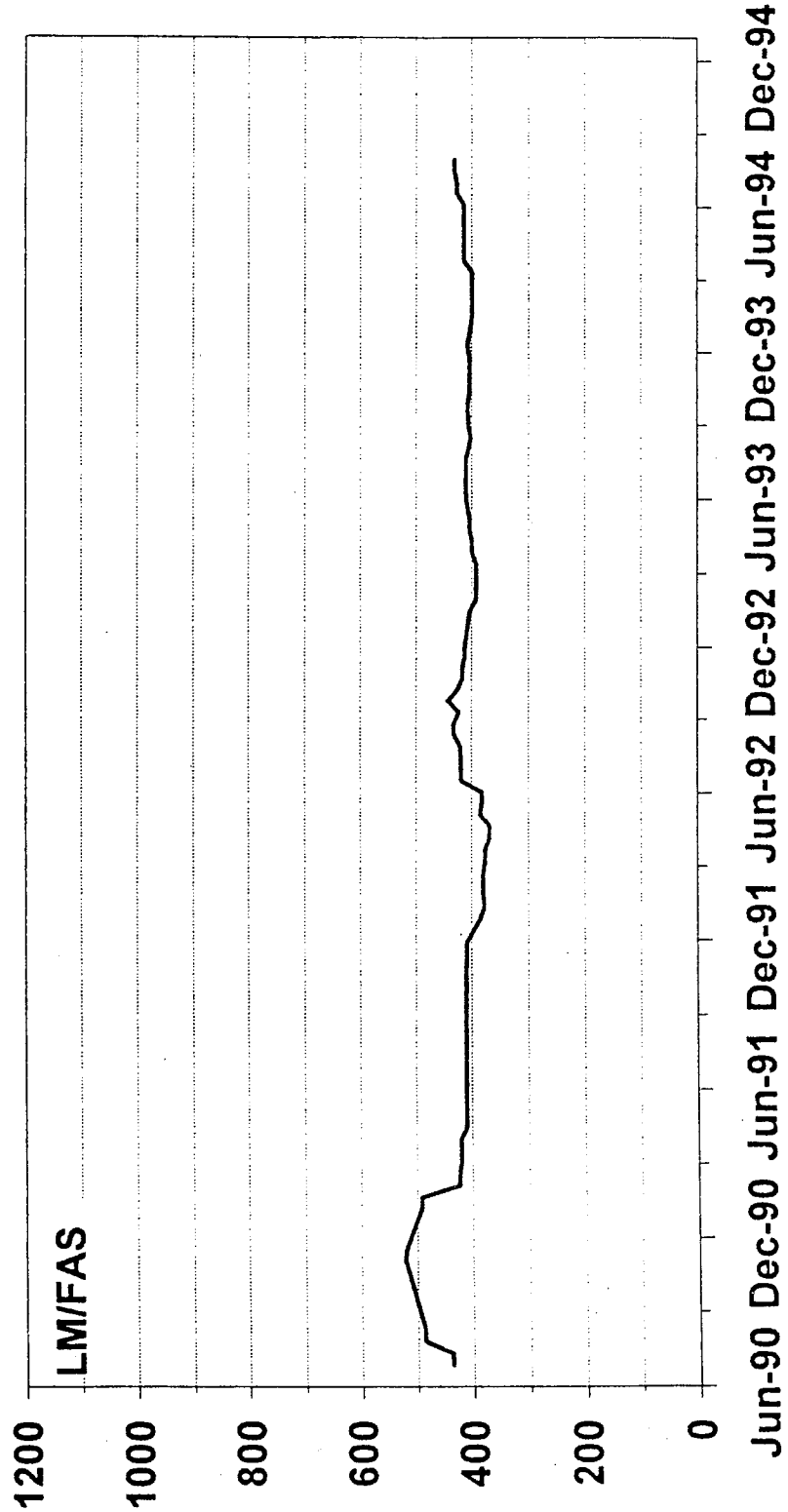
BOSSÉ

Guarea laurentii (Meliaceae)



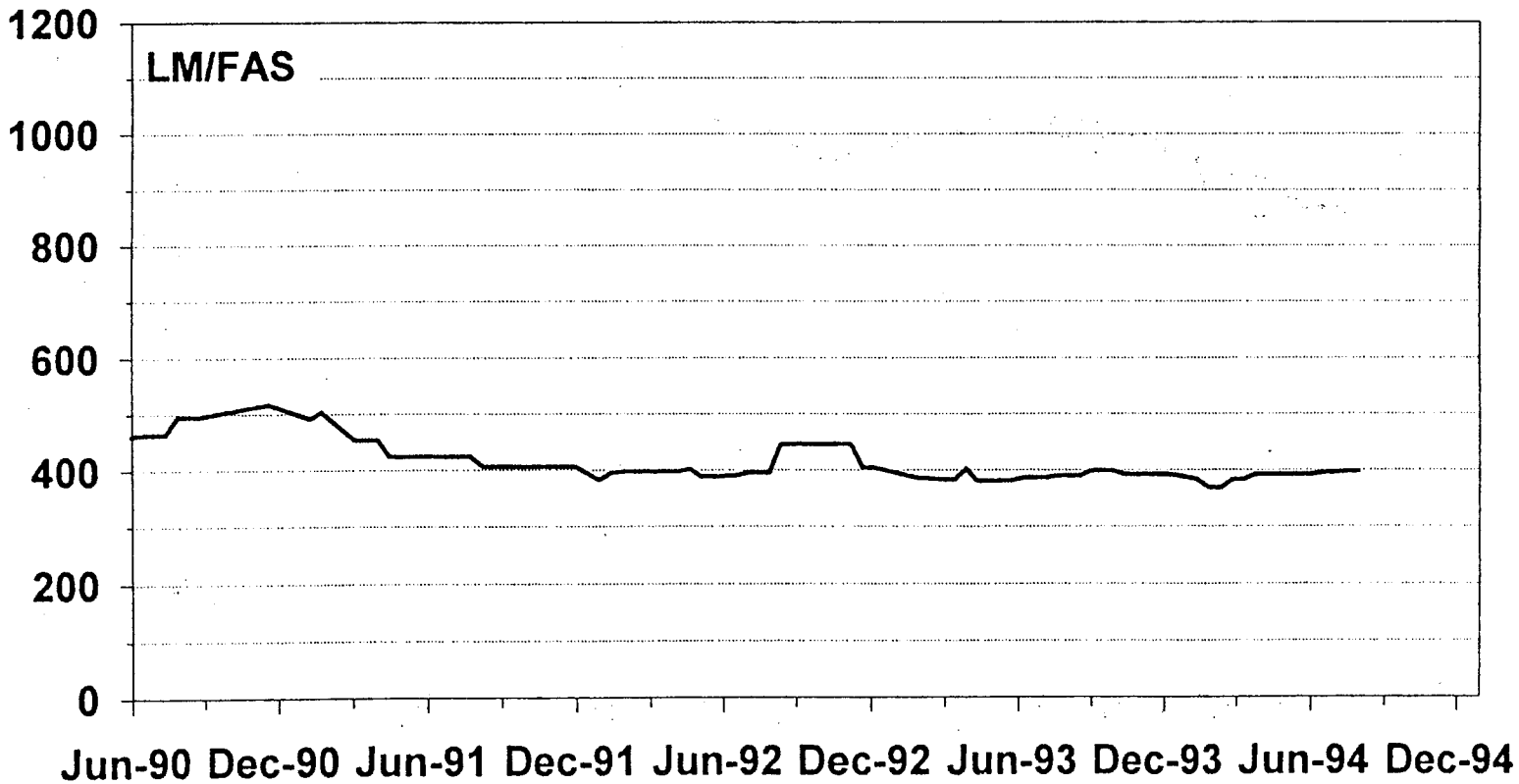
DIBETOU

Lovoa trichilioides (Meliaceae)



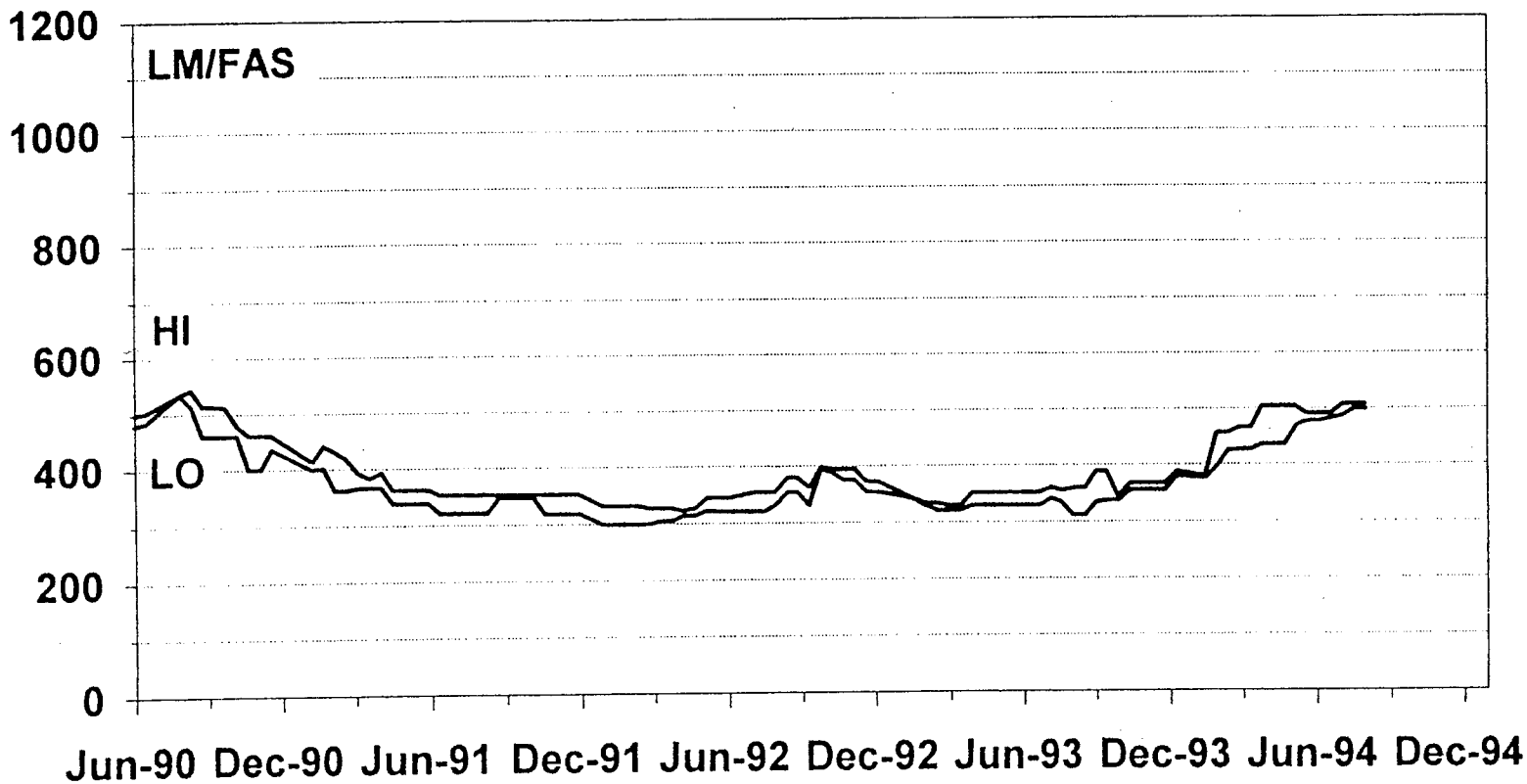
FRAMIRÉ

Terminalia ivorensis (Combretaceae)



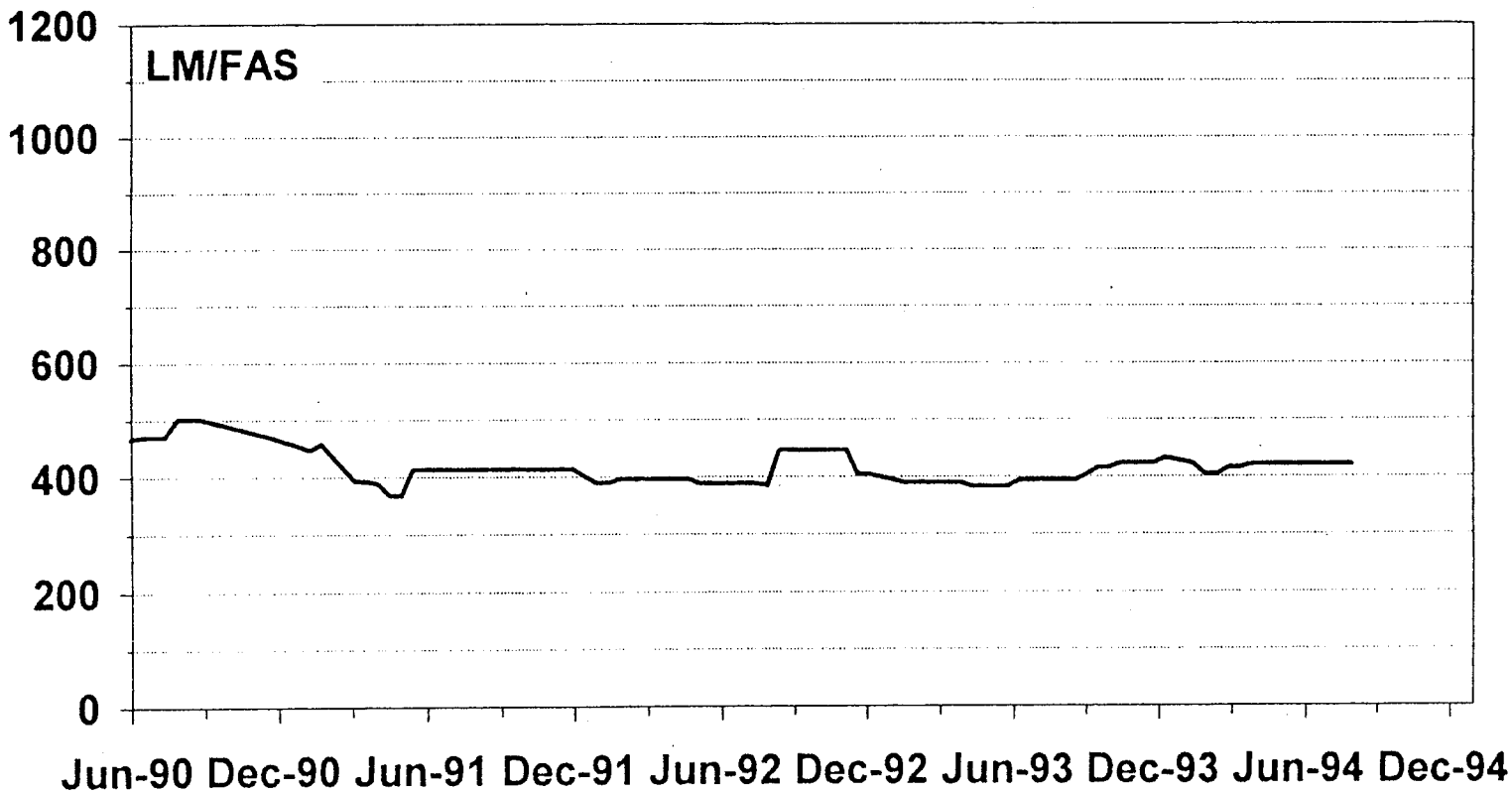
IROKO

Chlorophora excelsa (Moraceae)



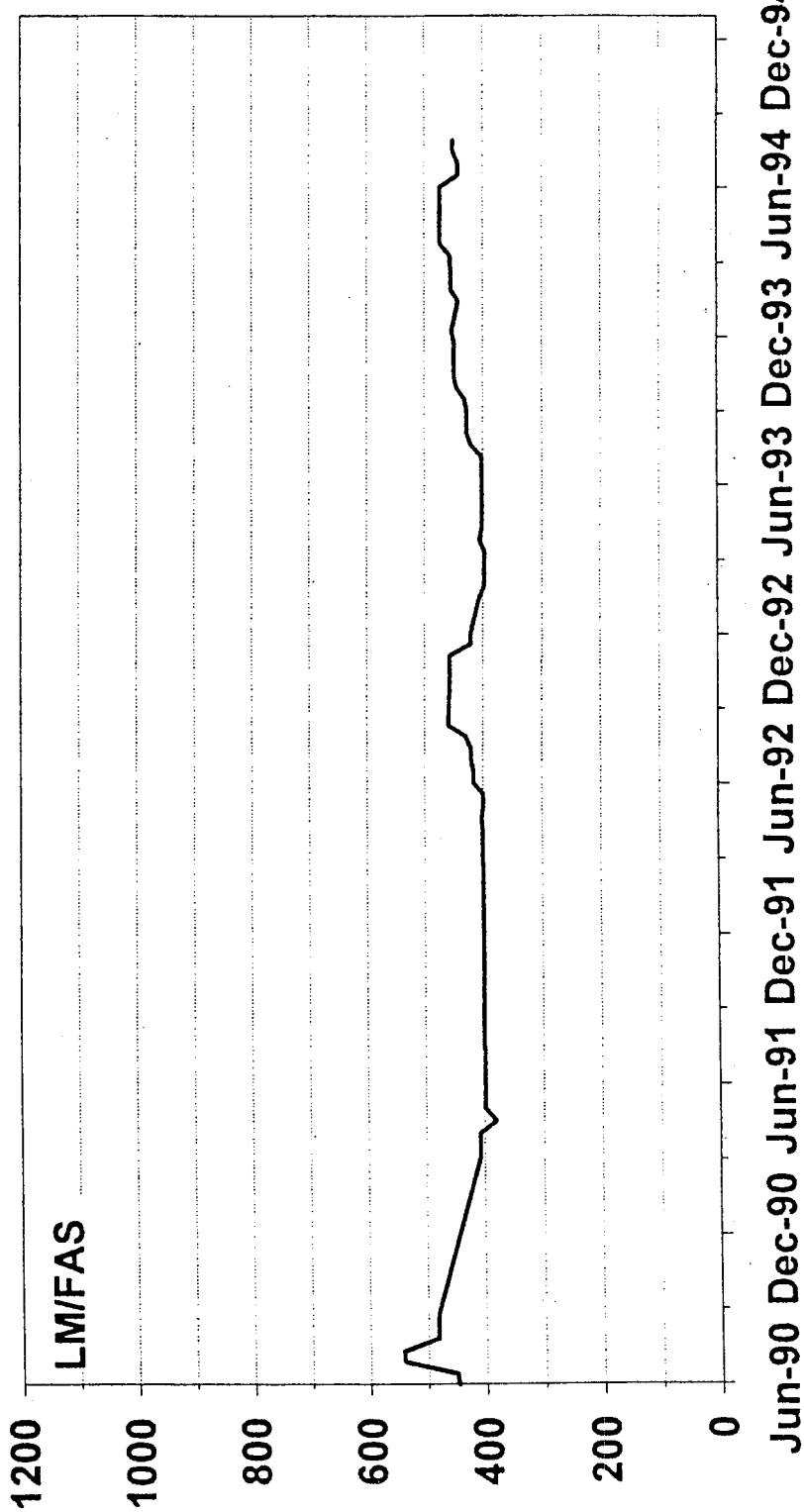
MAKORÉ

Tieghemella spp. (Sapotaceae)



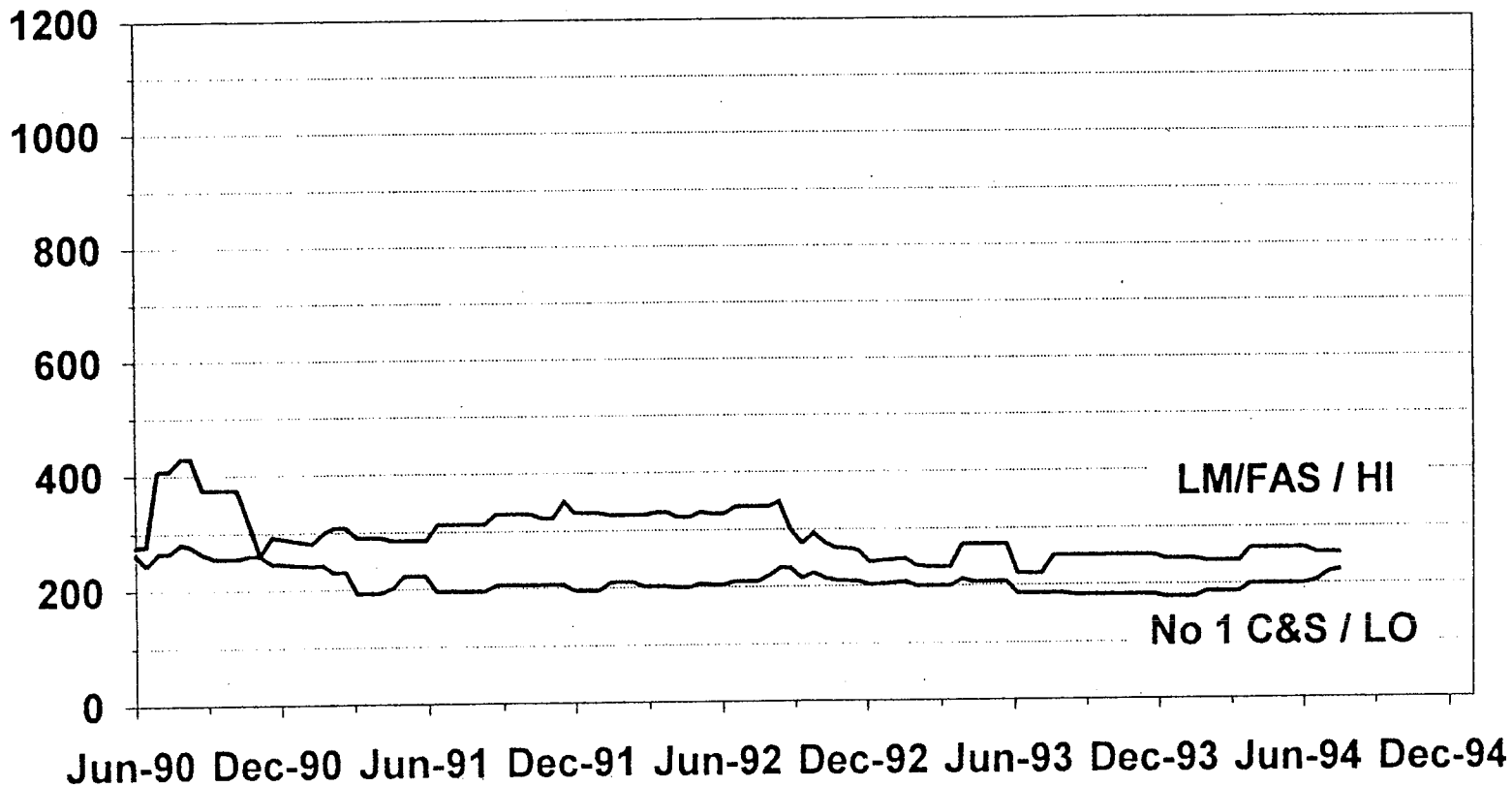
NIANGON

Heritiera spp. (Sterculiaceae)



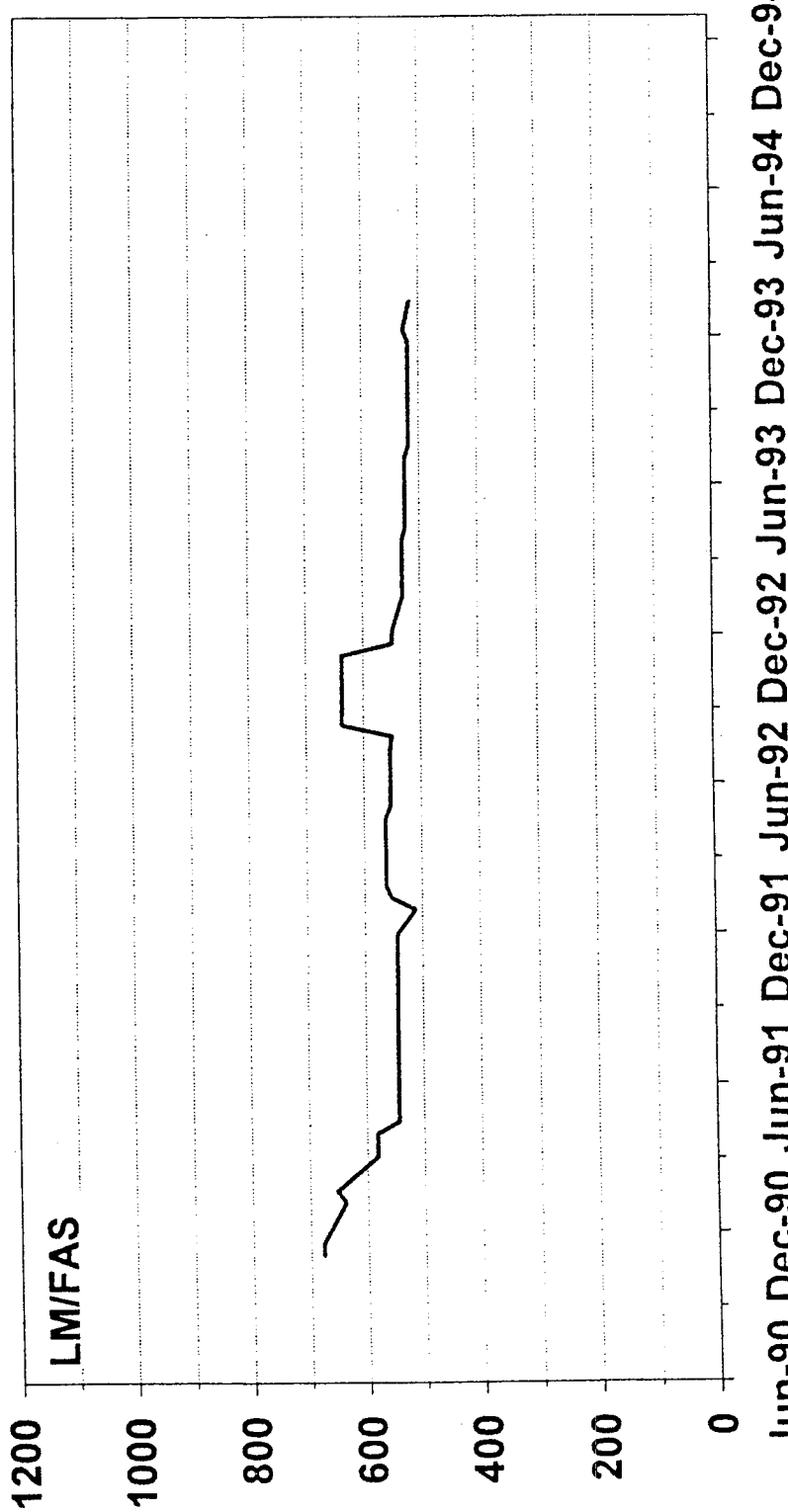
OBECHE

Triplochiton spp. (Sterculiaceae)



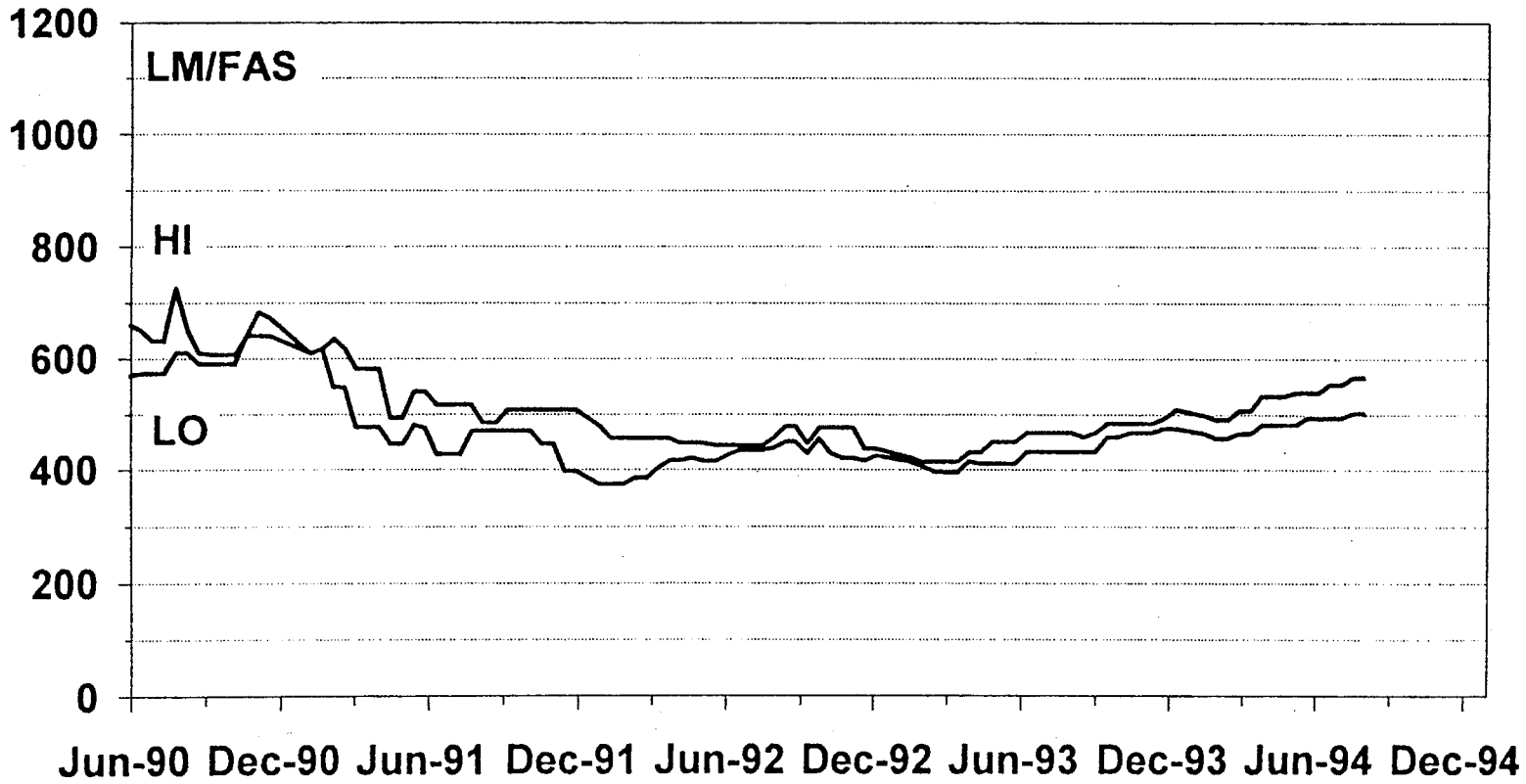
OVENGKOL

Guibourtia ehie (Caesalpiniaceae)



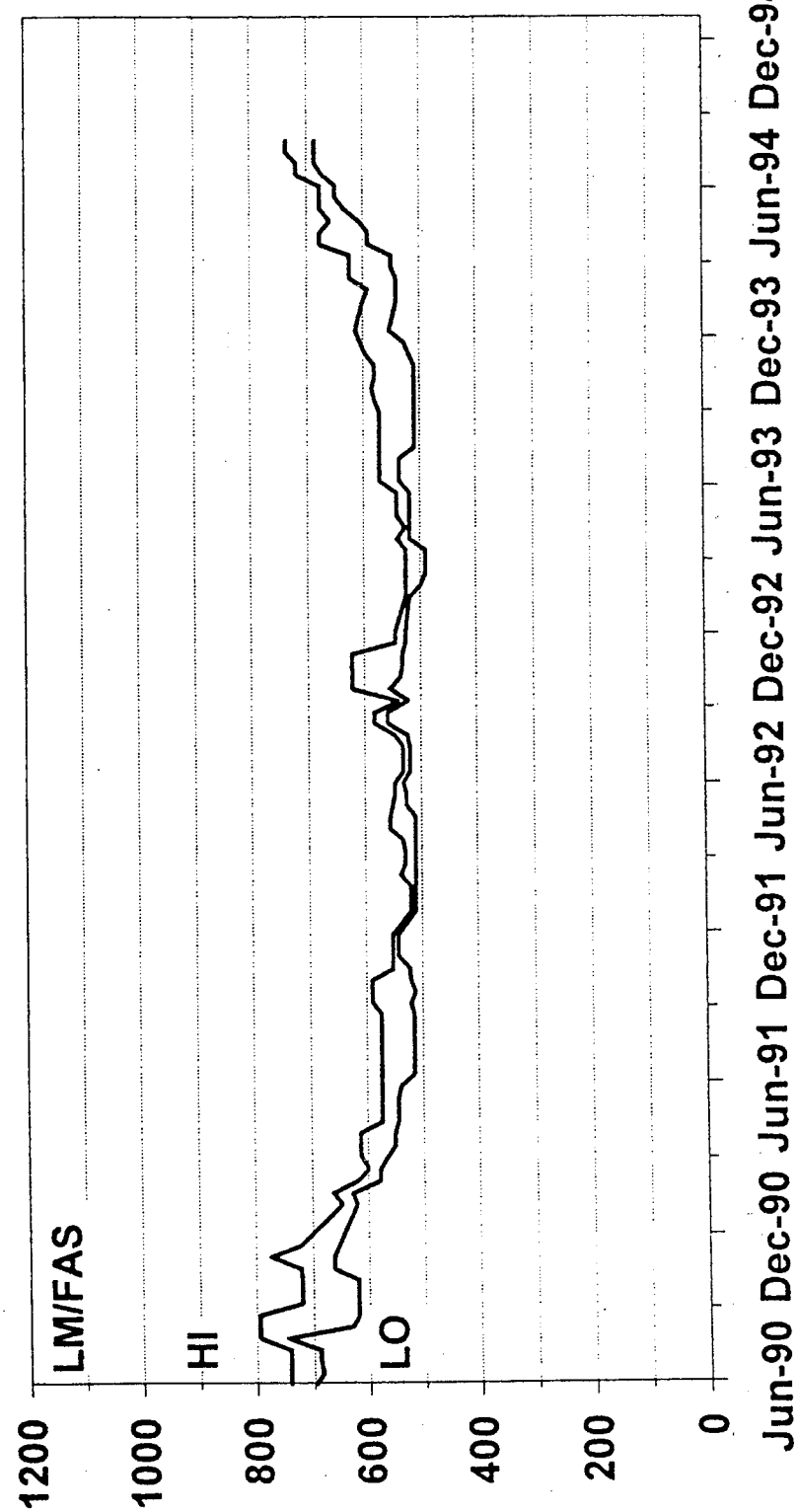
SAPELLI

Entandrophragma cylindricum(Meliaceae)



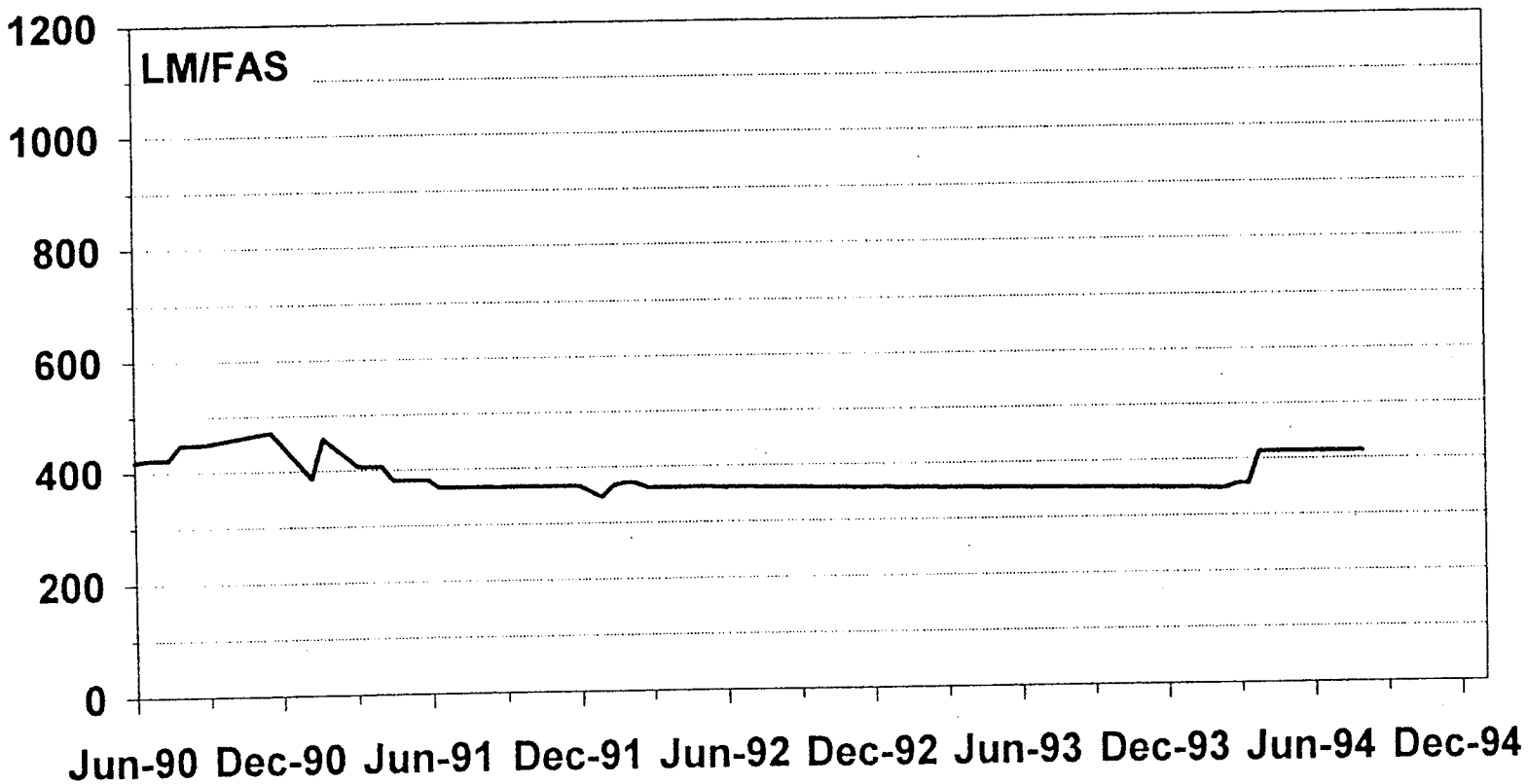
SIPO

Entandrophragma utile (Meliaceae)



TIAMA

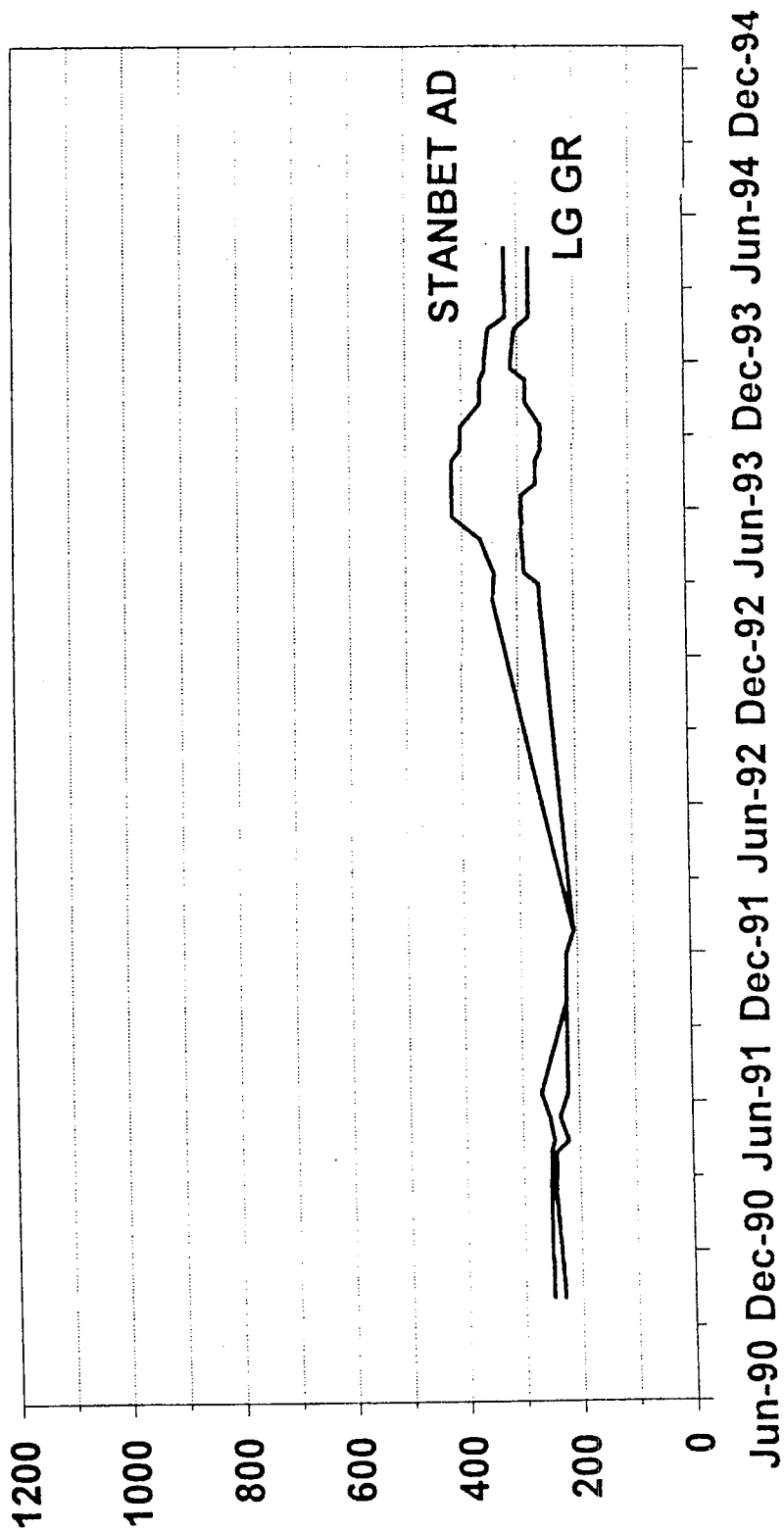
Entandrophragma congoense (Meliaceae)



5.4 Asian Sawnwood ($/m^3 FOB, 1990 dollars)

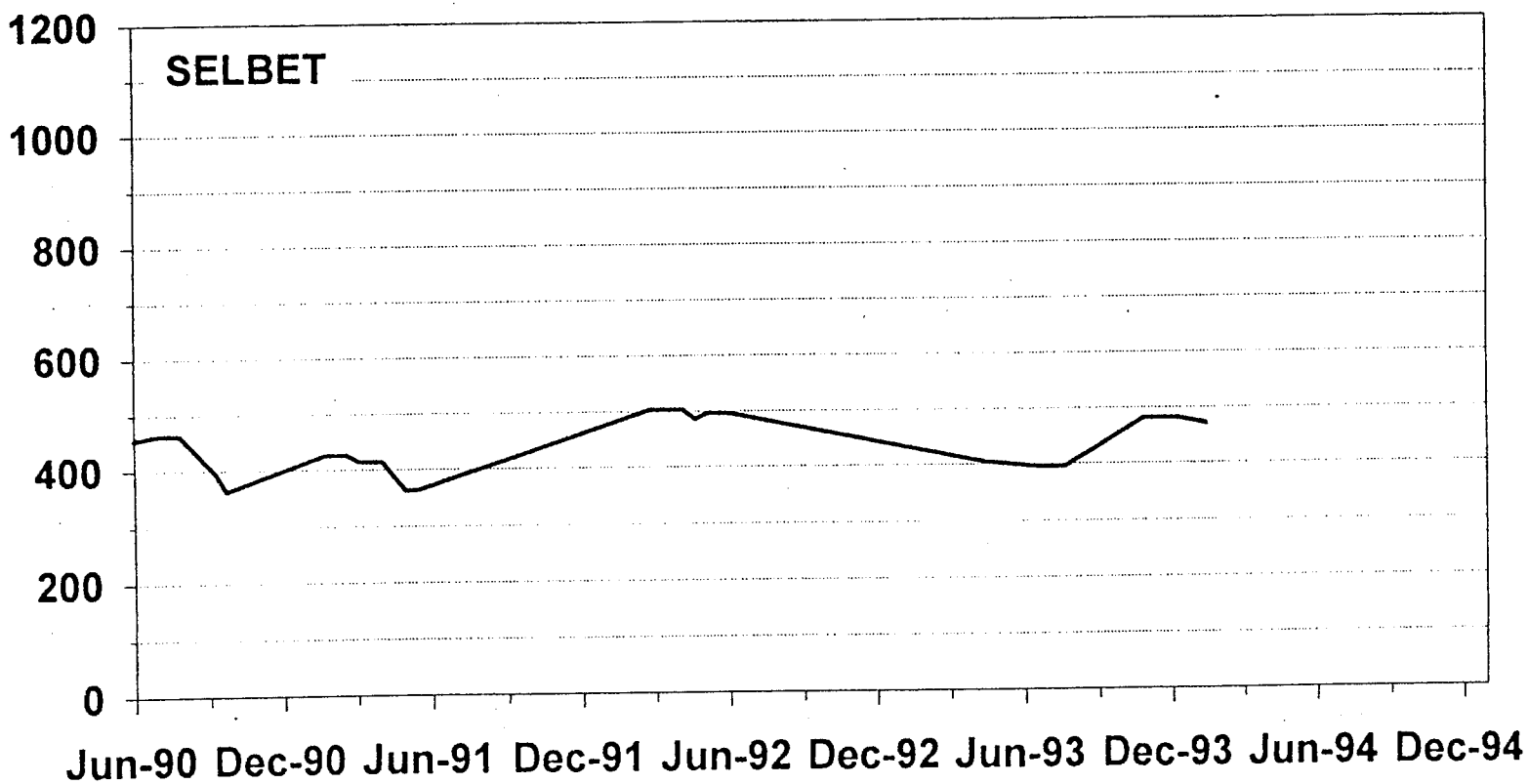
BALAU

Shorea glauca (Dipterocarpaceae)



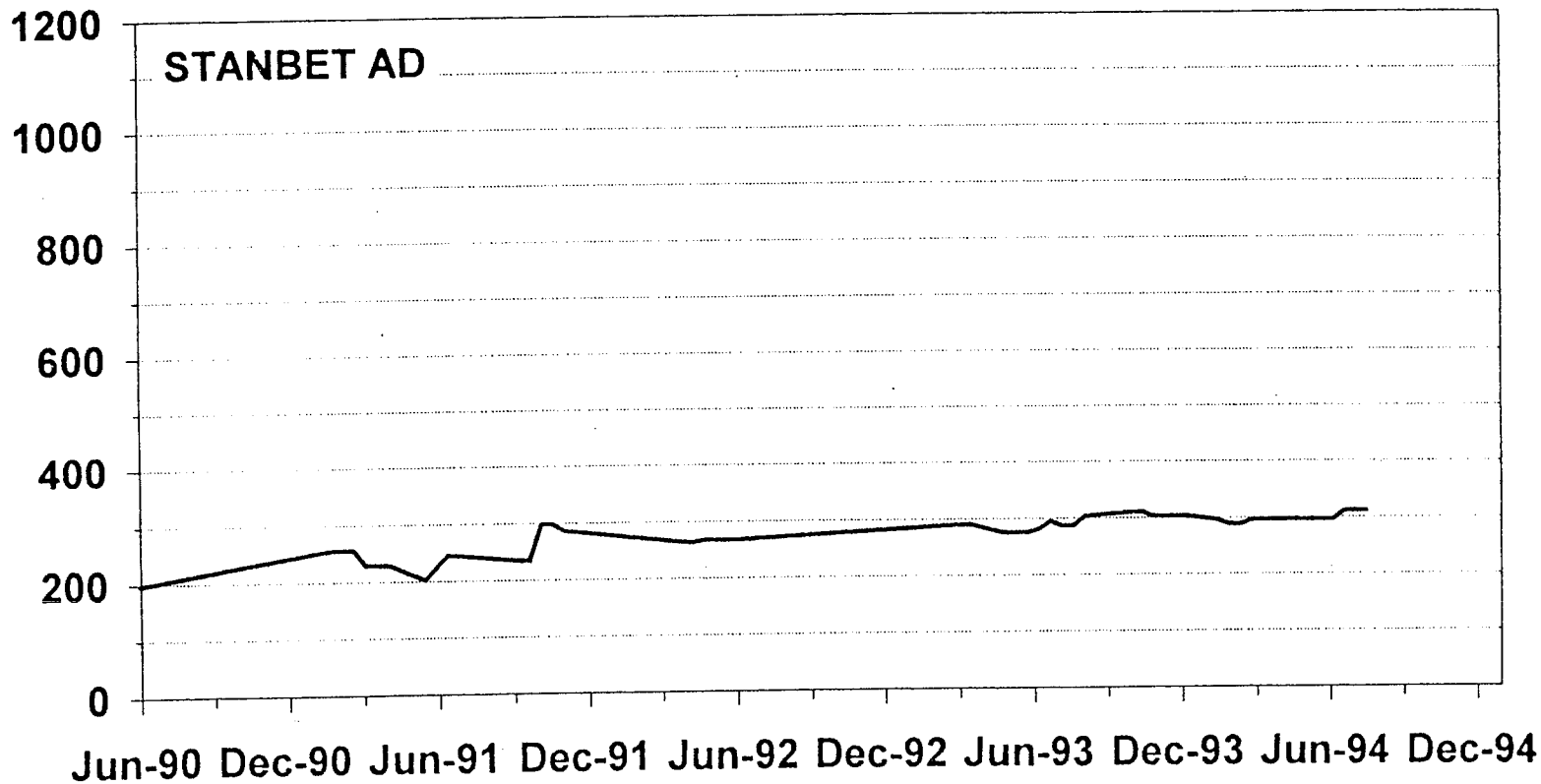
JELUTONG

Dyera costulata (Apocynaceae)



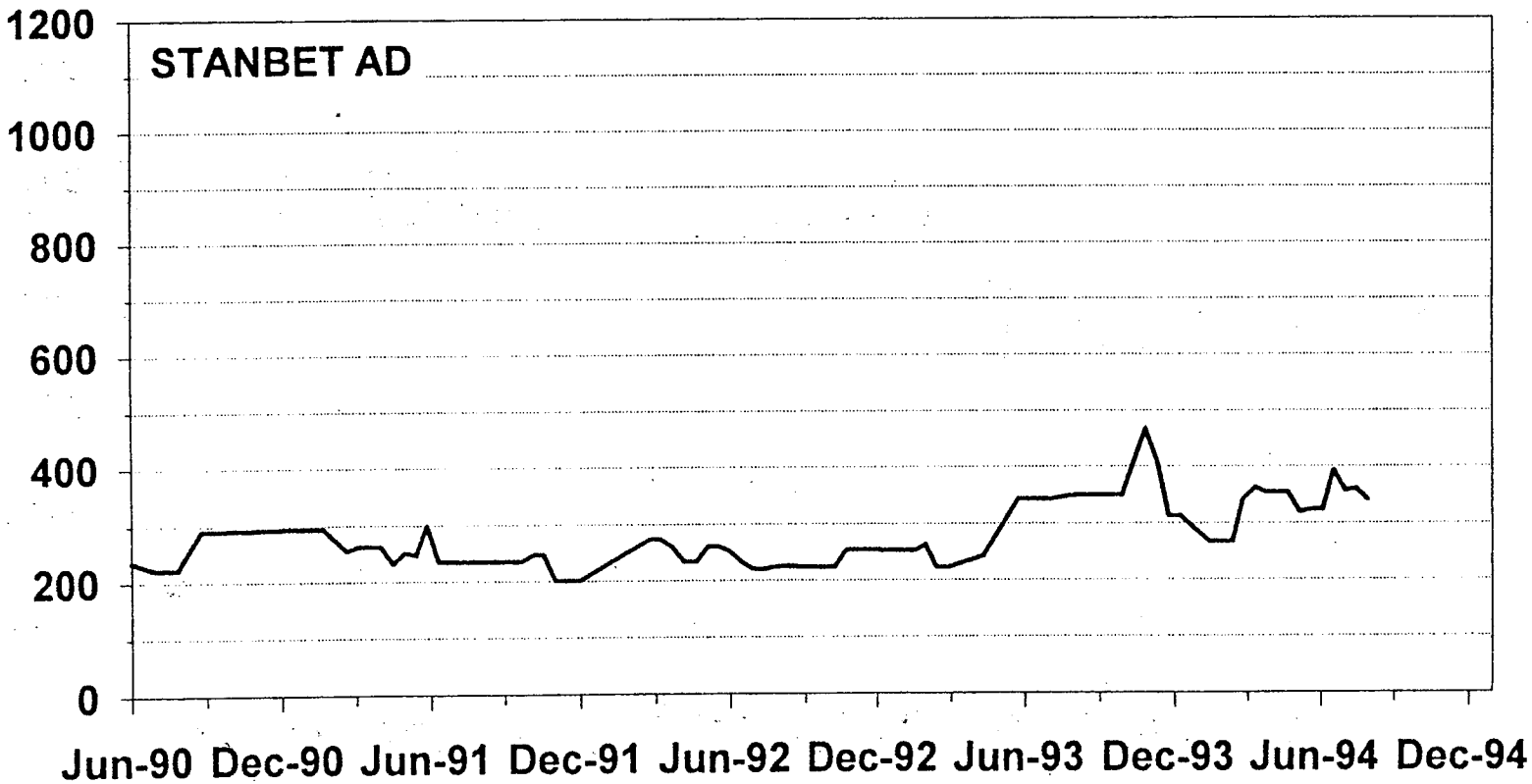
KAPUR

Dryobalanops spp. (Dipterocarpaceae)



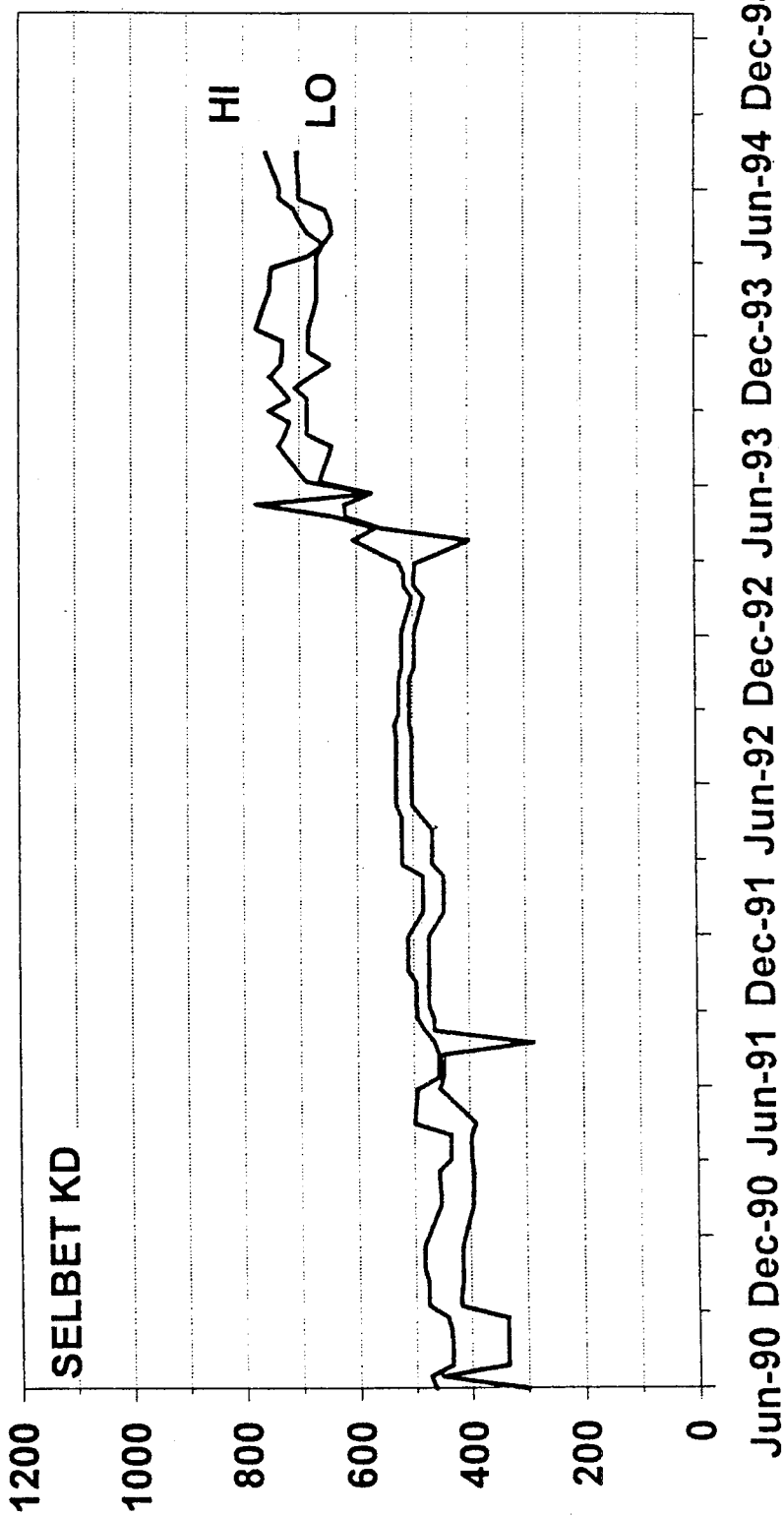
KERUING

Dipterocarpus spp. (Dipterocarpaceae)



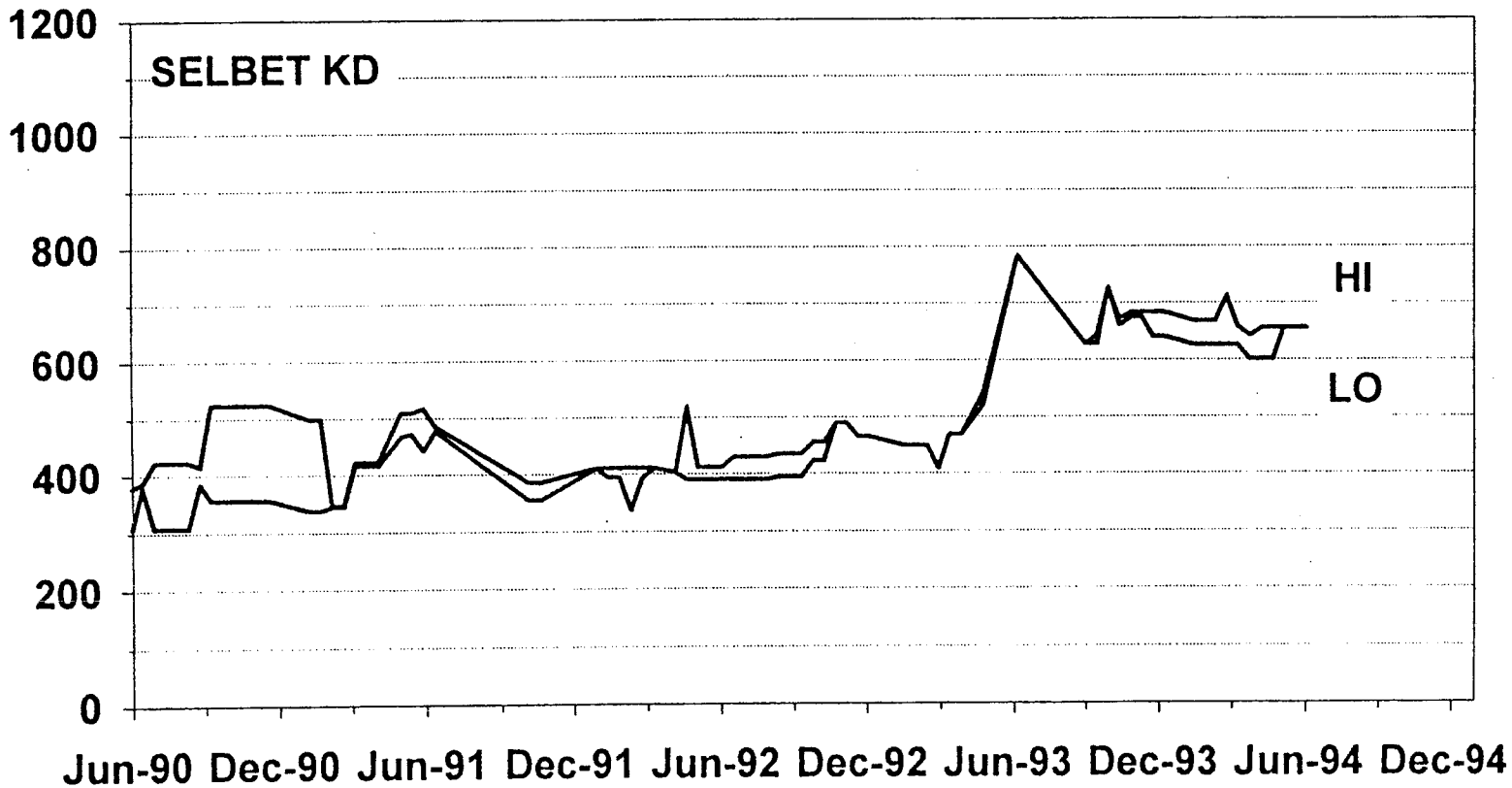
DARK RED MERANTI

Shorea spp. (Dipterocarpaceae)



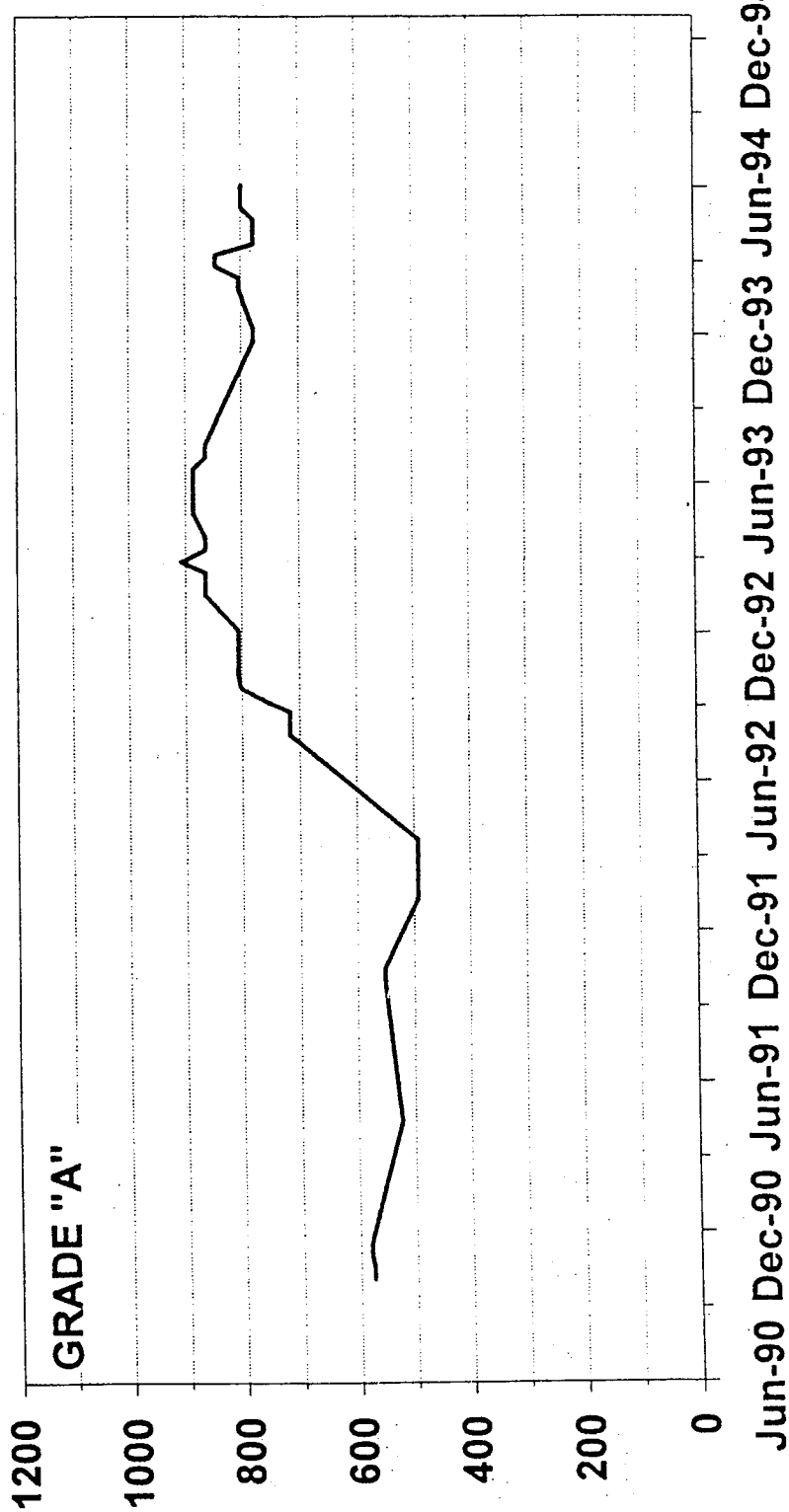
LIGHT RED MERANTI

Shorea spp. (Dipterocarpaceae)



WHITE SERAYA

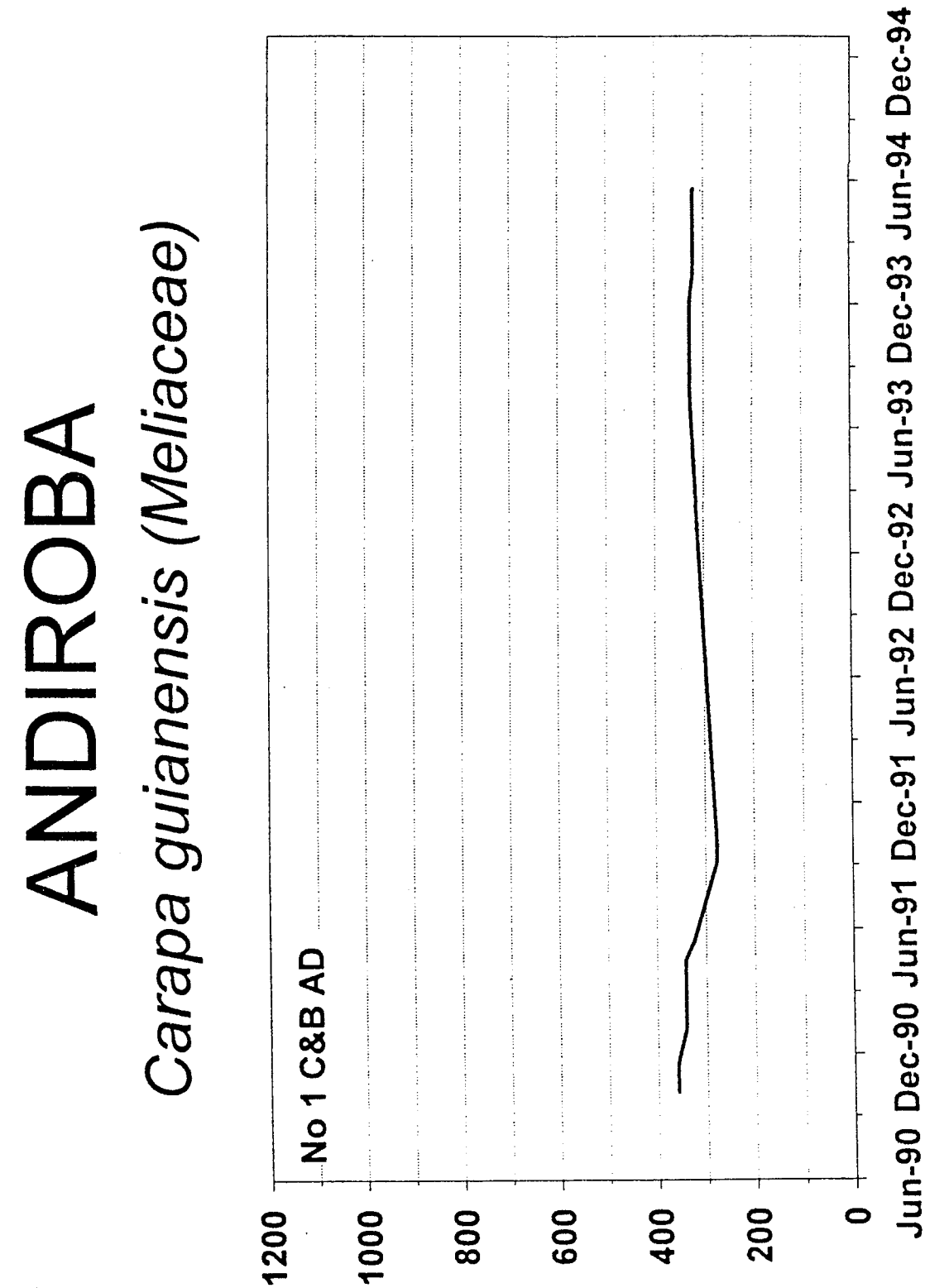
Parashorea spp. (Dipterocarpaceae)



5.5 Latin American Sawnwood ($/m^3 FOB, 1990 dollars)

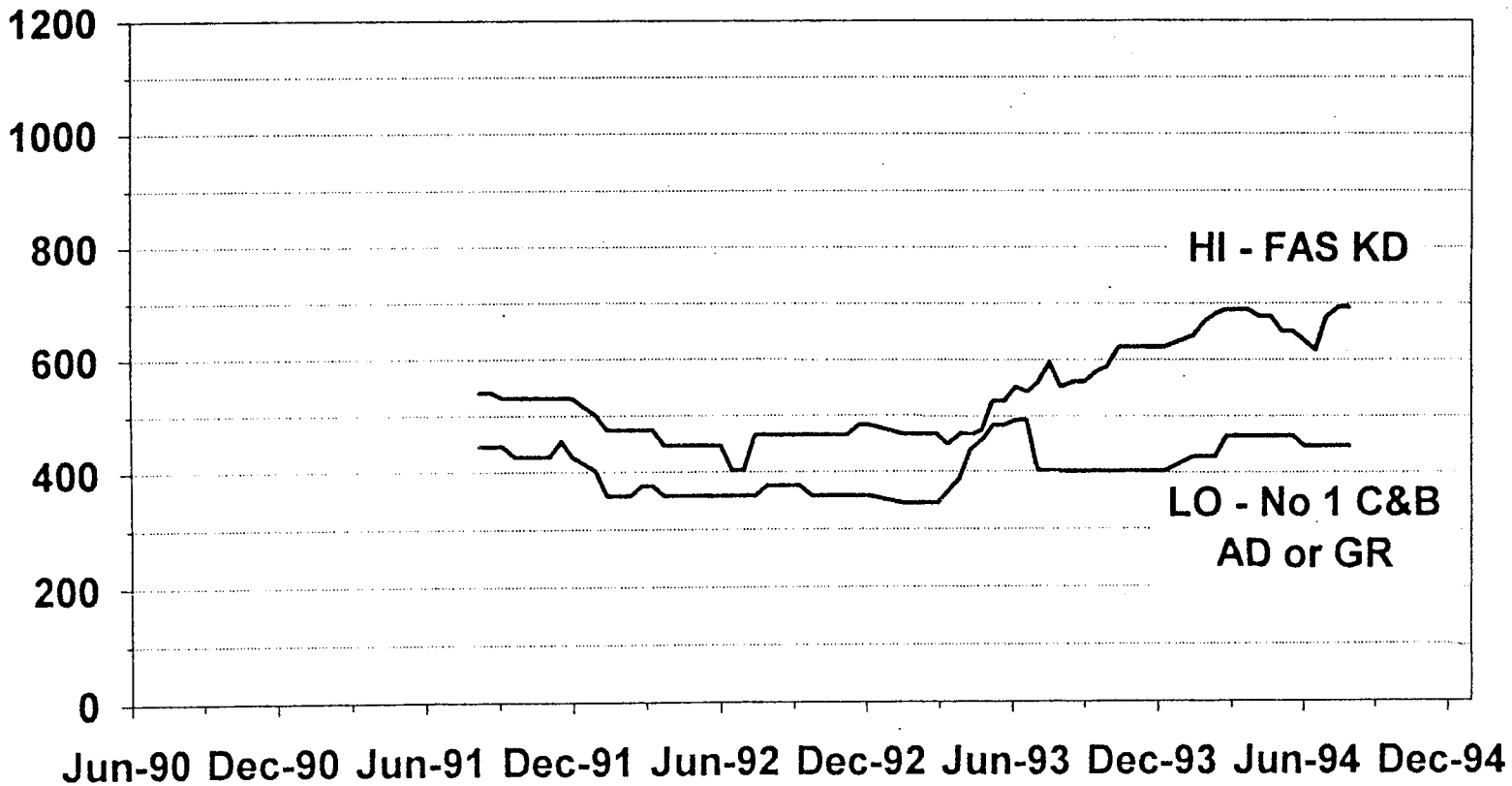
ANDIROBA

Carapa guianensis (Meliaceae)



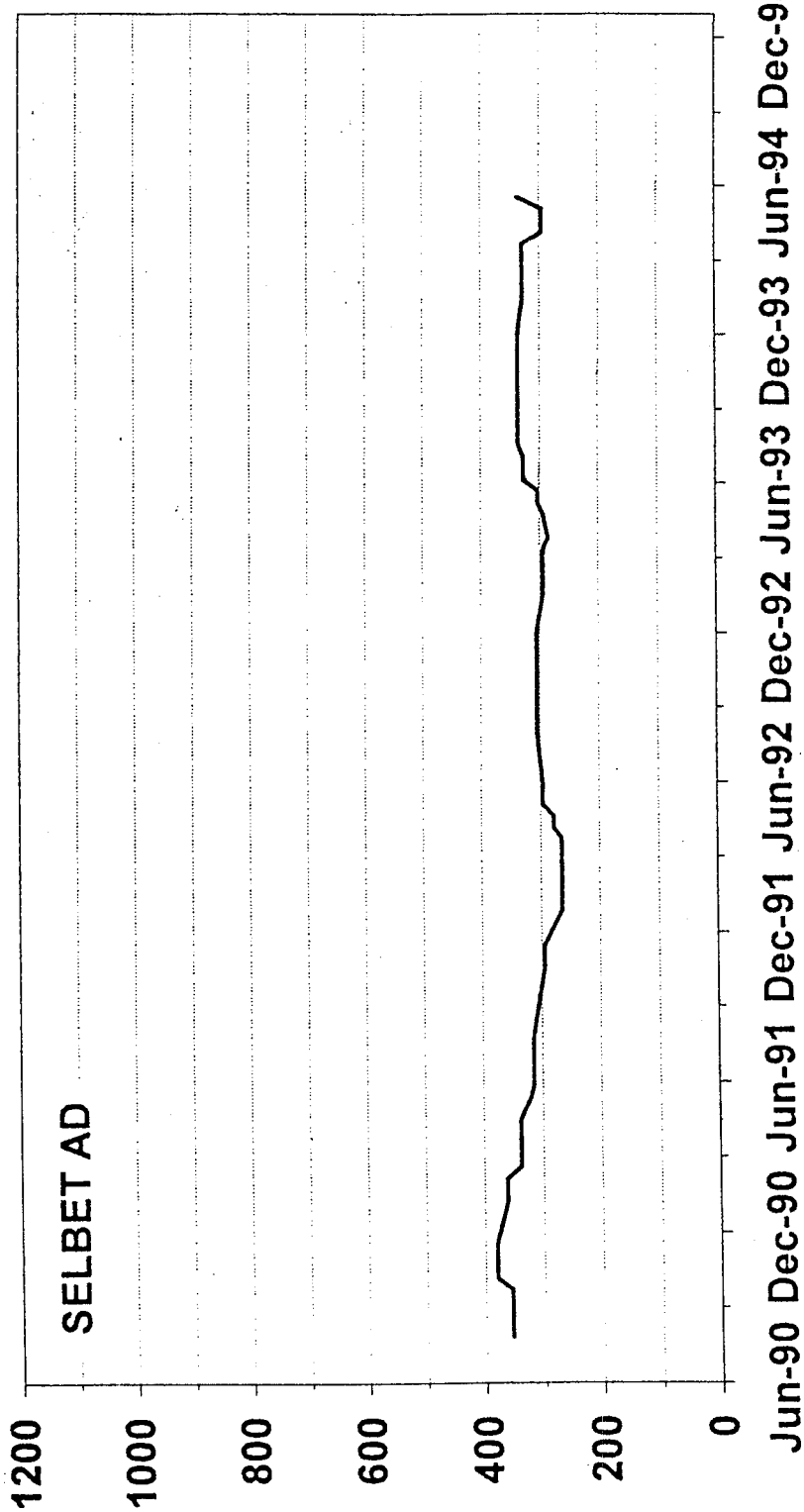
CEDRO

Cedrela odorata (Meliaceae)



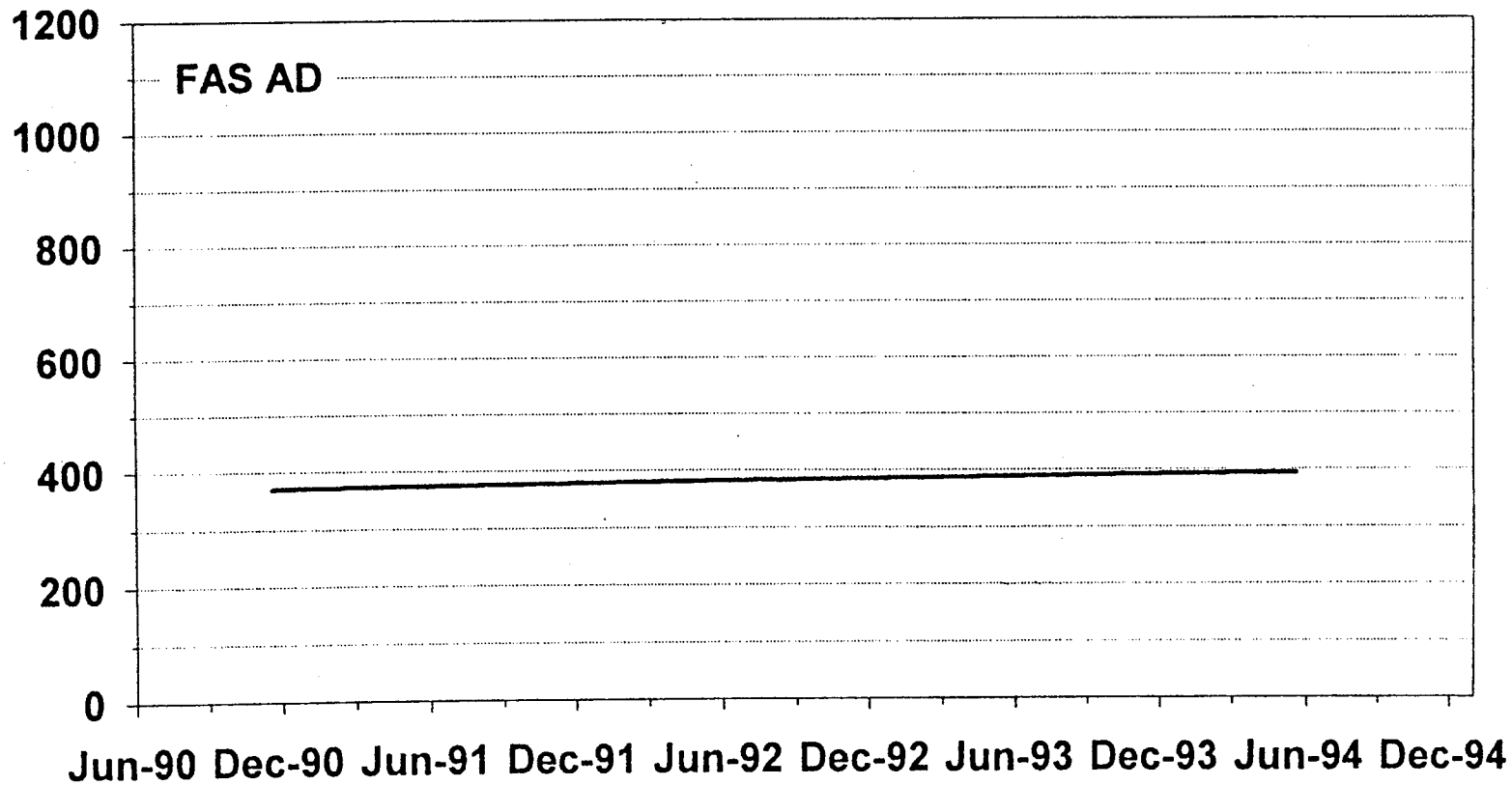
COURBARIL

Hymenaea spp. (Caesalpiniaceae)



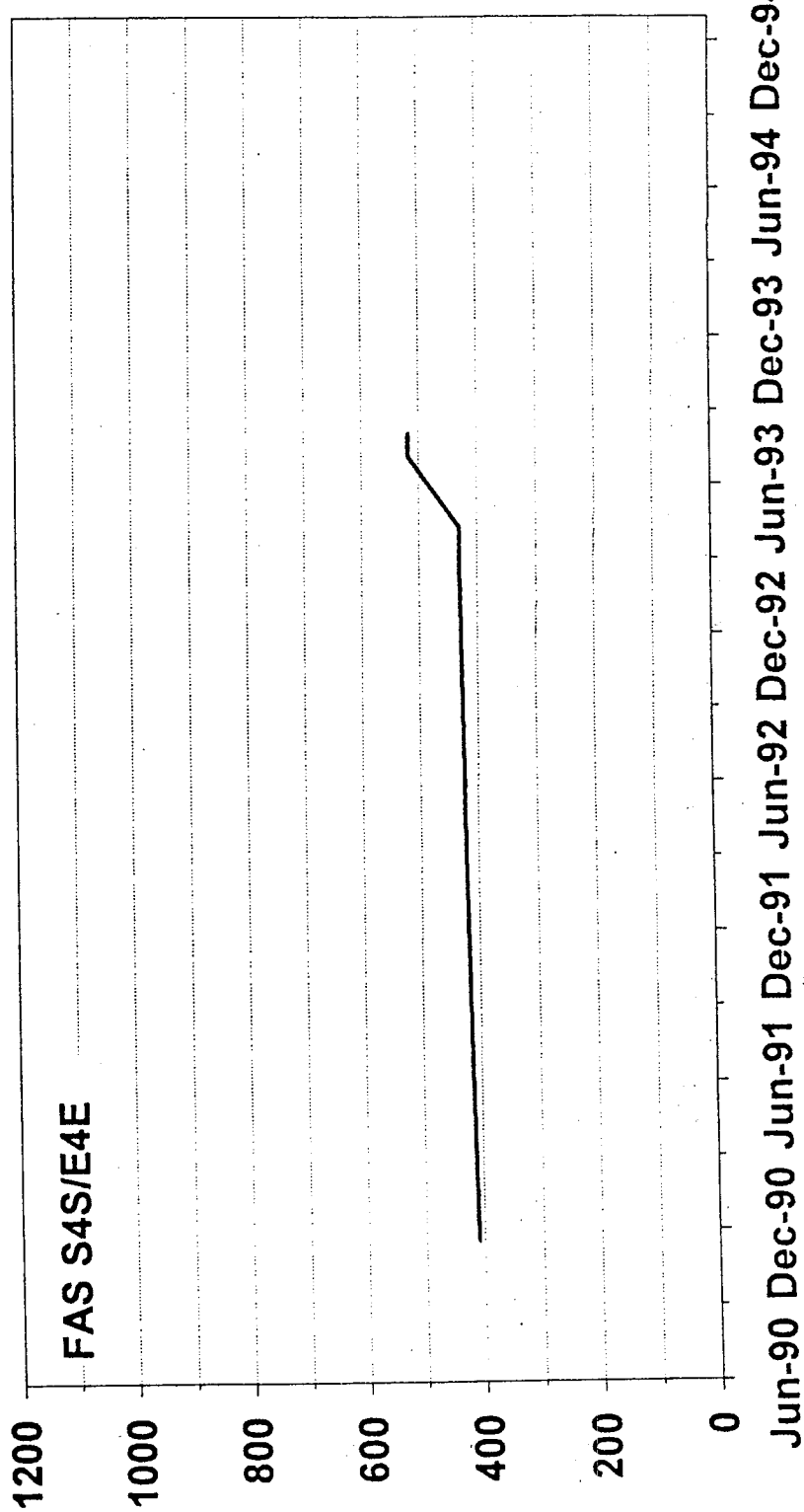
CUMARU

Dipteryx odorata (Fabaceae)



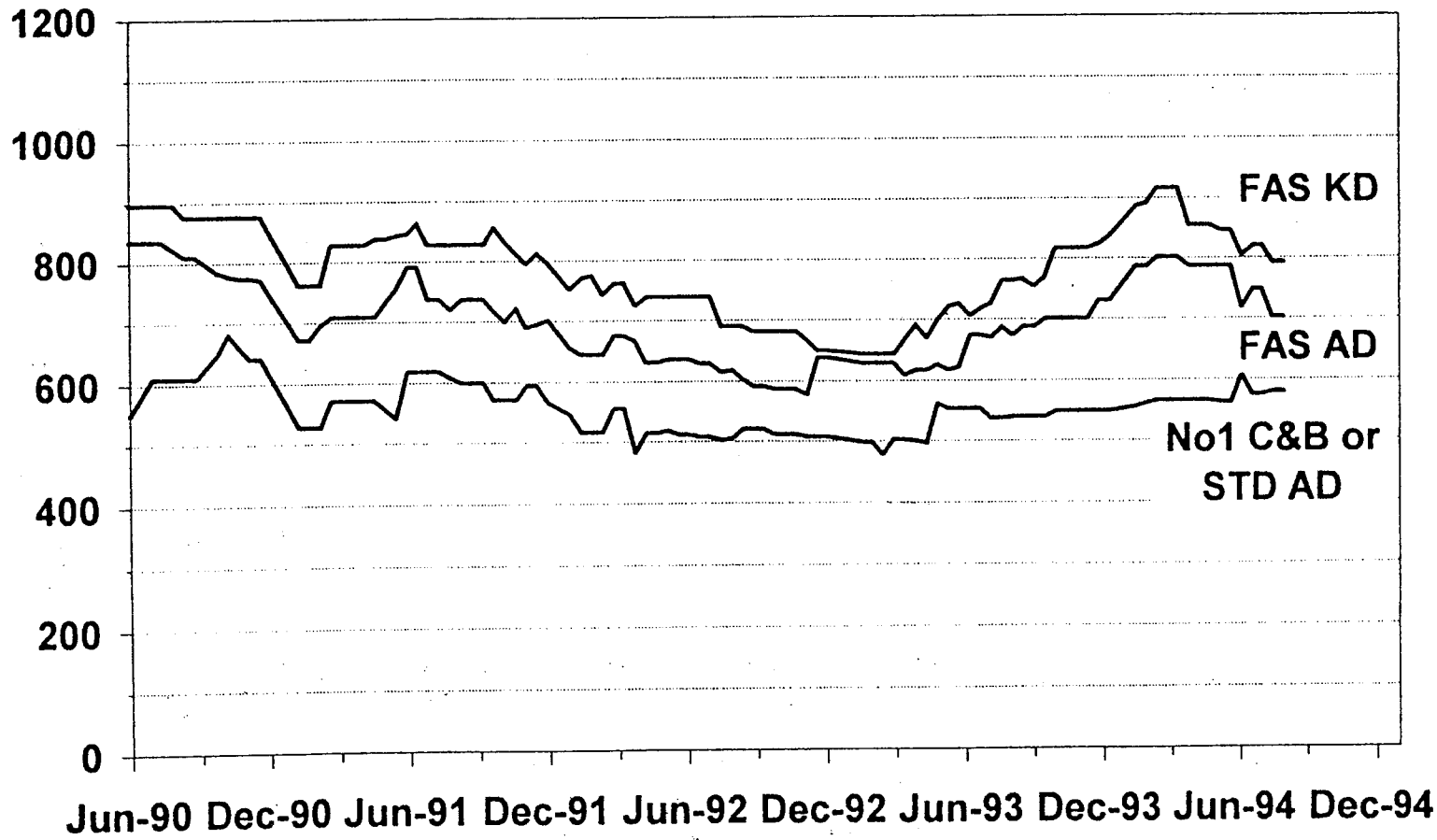
IPE

Tabebuia spp. (Bignonaceae)



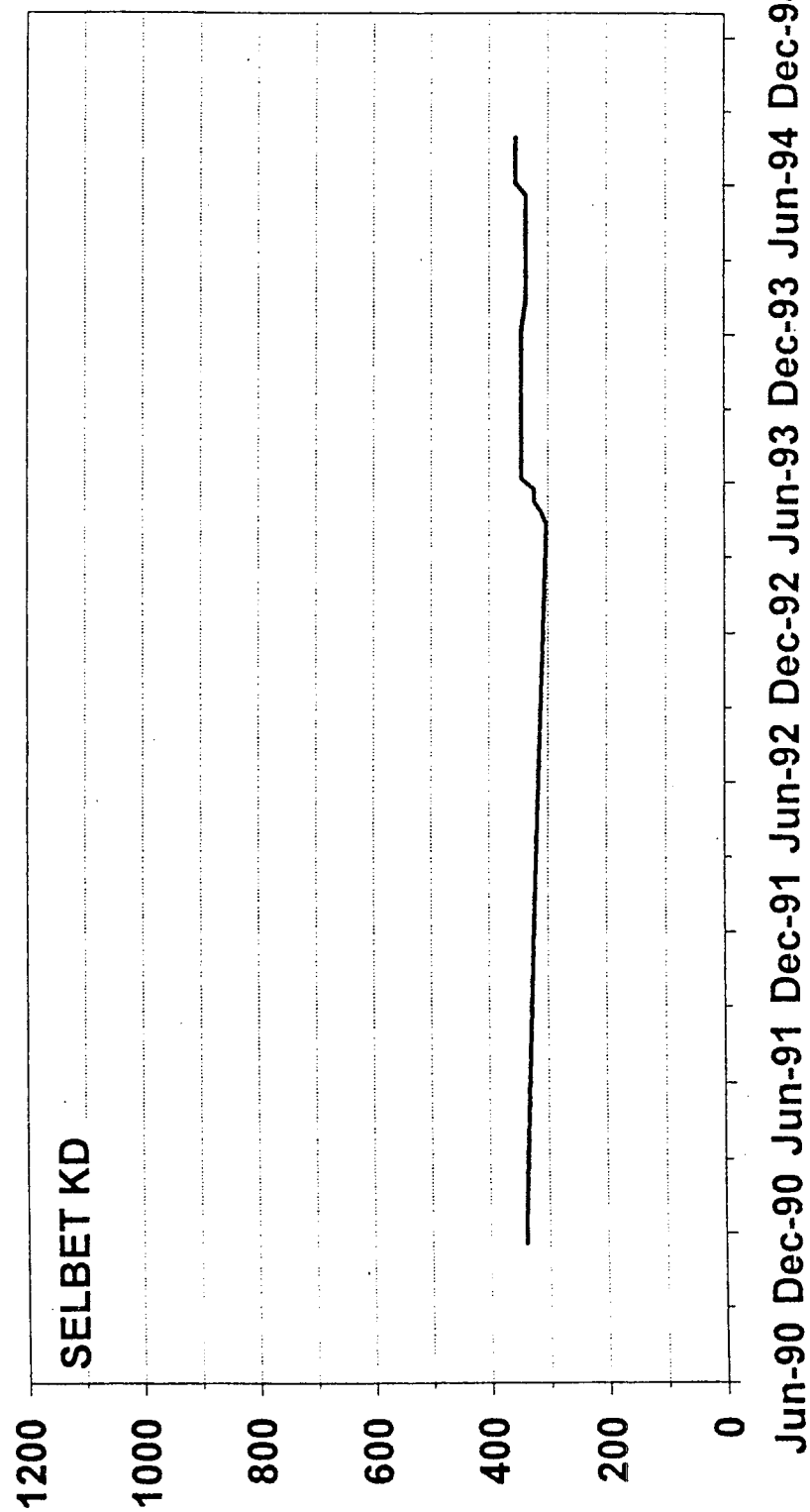
MAHOGANY

Swietenia macrophylla (Meliaceae)



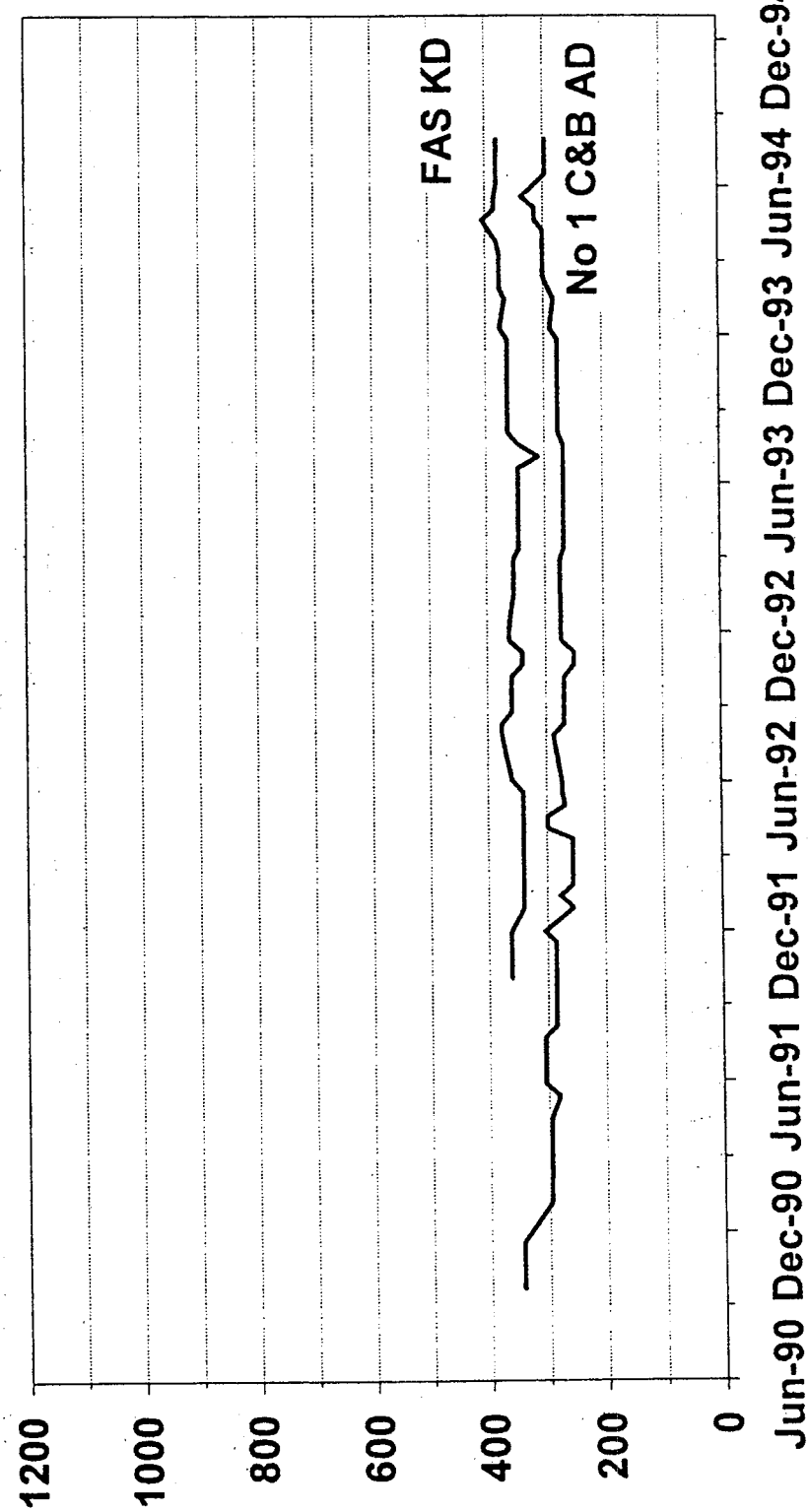
MARUPA

Simarouba amara (Simaroubaceae)



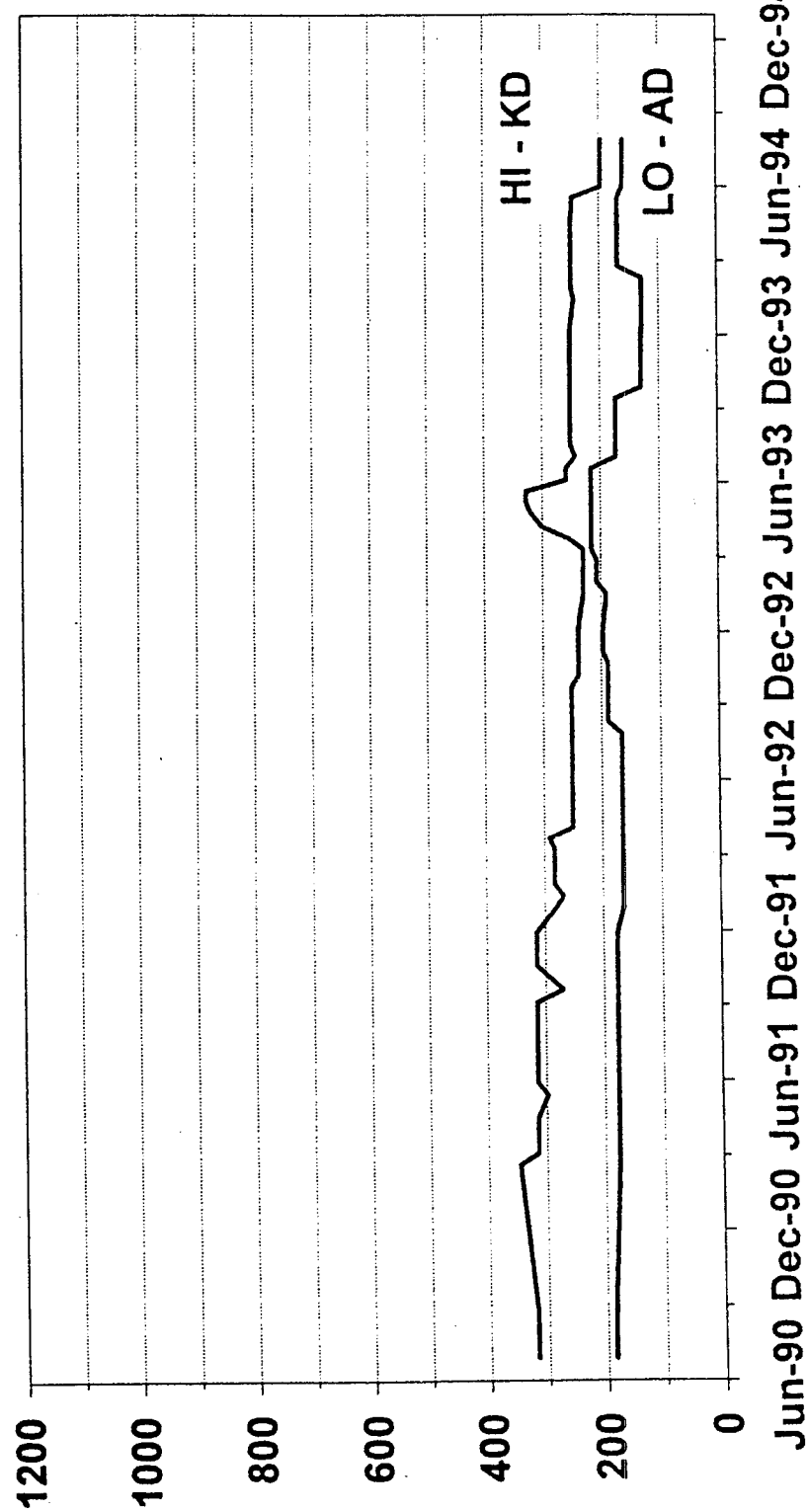
MORAL

Chlorophora tinctoria (Moraceae)



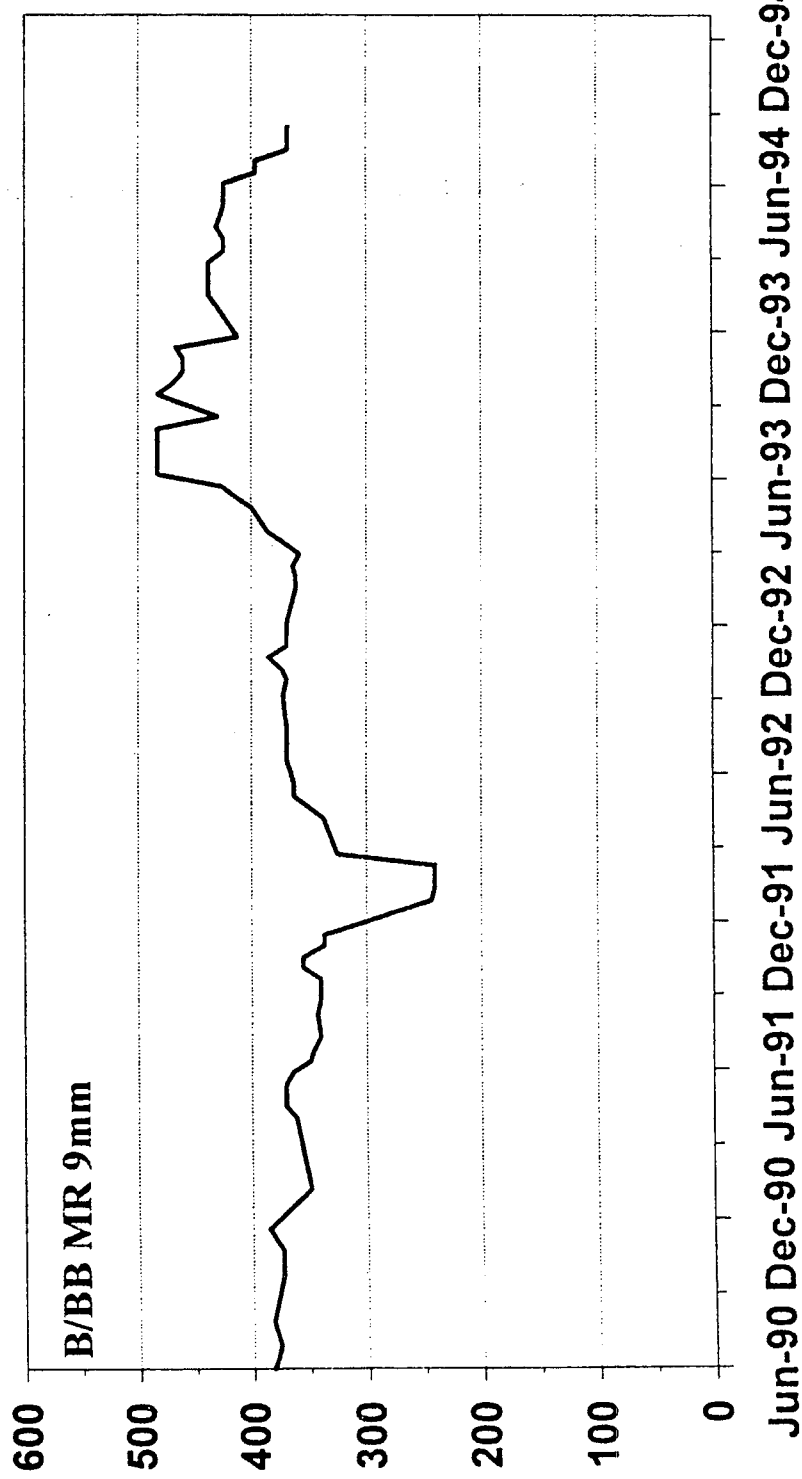
VIROLA

Virola spp. (Myristicaceae)

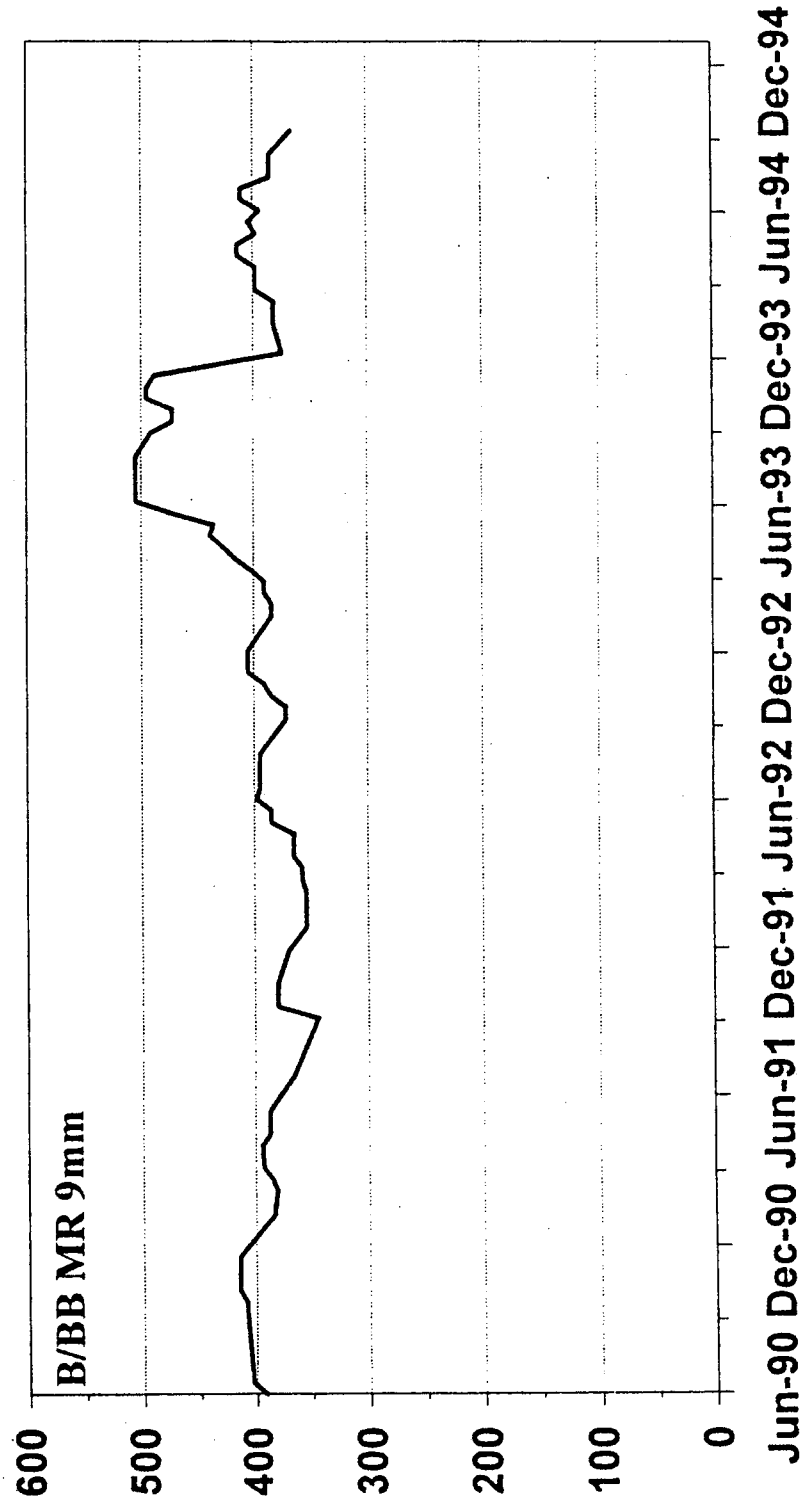


5.6 Plywood ($/m^3 CIF - Europe, 1990 dollars)

PLYWOOD
INDONESIA



PLYWOOD
MALAYSIA



PLYWOOD

BRASIL