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1. OVERVIEW

In 1988 and 1989 the hardwood based industry in tropical producing countries, particularly their export sector, continued to grow, fueled by steady demand and higher prices not only in the major consumer markets of Japan and West Europe, but also in Korea and Taiwan Province of China.

The total value of tropical timber products[1] exported by producing countries was US$ 7 100 million, 10.5 percent over the previous record level of US$ 6 400 million in 1987.

The share of total production of tropical sawlogs and veneer logs processed in industries in producing countries increased from 79.9 percent in 1987, to 82.2 percent in 1988 (Table 1). Latin American/Caribbean producers continued to process locally almost their entire production, and the share of supply, processed locally for export, increased to 6.4 percent (from 5.7 percent in 1987), reflecting continuing strong demand in importing countries and some degree of stagnation in domestic markets. Asia/ Pacific, because of steadily growing outputs of the exporting industries in Malaysia and Indonesia decreased the share of production traded abroad in log form to 24.1 percent (from 28.0 percent in 1987), in spite of slightly higher log production and export from Sarawak, Malaysia. The increased availability of raw material in Asia/Pacific allowed a substantial expansion of local processing for external markets, with export industries using 33.1 percent of total regional log supply in 1988 compared to 31.1 percent in 1987 and only 27.4 percent in 1986. The share of African log supply going for export remained nearly unchanged at approximately 23 percent, but, in contrast to Asia/Pacific and Latin America/Caribbean, the region decreased the share of export of locally processed timber, which declined to 11.3 percent in 1988, compared to 12.1 percent in 1987.

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[1] Includes tropical sawlogs and veneer logs, sawnwood, veneer and plywood.

TABLE 1: SUPPLY OF TROPICAL SAW AND VENEER LOGS AND COMPOSITION OF EXPORTS 1987 - 1988

1987	AFRICA	ASIA/ PACIFIC	LATIN AMERICA/ CARIBBEAN	TOTAL
TOTAL SUPPLY (m^3)	15 646 353	89 254 304	37 785 800	142 686 457
PERCENTAGE EXPORTED AS LOGS	23.0	28.0	0.1	20.1
PERCENTAGE EXPORTED IN PROCESSED FORM[1]	12.1	31.1	5.7	18.0

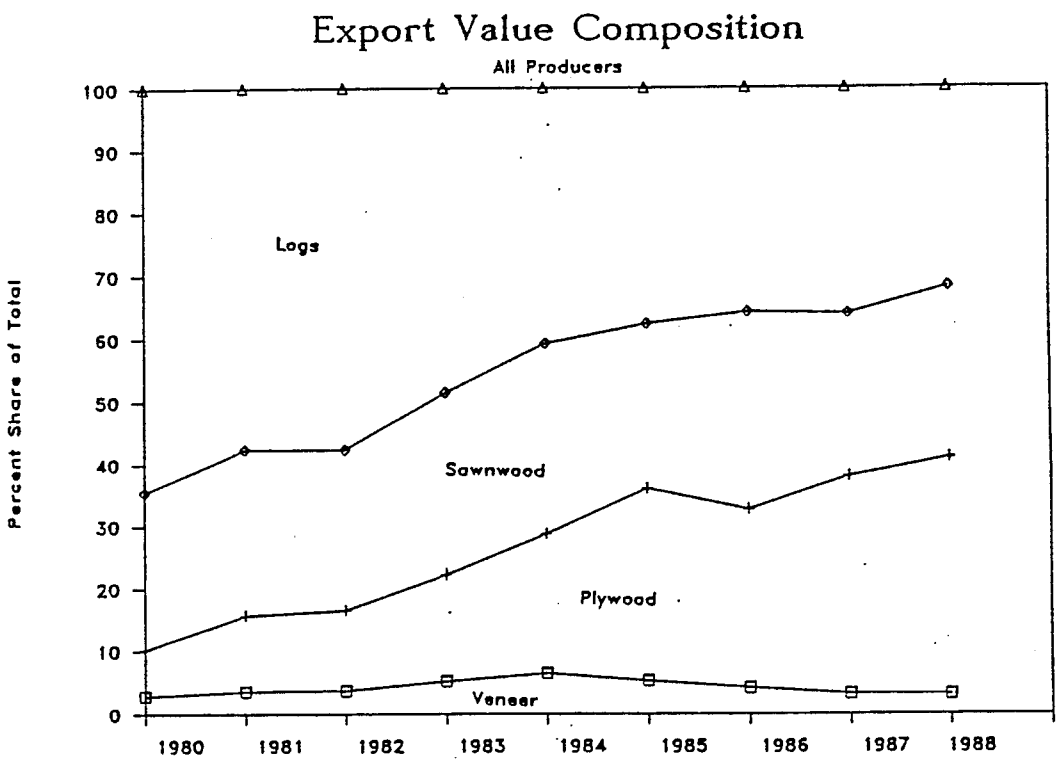
1988	AFRICA	ASIA/ PACIFIC	LATIN AMERICA/ CARIBBEAN	TOTAL
TOTAL SUPPLY (m^3)	16 637 200	92 206 919	37 622 300	147 466 419
PERCENTAGE EXPORTED AS LOGS	22.5	24.1	0.2	17.8
PERCENTAGE EXPORTED IN PROCESSED FORM[1]	11.3	33.1	6.4	23.9

[1] Includes only timber exported as sawnwood, veneer and plywood.

Most producing countries, particularly in Asia/Pacific, continue to strengthen their efforts to further develop downstream processing with the objectives of conserving resources, creating jobs and obtaining more export earnings.

Export of unprocessed logs has successively decreased in relative importance in international trade with tropical timber since 1988. Plywood export has correspondingly increased its share of total trade, while sawnwood and veneer have retained their positions. This development is illustrated in Figure 1.

FIGURE 1



Those producing countries, that have policies to develop and expand downstream processing for export markets, are recording substantial progress in marketing of products from secondary processing, particularly machined lumber and furniture (including rattan furniture). Export of these products from ITTO's Asia/Pacific producing Members is estimated to have exceeded US$ 400 million in 1988.

Further development of furniture industries in Asian countries may be stimulated by improved access to and competitiveness in the Japanese market. The share of imported furniture has been around 3 percent in the Japanese furniture market through 1986, but increased sharply to 4.6 percent in 1987. Analysts point out that Japanese furniture import from New Industrialized Countries (NIC) is rapidly increasing because of improvement in product quality and lower manufacturing costs.

In Asia/Pacific, the trend to optimize use of rubberwood resources for manufacturing of higher added value products continued with the establishment of three new MDF plants, two in Malaysia and one in Thailand. The plant in Thailand will have a capacity of 90,000 m^3 per year, mainly thin MDF panels, and its start up is planned for late 1991. One of the plants in Malaysia will most probably concentrate on thick furniture type panels, and its start-up schedule calls for the mill to be completed by mid-1991 operating at 60-70 percent of one-shift capacity after one year.

Mounting environmental concern continues to be the most important factor affecting tropical timber industries and trade, in both producing and consuming countries. In response to worldwide campaigns for improvement of regulations and stricter control on forest harvesting and international tropical timber trade, governments of most producing countries are adjusting policies and related legislation on forestry and trade practices consistent with sustainability and conservation needs.

Reacting to campaigns against tropical timber, launched by radical conservation NGOs, the governments of Indonesia and Malaysia have recently agreed on joint action and collaboration to counter such movements and also to share scientific and technological expertise in the field of tropical forestry. Along the same lines, tropical forestry experts from Latin America/Caribbean and African countries, attending the ITTO sponsored seminars to promote regional forest industry development, called upon ITTO to launch public information campaigns to stress the importance of sustainable management and utilization for the conservation of tropical forests.

2. PRODUCTION

2.1 LOGS

World supply of tropical industrial hardwood logs reached 147.5 million m^3 in 1988, exceeding by approximately 4.8 million m^3 (3.4 percent) the previous highest production, registered in 1987 (revised downward to 142.7 million m^3). The production increase was mainly the result of higher outputs in Indonesia and Malaysia. In comparison, the supply of temperate hardwood increased to 137.8 million m^3 or 1.7 percent over the revised 1987 figure of 135.5 million m^3. The supply of coniferous logs also continued to grow and rose to 727.7 million m^3 (0.66 percent over 1987).

The present trends in expansion of production of industrial logs showed similar growth rates to those observed during the period 1970-1986, when the world supply of saw and veneer logs of tropical hardwoods, temperate hardwoods and coniferous species rose by 2.1, 1.5 and 0.75 percent per year respectively. The production of tropical hardwood logs and the percent share of the tropical timber producing regions in world production of logs are shown in Tables 2 and 3.

TABLE 2: PRODUCTION OF SAW AND VENEER HARDWOOD LOGS
(m^3)

	1980	1985	1987	1988
AFRICA	17 429 000	16 540 400	15 646 353	16 637 200
ASIA PACIFIC	83 621 008	80 602 008	89 254 304	93 206 919
LATIN AMERICA/CARIBBEAN	28 038 800	29 198 100	37 785 800	37 622 300
TOTAL	129 124 908	126 054 008	142 686 457	147 466 419

Source: FAO Agrostat Database
ITTO Forecasting Enquiry Database

TABLE 3: PERCENT SHARE OF TROPICAL TIMBER PRODUCING REGIONS IN WORLD PRODUCTION OF SAW AND VENEER HARDWOOD LOGS

	1980	1985	1987	1988
AFRICA	6.62	6.57	5.62	5.83
ASIA/PACIFIC	31.78	32.00	32.08	32.68
LATIN AMERICA/CARIBBEAN	10.66	11.59	13.58	13.19
TOTAL	49.06	50.16	51.29	51.70

Source: FAO Agrostat Database
ITTO Forecasting Enquiry Database

Asia/Pacific still accounts for almost two-thirds of total supply of tropical hardwood saw and veneer logs. However, apart from Indonesia, Malaysia and Myanmar, the countries of the region showed stagnant or even declining outputs. In fact, Thailand and India, and more recently Philippines, are importing tropical hardwood logs to supplement local supplies for the domestic wood processing industries.

Malaysia, which in 1987 had increased production by 16 percent over 1986, further expanded output by 4.1 percent in 1988, establishing a new production record of 36 million m^3. Larger outputs from Peninsular Malaysia and Sarawak brought about the record production, while Sabah's total harvested volume remained nearly unchanged.

In Myanmar the former state monopoly on timber extraction has been relaxed and some 22 logging concessions were reportedly issued to private enterprises from Thailand. Logs from Myanmar were expected to contribute some 2 million m^3 to the total industrial roundwood and sawnwood supply in Thailand in 1989, estimated at 4-5 million m^3. Thailand's log supply may also benefit from similar logging agreements being negotiated with Laos and Kampuchea. However, in 1988, the largest share of total log import to Thailand still came from Malaysia.

In the Latin American/Caribbean region, production of hardwood logs remained nearly unchanged in 1988, compared to the previous year, at around 38 million m^3. Throughout the 80's the region's industry continued to be affected by adverse economic conditions, and

consequent stagnant or slow growth in demand in several major producing countries.

The African production expanded by about 1 million m^3 and reached 15.6 million m^3 in 1988. Côte d'Ivoire and Liberia were the only two countries of the region to report substantial changes in log production for 1988. Côte d'Ivoire reported a production of 2.5 million m^3 (20 percent over 1987). This reported output is surprisingly high in view of expected decrease in production, because of low yields from cut-over forests and reductions in export quotas announced by the government.

Liberia's production grew by 24 percent to exceed 1 million m^3 for the first time. The upward trend in production recorded for 1988 had been fueled by steady demand in West Europe in the second half of the 80's. However, Liberia's log output is not expected to continue to expand at these high growth rates, as the government development strategy incorporates a gradual reduction of export of established species down to sustainable levels.

Table in the Appendix shows the production of logs of ITTO producing Member countries in 1987 and 1988.

2.2 SAWNWOOD

World production of sawn hardwood reached 122.2 million m^3 in 1988. Tropical hardwood processed in log producing countries accounted for 49 percent of total world sawn hardwood output, 0.7 percentage points more than in 1987. Table 4 shows that the production of tropical sawn hardwood in the three producing regions increased from 51.3 million m^3 in 1987 to 53.1 million m^3 in 1988. It is estimated that in 1988 an additional volume of 7.0 million m^3 of tropical sawnwood was produced in log importing countries, mainly in Asia - China, Hong Kong, Thailand, Japan, Republic of Korea and Singapore - and also in Western Europe - France, Federal Republic of Germany, Greece, Italy, Spain, and Portugal.

Production in the countries importing tropical logs - with the exception of Thailand, which benefits from supply from neighboring countries - tends to decline or level off because of decreasing availability of high quality tropical logs for import. In most of these consumer countries, the lower availability of locally produced tropical sawnwood is partially offset by higher import, mainly from the Asia/Pacific region, and by an increasing shift of demand towards locally produced and imported temperate timbers. Table in the Appendix shows production of individual ITTO Producing members for 1987 and 1988.

TABLE 4: PRODUCTION OF TROPICAL SAWN HARDWOOD
(m^3)

	1980	1985	1987	1988
Producing Regions	42 569 400	50 098 550	51 323 850	53 109 161
Africa	5 092 300	5 390 750	5 582 850	5 651 761
Asia/Pacific	24 883 100	30 635 000	33 021 000	34 660 000
Latin America/Caribbean	12 610 400	14 008 800	12 720 000	12 797 400
Major Log Importing Countries			7 096 000[1]	7 036 000[1]
Europe			950 000[1]	1 100[1]
Japan			2 024 000[1]	1 888 000[1]
Republic of Korea			1 039 000[1]	978 000[1]
Thailand			135 000[1]	283 000[1]
China			2 130 000[1]	1 890 000[1]
Hong Kong			305 000[1]	314 000[1]
India			513 000[1]	533 000[1]

Sources: FAO Agrostat Database
ITTO Forecasting Enquiry Database

[1] ITTO Secretariat estimates

The share of the producing countries of the Asia/Pacific Region in total tropical sawnwood production in 1988 rose to 57.6 (1.2 per cent more than in 1987). This increase in tropical sawn hardwood production is produced mainly in Indonesia and Malaysia, which reported outputs 19.0 and 5.4 percent higher, respectively, than in 1987. The sawmilling industry of Indonesia, in spite of strong competition and scarcity of logs, continued to grow in response to vigorous growth in domestic consumption. Indonesian export remained at the same level as in 1987 (about 2.8 million m^3), and was probably constrained by government taxes and other measures adopted to reduce exports of rough sawn lumber and promotion of further processing.

Production of machined lumber in the Asia/Pacific region continued to rise, particularly in Malaysia and Indonesia. Total production of mouldings in Peninsular Malaysia was 248,397 m^3 in 1988. Production in Sarawak was about 53,237 m^3 in the same year. The moulding industry continues to develop rapidly in Peninsular Malaysia where the number of plants increased from 65 in 1987 to 89 in 1988. In Sarawak, more than 10 percent of the sawntimber production is already processed into mouldings. In Sabah, where the industry is starting, 15 mills recently entered in operation and this will be reflected in the 1989 output.

In the last quarter of 1989, Indonesia announced further taxes on exports of rough sawnwood, which when applied, may price out Indonesian supplies of unprocessed lumber in the international market. The new duties effective from 1 November 1989 reportedly affect all sawnwood including S4S, but not decorative mouldings or finger jointed materials.

The restructuring of the Indonesian sawmilling industry will trim down the number of units in operation by about 40-50 percent, leaving 1000-1500 plants in production. The higher availability of sawnwood for further domestic processing, coupled with the large scale investment in processing equipment for adding value to available rough lumber, is expected to result in dramatic increase of Indonesian moulding export in the very near future.

Also, more recently, Malaysia announced new export taxes on veneer and sawn hardwood produced in Peninsular Malaysia, to be effective in March, 1990. Trade analysts anticipate that the new Malaysian taxes will increase prices of major species by about 10 percent, and may not seriously affect Malaysian exports to international markets.

In 1988, tropical sawnwood supply declined also in the Philippines, to about 1 million m^3 (16 percent below 1987 output). Most of the 190 sawmills operating in the Philippines were designed to process large diameter logs, which are now in short supply, in spite of a total ban on log export (effected on August 1988) and encouragement of log import by exempting it from tax. The supply of Philippines sawnwood to external markets was also cut back by several government restrictions culminating in a total ban on export from 1990.

In Africa and Latin America/Caribbean regions sawnwood outputs (5.7 and 12.8 million m^3 respectively) remained at the levels reached at 1987. Preliminary figures available for some ITTO Member countries in the two regions indicate that output in 1989 may also be at the same level. However, steady demand in major consuming countries, coupled with decreased availability and higher prices of rough sawnwood from Asia/Pacific, may stimulate production of export lumber from new or lesser-known species in Africa and Latin America/ Caribbean regions.

Efforts to boost production of traditional species in these two regions, to meet increased demand, is unlikely to succeed, or be attempted. In Brazil, for instance, in spite of increased demand and higher prices enjoyed by mahogany and virola in 1988 and 1989, sawnwood supply of these species did not rise substantially and production is actually expected to level off at current volumes, as a result of a system of quotas and additional measures introduced by the government to restrict and regulate export of these timbers, with a view to promote industry-resource integration, sustainable management and reforestation.

2.3 VENEER

Updated accurate statistics on production of tropical veneer is not available. However, it is estimated that the world production, since the early 80's, has levelled off at around 5 million m^3/year, of which 1.5 million m^3 are tropical veneer manufactured in producing regions.

Brazil, Malaysia, Côte d'Ivoire, and Philippines account for almost 80 percent of the tropical veneer manufactured in the producing regions. Table 5 presents the estimated 1987 and 1988 production in these three countries and other selected ITTO producing Members.

A substantial volume of sliced veneer is produced in Europe based on imported tropical logs. In the period 1970-1986 Europe processed about 15 percent of the total tropical log import into sliced veneer. Using this percentage, the volume of tropical logs sliced in Europe and the corresponding sliced veneer production in 1988 may be estimated at 466,000 m^3 and 245,000 m^3 respectively.

TABLE 5: PRODUCTION OF TROPICAL VENEER IN SELECTED ITTO PRODUCING COUNTRIES
(m^3)

	1987	1988
Brazil	440 000	525 000
Malaysia	312 000	377 000
Côte d'Ivoire	163 571	175 000
Philippines	75 000	85 000
Congo	56 013	na
Peru	9 954	na

Sources:
- FAO Agrostat Database
- ITTO Forecasting Enquiry Database
- Country papers presented at the ITTO/GTEDB Seminar on the Promotion of Further Processing of Tropical Hardwood Timber in the African Region held in Accra, Ghana, 13-16 February 1990.

2.4 PLYWOOD

Total world production of tropical plywood was about 20.7 million m^3 in 1988 (6.1 percent over 1987). The contribution of tropical timber producing countries to world plywood output rose from 10.2 million m^3 in 1987 to almost 11.5 million m^3 in 1988. Most of the production increase is accounted for by higher outputs in Indonesia, Malaysia and Brazil. Plywood production from imported hardwood logs in Japan, Republic of Korea, Singapore and Taiwan, Province of China, which in 1987 temporarily reversed a declining trend and rose by an estimated 6.1 percent over 1986 output, remained in 1988 at the same peak level (9.3 million m^3). Production of tropical plywood in the various regions is shown in Table 6.

The production of tropical plywood in producing countries of the Asia/Pacific region amounted to 9.1 million m^3 in 1988, or 43.8 percent of total world output. Indonesia, the world's leading producer, increased output from 6.1 million m^3 in 1987 to 6.8 million m^3 in 1988, and preliminary estimates indicate a production of 6.9 million m^3 in 1989.

TABLE 6: PRODUCTION OF TROPICAL PLYWOOD

	1987	1988
Producing regions	10 173 548	11 492 235
Africa	418 654	435 060
Asia/Pacific	8 097 200	9 064 257
Latin America/Caribbean	1 657 694	1 996 918
Japan	7 047 971	6 996 971
Republic of Korea	1 000 877	1 068 000
Taiwan Province of China	228 085	201 600
Europe	1 060 000[1]	950 000[1]
TOTAL	19 510 481	20 708 806

Sources:
- FAO Agrostat Database
- ITTO Forecasting Enquiry Database
- ITTO's Secretariat estimates based on data of the Japanese Plywood Industries Association
- ITTO's Secretariat estimates based on data of the Korean Plywood Industries Association
- ITTO's Secretariat estimates based on data of the Inspectorate General of Customs, Taiwan, Province of China

[1] ITTO's Secretariat estimates; includes also plywood containing some non-tropical veneer.

Indonesia still has relatively modest domestic demand for plywood and the development of the industry has been strongly linked to steady expansion of export, particularly to Japan.

Japan is continuing the restructuring of its tropical plywood industry by closing non-competitive mills and modernizing others. The relatively rapid growth recorded in the Japanese domestic consumption in 1988 (5.9 percent over 1987) was basically met by increased import from Indonesia, from about 1.5 million m^3 to over 2 million m^3. Preliminary data for 1989 indicate that Indonesian export of plywood, benefitting from the strong value of the yen, further advanced in the Japanese market with export jumping to over 3 million m^3. From 1989 marketing of Indonesian plywood in Japan, and also in Hong Kong, has been assisted by trading houses established in these two consumer countries by the Indonesian Sawmillers Association and the Indonesian Plywood Panel Association (APKINDO).

Preliminary data indicate that Japanese apparent consumption of tropical plywood in 1989 was about 0.9 million m^3 higher than in 1988. The increase in demand was met by imported tropical plywood, while the production of the local plywood industry dropped about 8.3 percent below the 1988 level.

The production of plywood in Malaysia increased to 1.2 million m^3 in 1988 (24 percent over 1987). The large increase in domestic production was accounted for by operation of mills in Peninsular Malaysia at higher output capacity to meet growing external demands in traditional markets in Europe, and by higher outputs from Sabah and Sarawak, where at least two new large plants entered into production. The combined production of Sabah and Sarawak accounted for 15 percent of total Malaysian plywood output in 1988. In that year, Malaysia exported about 85 percent of her plywood production, mainly to Singapore, West Europe, Hong Kong and Middle East countries, but also to emerging markets in China, and the United States.

Production of the Latin American/Caribbean tropical plywood industry increased by 15 percent over its record output set in 1986, reaching about 2.0 million m^3 in 1988. In 1987 the production dropped slightly because of reduced production in the 400 Brazilian mills, attributed both to lower exports and lower domestic consumption, resulting from a decline in construction activities. The production revival in 1988 was mostly prompted by vigorous growth in the export of Brazilian plywood, which, according to reports, reached 427 thousand m^3 (86 percent over 1987). Preliminary data for 1989 indicate that the Brazilian plywood industry also benefited from resurgent growth in domestic demand and steadily expanding export sales, which helped its continuing recovery in 1989, with total production reaching almost 1.7 million m^3, of which 0.5 million m^3 were exported.

The production of the African tropical plywood industries stayed in the range of 400-500 thousand m^3 throughout the 80's. ITTO producing countries accounted for approximately 41 percent of the total production in 1988. There are no confirmed plans or investments to expand manufacturing capacity, and African plywood production may be expected to remain stagnant at least in the near term future.

Nearly all ITTO Members in the African region have a large potential to increase plywood production, given their adequate supply of veneer quality logs and existence of export oriented veneer mills with relatively large outputs.

Table in the Appendix shows tropical plywood production of individual ITTO producing Members in 1987 and 1988.

3. TRADE

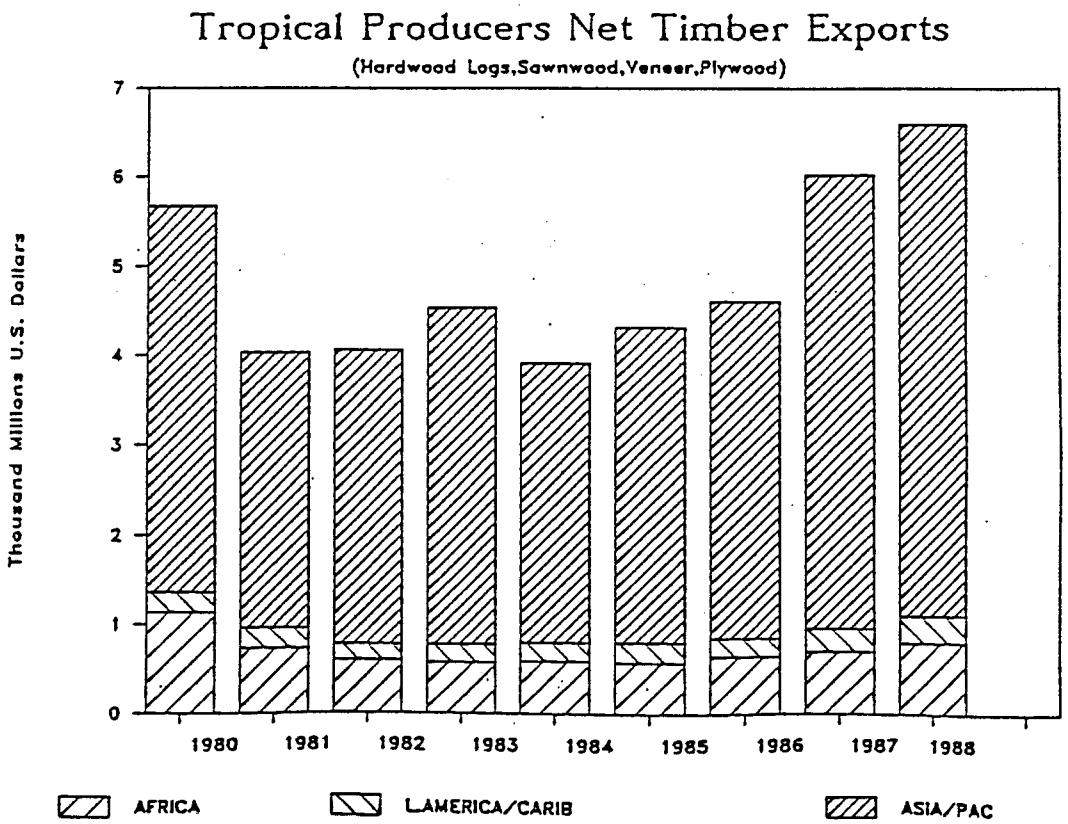
3.1 INTRODUCTION

In the following sections, trends and other trade indicators, derived from available statistics, are presented and discussed. It should be remembered when reviewing this presentation, that the data series which have been used, for some products and for certain countries and years, are incomplete. Some sets of trade statistics are, in addition, not detailed enough to allow in depth and reliable analyses of trends. This latter point refers specifically to import statistics for sawnwood and veneer, which does not provide sufficient detail with regard to species, and to all plywood data which do not specify if the products are made from tropical hardwood, temperate hardwood, coniferous species or mixtures. The trends which have been derived and are presented in the following, should therefore be interpreted with caution.

3.2 AGGREGATE TRADE IN TROPICAL TIMBER

The strong upward trend in tropical timber export trade which had developed in 1987 continued in 1988 as can be seen in Figure 2. The

FIGURE 2



total net export of tropical timber, including logs, sawnwood, veneer and plywood by the major timber producing countries increased by 9.3 percent in 1988 compared to 1987 and reached a new record level of US $ 6 598 million.

The export of tropical timber is dominated by the Asia/Pacific region which accounted for 83 percent of total net export. The African region contributed 12 percent to the total and Latin America/Caribbean, 5 percent. The relative increase in net trade from these two regions was however higher than that from Asia/Pacific, amounting to approximately 16 percent in both, compared to just over 8 percent in Asia/Pacific.

The largest increase in net export, both in absolute and relative terms, was achieved by Indonesia which recorded an increase in 1988 over 1987 net export of US $ 510 million or 23 percent. Indonesia's total net export in 1988 was higher than that of Malaysia for the first time. These two countries was the origin of nearly 80 percent of all net export of tropical timber in 1988.

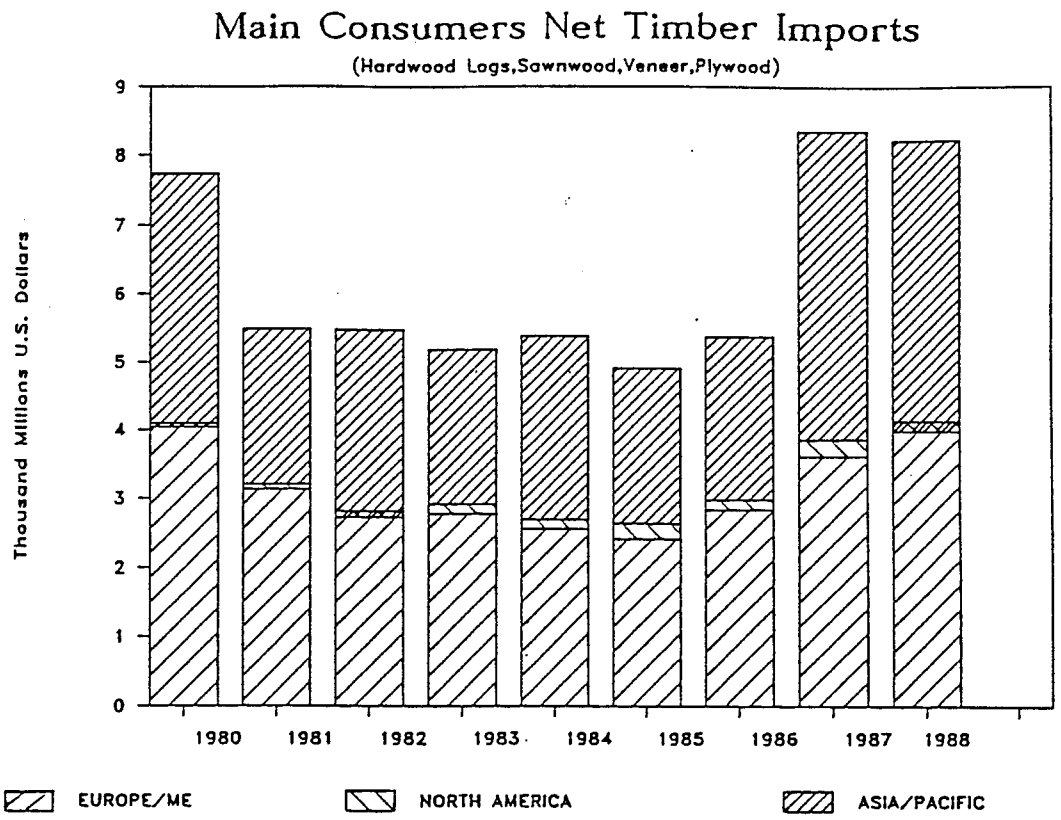
ITTO Producing Member Countries accounted for 97 percent of total net export of tropical timber in 1988 and recorded an increase in that year of 9.7 percent compared to previous year.

The share of ITTO producing countries in total export of logs, sawnwood, veneer and plywood, coniferous as well as non-coniferous, has during the 1980's, fluctuated in the range 23 - 26 percent of total export in what appears to be a weak increasing trend.

It is not possible to correctly distinguish between tropical and temperate hardwoods in the trade statistics of importing countries and therefore the data and trends presented in Figure 3 refer to aggregate hardwood logs, sawnwood, veneer and plywood, of both tropical and temperate timbers.

The net import of aggregate hardwood timber does not show a continued upward trend as is the case with tropical hardwood export. There was a sharp increase in this import in 1987 but 1988 shows a

FIGURE 3



reduction. This reduction is in the first hand the result of net export from USA, which in previous years was a net importer. It is not possible to draw any firm conclusions from the available set of data, but if it can be assumed that the net export from USA in 1988 is a temporary phenomenon and not an indication of a stable change, then the conclusion one can arrive at is that there is a stagnation rather than a reduction in hardwood import or that the trade is resuming a trend of slight growth and recovers from the higher than normal import of 1987.

Another indication which can be derived from the trade data referred to above is that tropical timber products contributed a substantially larger share in total hardwood trade in 1988 compared to in 1987.

The largest net importer in 1988, as in previous years, was Japan which received 38 percent of the total net import followed by United Kingdom, 14.6 percent, Italy, 9.7 percent, Federal Republic of Germany, 8.4 percent, and Republic of Korea, 7.5 percent. Thus, five countries

8.4 percent, and Republic of Korea, 7.5 percent. Thus, five countries accounted for over 3/4 of the hardwood import, expressed in value terms.

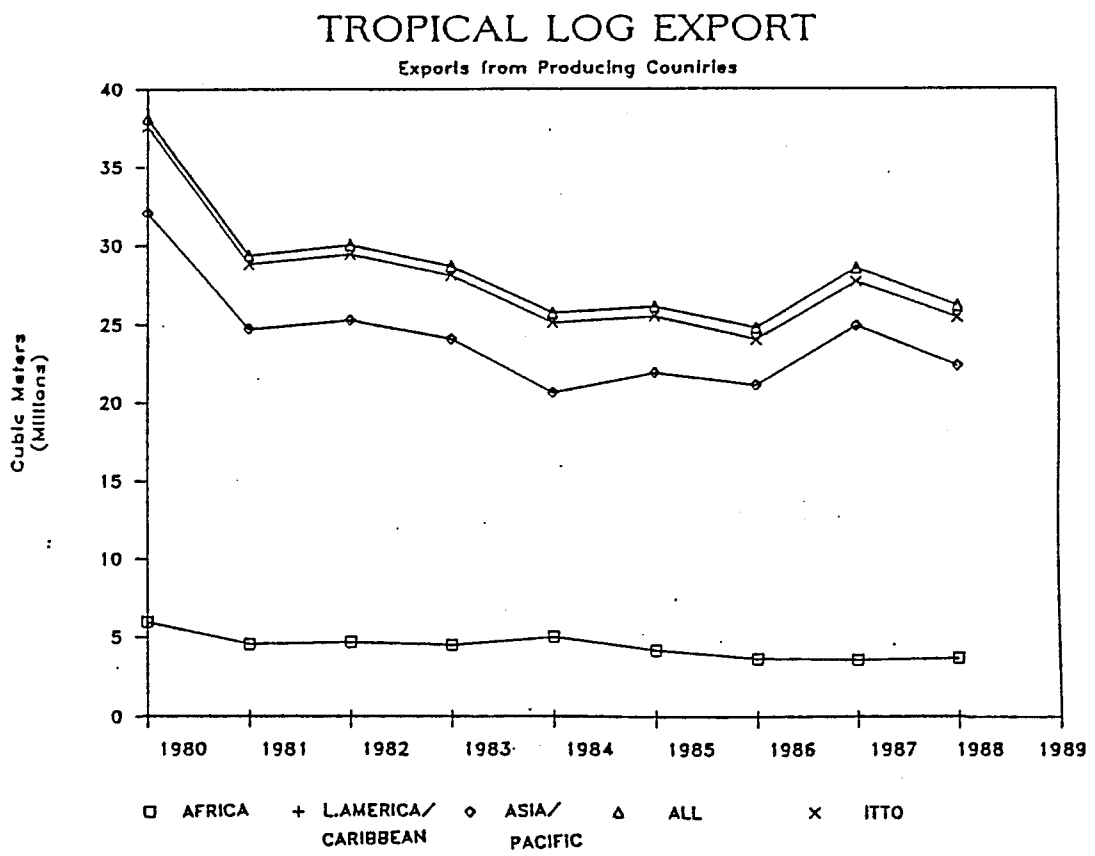
ITTO Consuming Member Countries accounted for 97.5 percent of all hardwood timber import in 1988.

3.3 LOG TRADE

3.3.1 Log Export

The trade in tropical hardwood logs has been decreasing steadily during the first seven years of the 1980's, as can be seen in Figure 4, but increased in 1987 in response to the recovery of the timber market from the low demand in the early years of the decade. The downward trend appears to have been resumed in 1988. Tropical log export as a percentage of total tropical log production has also decreased steadily, except for a slight increase in 1987.

FIGURE 4



The trend in log export is the result of Government policies in the tropical timber producing countries. More and more countries are

restricting log export to promote local processing and to benefit from export of higher value, further processed products. Indonesia, for instance, which used to be one of the world's largest log exporters, has stopped all log export from 1985 and Côte d'Ivoire, Africa's largest log exporter in the early 1980's, has substantially reduced international log trade.

The decreasing trend in log supply on the international market has in recent years been in a small way compensated by increased export from a few countries in Asia/Pacific, notably Laos, Myanmar and Papua New Guinea, which are supplying the processing industries in Thailand after the Government there introduced restrictions and finally a total ban on logging.

ITTO Member Countries supplied around 97 percent of all tropical logs entering the international market in recent years and the international trends are therefore a reflection of the trends in this group of countries. The share of Asia/Pacific ITTO Members in total log trade has been around 84 percent and therefore had the greatest impact on the development of this trade.

3.3.2 Log Import

The statistics for import of hardwood logs do not in general distinguish between tropical and temperate logs and the following brief review of log import deals, therefore, with total hardwood log trade.

The total world import of hardwood logs have remained at the same level for the period 1984 - 1988. Importing countries in Europe which used to receive 20 - 22 percent of world trade in hardwood logs increased their share by 1.5 million m^3 to 26 percent in 1988. North America which has imported steadily increasing amounts of hardwood logs, but at a rather modest level, received 2.9 percent of all hardwood logs traded internationally in 1988. Asian countries are importing hardwood logs at a decreasing rate, but remains the world's largest importing region taking 71 percent of all logs traded internationally in 1988. Japan, Republic of Korea and Taiwan Province of China took the bulk of this import, or 69 percent of the world

total. These importers, however, have reduced their hardwood log import during the 1980's.

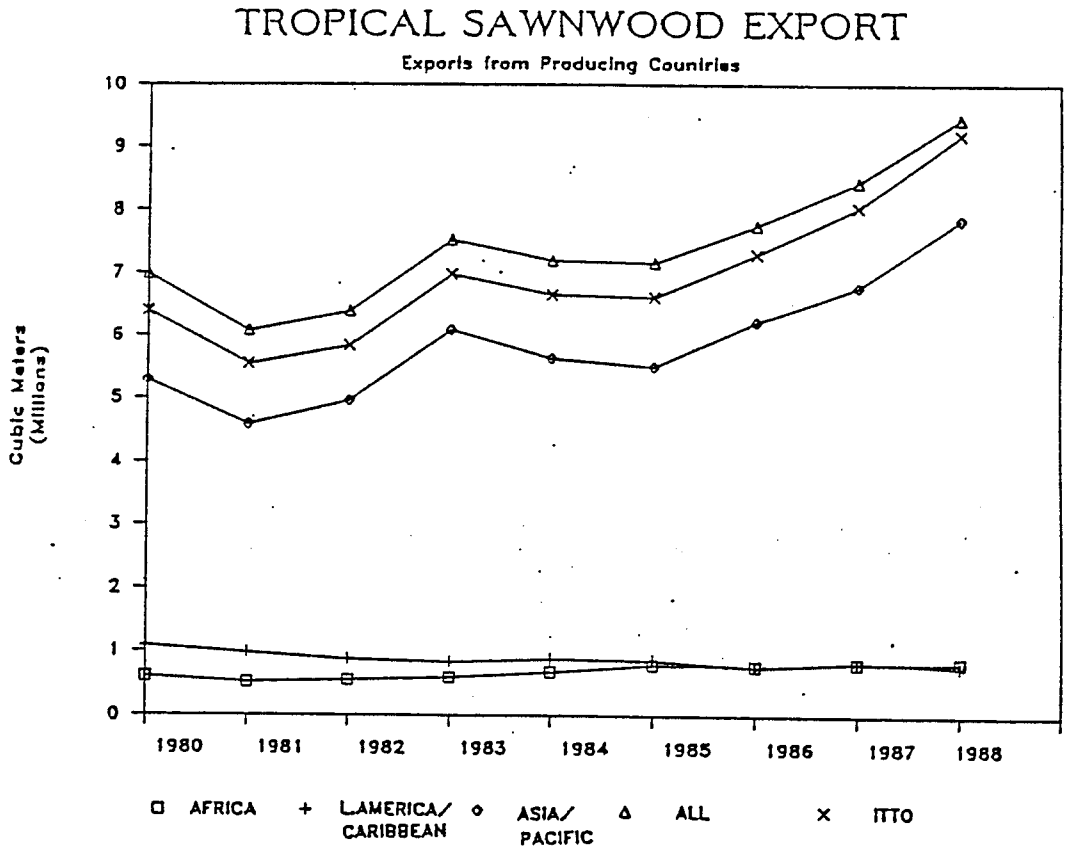
The share of ITTO Member Countries in total world trade with hardwood has increased along a consistent trend from 97.2 percent in 1980 to 99.7 percent in 1988.

3.4 SAWNWOOD TRADE

3.4.1 Sawnwood Export

The export of sawnwood from tropical producing countries increased by 11.8 percent in 1988 compared to 1987, following a steady trend developed since 1985, as can be seen in Figure 5. The entire increase is accounted for by Asia/Pacific countries. The export from tropical Africa remained nearly unchanged while there was a 8.5 percent decrease in export from Latin America/Caribbean.

FIGURE 5



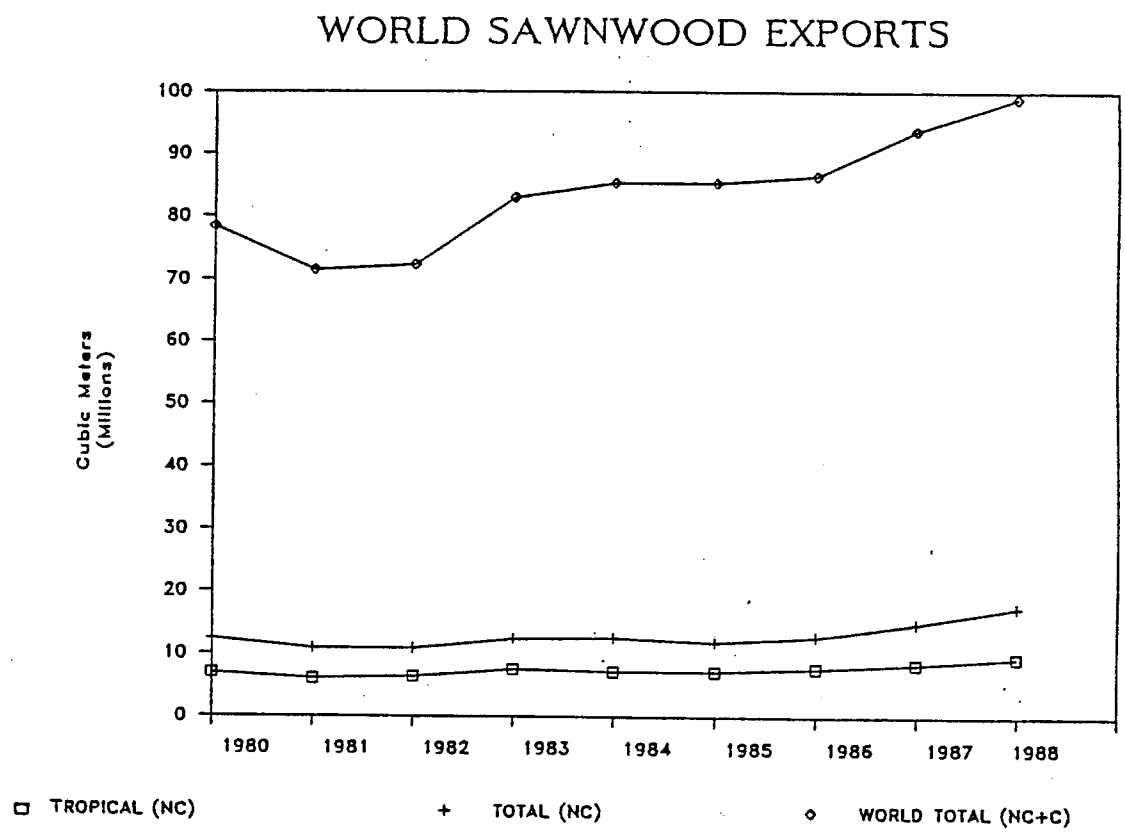
The Asia/Pacific region recorded an increase of 15.5 percent in sawnwood export in 1988 compared to 1987. The export from countries in

that region is almost totally dominated by two countries, Indonesia and Malaysia, which together accounted for 90 percent of the region's export and 75 percent of world export of tropical sawnwood.

An observation of interest is that the countries in Asia/Pacific region, which in recent years have increased their export of logs, that is, Laos, Myanmar and Papua New Guinea, have successively decreased their export of sawnwood during the 1980's.

The international trade in sawnwood is dominated by coniferous timber, as can be seen in Figure 6. The share of tropical sawnwood in total international sawnwood trade has remained at approximately 10 percent since 1980.

FIGURE 6



Total export of sawmwood by ITTO Producing Member Countries has increased in all three tropical regions, but had been affected by cyclical fluctuations in the international timber market. However the general trend indicates a medium term growth of 5 - 7 percent annually.

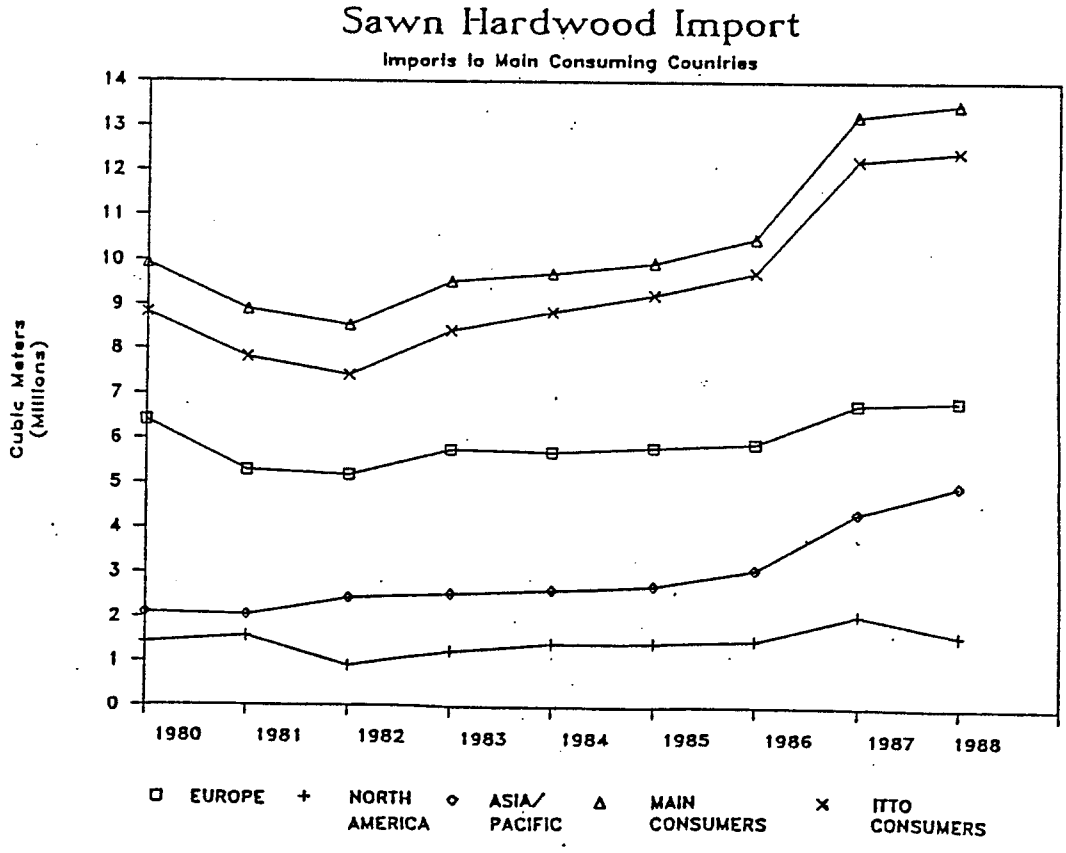
The share of ITTO Producing Members in total world export of tropical sawnwood remained at 91 - 92 percent from 1980 till 1986 when it started increasing to exceed 97 percent in 1988. This increase in the share of export is observed for ITTO Members in all the three tropical regions.

3.4.2 Sawnwood Import

As mentioned earlier in connection with log import, it is not possible to clearly distinguish between tropical and temperate hardwoods in most import statistics. The following general comments, therefore, refer to trade in aggregate sawn hardwood.

The import to European countries of sawn hardwood, which had increased sharply in 1987 compared to the previous year, remained nearly unchanged at that new level in 1988 as shown in Figure 7. North America, which also recorded a substantial increase in sawn hardwood import in 1987, showed a reduction in 1988 to what can be interpreted as the trend of slow increase established since 1982. The import to Asia/Pacific consuming countries of sawn hardwood have since 1980, fluctuated around a trend line which indicates an annual import increase of approximately 11 percent.

FIGURE 7



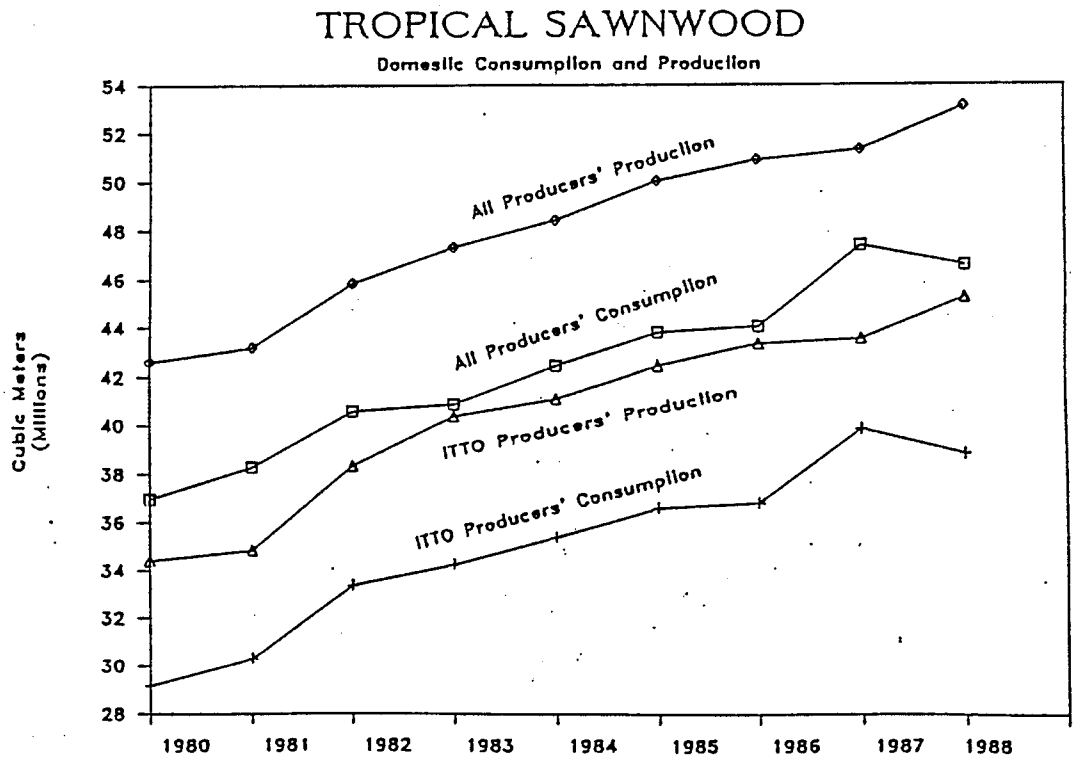
The largest importer of sawn hardwood is Japan followed by Italy and Taiwan Province of China. These three importers received 33 percent of all sawn hardwood import in 1988.

ITTO Member Countries' share in total world sawn hardwood import increased from 88 percent in 1980 to over 92 percent in 1985 and has remained at between 92 and 93 percent since then.

3.4.3 Producers' Domestic Consumption

The apparent domestic consumption of sawnwood in tropical producing countries has developed along a consistent and steady trend during the period 1980 - 1988, as can be seen in Figure 8. The proportion of total production which was consumed domestically has also remained at an almost constant level of 87 percent for all producing countries and 86 percent for ITTO member countries. The only marked break from that pattern occurred in 1987, when the domestically consumed portion increased to 92 percent, but the trend was restored in 1988. The higher than normal apparent consumption in 1988 is probably not real but an accumulation of stock which may partly have been exported in 1988.

FIGURE 8



The growth of domestic consumption in timber producing countries is different in the three tropical regions and there is a marked difference between ITTO Member Countries and other countries in the regions as can be seen in Table 7.

Table 7. Trends in Sawnwood Consumption in Tropical Timber Producing Countries 1980 - 1988

Region	ITTO Member Countries	Non-member Countries	Total Producers
	-- Percent per year --		
Africa	6.0	-0.3	1.2
Latin America/Caribbean	2.4	0.3	1.9
Asia/Pacific	4.1	1.0	3.9
All Tropical Regions	3.6	0.3	2.9

Source: FAO AGROSTAT data base.

3.5 VENEER TRADE

The export of veneer from tropical timber producing countries increased in the early years of the 1980's and culminated in 1983/1984 and thereafter declined, amounting to just over 600 thousand m^3 in 1988. Ninety percent of that export came from ITTO Producing Member Countries, and of that total ITTO Members in Asia/Pacific region, accounted for 55 percent.

The total import of hardwood veneer in the years after 1980 amounted to around three times the export of tropical hardwood veneer. As it is not possible to distinguish tropical from temperate products, in these statistics and as temperate veneer plays such a dominating role in this trade, it is not possible to draw any reliable conclusions from available data.

3.6 PLYWOOD TRADE

3.6.1 Plywood Export

The export of tropical plywood exceeded for the first time 8 million m^3 in 1988. The growth in export since 1980 has been spectacular, averaging 24.3 percent per year. Of the total export over 99 percent came from ITTO Member Countries and nearly 94 percent from Members in the Asia/Pacific region.

The very rapid development of tropical plywood export in recent years is the more remarkable as it is almost totally accomplished by only three countries, Brazil, Indonesia and Malaysia. Indonesia alone increased the export from 245 thousand m^3 in 1980 to 6.3 million in 1988, a growth of over 50 percent per year.

The increase in export from Africa, which contributed less than one percent in 1988 has been almost negligible. The plywood export from countries in Latin America/Caribbean has grown by nearly 12 percent since 1980, and that region provided just over 5 percent of total export supply in 1988. Export from Asia/Pacific grew 27 percent per year and contributed 93.7 percent to the total.

No changes in total export of tropical plywood was recorded which can be interpreted as indications of change in the established trend.

3.6.2 Import of Hardwood Plywood

The import statistics for plywood do not, as mentioned in the Introduction, lend themselves to detailed analysis with regard to the importance of tropical material. The following presentation is therefore limited to some general remarks.

The import of plywood by major consuming countries has increased by 10 percent per year between 1980 and 1988. The trend has been steady except for a slight reduction in 1982. The total world import amounted to 9.8 million m^3 in 1988.

Europe imported nearly half, or 47 percent, of the total world

import of plywood in 1988, but the development of that trade has been slower there than in the other importing areas, with and average growth of 5.2 percent from 1980. North America received 20 percent after an annual growth of 7.8 percent, while Asia/Pacific has had an increase in import of 28.7 percent per year reaching a share of total import of 33 percent in 1988.

ITTO member countries accounted for a steady share of 95 percent of total plywood import since 1980.

The import of plywood into the major consuming countries was approximately 22 percent higher than export from the tropical producing countries. This relatively small difference between total import and tropical export of plywood could be interpreted as support to an assumption that tropical plywood plays a dominating role in international plywood trade. If this assumption is extended to meaning that the relations between total import and tropical export of plywood is indicative of the relative importance of tropical products in this trade, the data on plywood trade would indicate that the share of tropical plywood in total plywood trade has increased from approximately 30 percent in 1980 to 80 percent in 1988 and that it may have exceeded 85 percent in 1985.

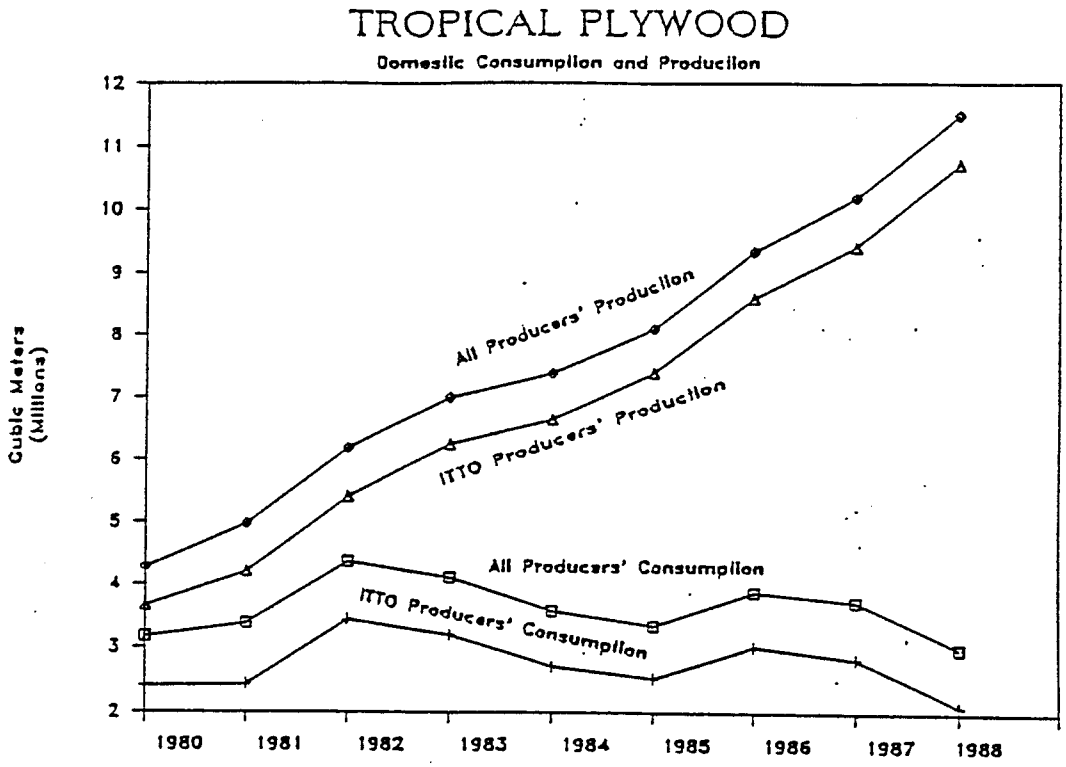
3.6.3 Producers' Domestic Consumption

The tropical timber producing countries have supplied a decreasing share of their plywood production for home consumption, as can be seen from Figure 9. In 1980, 74 percent was consumed locally. This share reached 41 percent in 1985 and 26 percent in 1988. In ITTO Producing Member Countries home consumption has been relatively smaller, and was 66 percent in 1980 declining to 20 percent in 1988.

The situation concerning domestic supply by the plywood industry in tropical timber producing countries differ considerably from region to region.

Tropical Africa as a region is a net importer of plywood. The ITTO Members in that region supplied over 90 percent of their

FIGURE 9



production to the home market in 1988, but this share of production was as low as 55 percent in 1984. This increase in recent years of relative domestic requirementin recent years, is certainly to a large extent caused by the reduction in production after 1986.

Latin America/Caribbean exported only 6-7 percent of total tropical plywood production in 1980 after which the countries in the region became suppliers, almost exclusively, to home markets or to neighboring countries. However, in 1988, the region emerges as a supplier to the world market, when the region as a unit exported 16 percent of the production. ITTO Member Countries exported in that year, 75 percent of their production.

In Asia/Pacific the development of supply to the home market, as a percentage of total production, has been as spectacular as the development in production and trade. In 1980 the industries in the region supplied 58 percent of their production for local consumption while corresponding figure for 1988 was only 10 percent. As ITTO Producing Countries totally dominate production and trade in plywood in Asia/Pacific, this trend is only approximately one percentage point

over the trend of these countries.

3.7 PRICES

Unit values of logs, sawnwood, veneer and plywood exported from producing tropical countries have increased, as can be seen in Figures 10 - 13, reflecting price increases, expressed in current US Dollar, in the international timber market. This general observation is valid for these four products and for the three tropical regions, except for logs and plywood exported from Latin America/Caribbean.

The average export unit value of logs and plywood increased in 1988 by 6 percent over corresponding values in 1987. The unit value of sawnwood increased by only 3.7 percent while that of veneer recovered the decline which had occurred since 1980 by increasing 54 percent over the 1987 average.

FIGURE 10

Tropical Log Export Unit Values

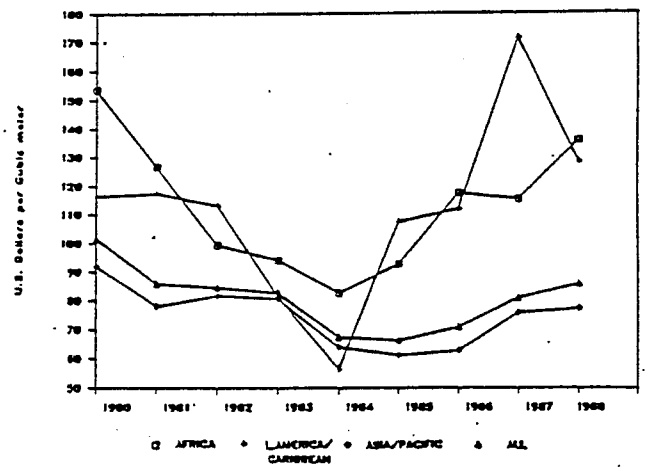


FIGURE 11

Tropical Sawnwood Export Unit Values

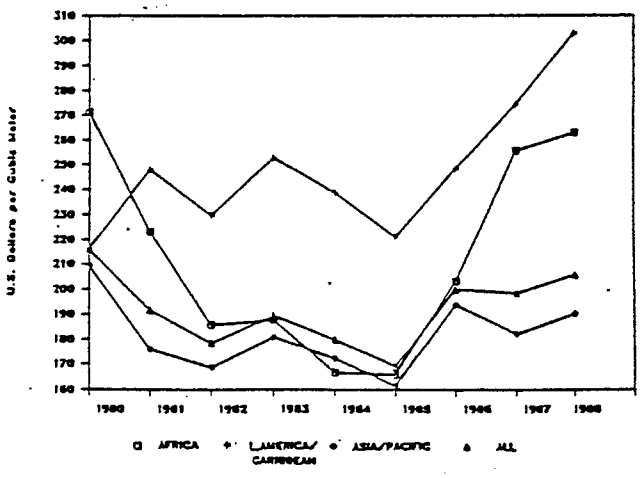


FIGURE 12.

Tropical Veneer Export Unit Values

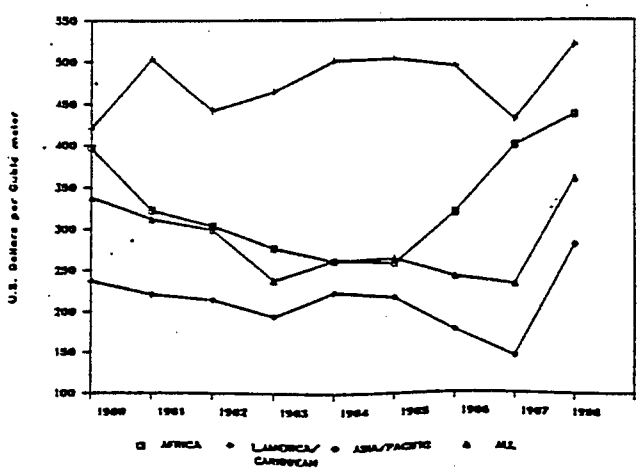
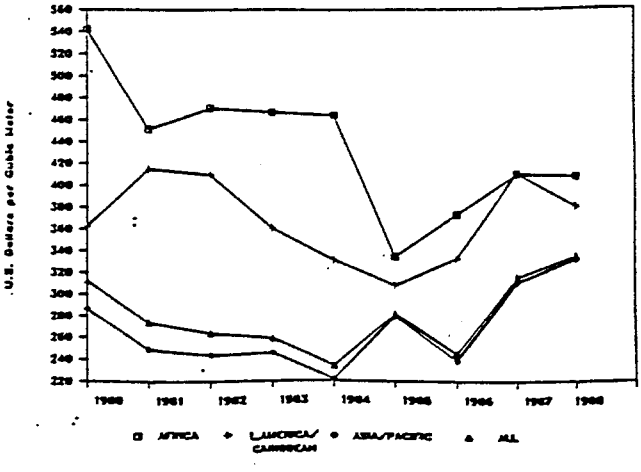


FIGURE 13

Tropical Plywood Export Unit Values



4. FOREST RESOURCES

4.1 ASSESSMENT OF TROPICAL DEFORESTATION[1]

4.1.1 Introduction

In the early days FAO carried out four "World forest inventories" at 5-year intervals (1948, 1953, 1958 and 1963). These global inventories were aimed essentially at providing a statistical overview (with countries as inventory units) of forest resources at a given time. Comparison of results of these successive inventories could not be used to a great extent for monitoring forest resources at global level, firstly, because of the limitations of the general approach followed (questionnaires were sent to national forestry administrations which had different interpretations and adaptations of the concepts and clarifications used) and, secondly, because of the changes over time in these concepts and classifications and in the way they were interpreted by the countries.

The need for global monitoring of tropical forests became acutely felt in the mid-1970s with the growing awareness about tropical deforestation. With financial assistance of UNEP, FAO undertook a worldwide assessment of the situation and trends of tropical forest resources (1978-82) using 1980 as a reference year. This assessment which was the first one carried out systematically all over the tropical countries, consisted of the collection, selection, organization, interpretation and compilation of the very abundant information related to forest resources available at that time, within a single framework of concepts and classifications. The information available included several forest cover monitoring studies carried out by national and international agencies at national and subnational levels as well as that generated within the framework of the project itself by interpretation of satellite imagery over 13 countries in the three main tropical regions.

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[1] This Section has been contributed by FAO Forestry Department and is gratefully acknowledged.

Recently a new Global Forest Resource Inventory has been initiated, and FAO has started working on the tropical part of it in 1989. The work is linked with the Tropical Forestry Action Plan (TFAP) and should provide essential information for this undertaking. Final results are planned to be published in 1992. The new inventory will be specially designed and focussed for estimation of deforestation.

In FAO's definition deforestation means removal of the forests and change in land use, from a forestry use to an essentially non-forestry use. This non-forestry use can be irreversible (or almost irreversible) conversion of formerly forested land to "waste lands" or "bad lands" (e.g. imperata grasslands in Southeast Asia).

4.1.2 Methodology of Forest Resources Assessment 1990

An important feature of the Forest Resources Assessment 1990 Project lies in the fact that it is making a major and greater use of remote sensing techniques for state and change assessments. To obtain timely, reliable and verifiable information on the extent and distribution of forest cover area towards the close of 1990, it is using the global coverage provided by meteorological satellite (NOAA/AVHRR). To obtain reliable information on changes, it makes use of multi-date high resolution satellite data (LANDSAT TM/MSS, SPOT), taking one scene close to 1980 and the other close to 1990. This will enable an accurate forest cover change estimation during 1980-89.

As its first task the project has built a historical data base and found it extremely useful in providing auxiliary variables, which, combined with remote sensing information, significantly contributes to precision and cost reduction. It also serves as the only source of some information which cannot be obtained from remote sensing (volume and biomass estimates, plantation areas, etc.).

The design of Forest Resources Assessment 1990 has been modelled on the concept of Global Continuous Forest Resources Monitoring with its roots in corresponding national studies. The project is currently working in the following subregions: South America, West and Central Africa and SE Asia. It is implemented with full cooperation of the

forest services of the countries and interested scientific institutions inside and outside of the sub-regions. It is hoped that direct contribution to the projects of the national institutions of the tropical countries will increase in the future provided they can be strengthened for this purpose through international cooperation.

Estimates of forest areas at any one time must be as precise as possible, firstly, because the precision of the rate of deforestation depends on the precision of the estimates at both times and secondly, because of the relatively low value of the deforestation itself (6 percent over 10 years according to the 1980 estimate).

Any comparison between two estimates of deforestation must be made with great care, since the differences found consist of two components, (a) effects of changes in methods and (b) real changes, and in most cases one is indistinguistible from the other.

4.1.3 Discussion of Results

The 1990 Assessment is in the middle of the remote sensing work which will provide accurate and up to date information on the rate of deforestation with reference date close to 1990. At the present time, some preliminary results are available from the study of existing reliable data (also based on remote sensing). Most of the data used have been collected during 1980-1985, except for Brazil which has 1988 as the reference date.

These preliminary results relate to ten countries of the moist tropics, with a total forest area of 695 million ha (listed in Table 8). Among these countries Indonesia and Brazil show high deforestation figures. The average annual deforestation rate for the period 1981-85 for the included countries is computed at about 4.6 million ha. The forecast for the same period, made in 1980, was 2.3 million ha. The countrywise figures are given in the attached cable. However, this general indication cannot be extrapolated to the rest of the tropics, as the ten countries do not constitute a representative sample.

Table 8: FOREST RESOURCES ASSESSMENT 1990

A - SOUTH AND SOUTH-EAST ASIA

Country	Country Area 1980	Annual Defor. 1980-85	Annual Rate 1980-85 (perc.)
Bangladesh	1024	33.4 (1)	-3.3
Bhutan	2984	15.0 (2)	-0.5
Burma	28634	738.0 (3)	-2.6
India	54749	656.5 (4)	-1.2
Nepal	5553	50.8 (5)	-0.9
Sri Lanka	1911	28.2 (6)	-1.5
Thailand	16590	336.0 (7)	-2.0
Subtotal	111445	1857.9	-1.7

Reference year(s):

(1) 1984, (2) 1978, (3) 1975, 1980, (4) 1986, (5) 1964, 1979, (6) 1956, 1983, (7) 1978, 1982, 1985

B - INSULAR SOUTH-EAST ASIA

Country	Country Area 1980	Annual Defor. 1980-85	Annual Rate 1980-85 (perc.)
Indonesia	121751	1314.7 (8)	-1.1

Reference years: 1980, 1982

Source: FAO - FOREST RESOURCES ASSESSMENT 1990 PROJECT

C - WEST AFRICA

Country	Country Area 1980	Annual Defor. 1980-85	Annual Rate 1980-85 (perc.)
Liberia	4751	102.8 (9)	-2.2

Reference years: 1969, 1981

D - BRAZIL

Country	Country Area 1980	Annual Defor. 1980-85	Annual Rate 1980-85 (perc.)
North Brazil	456765 (*)	1305	0.29

*) Figures published by the Institute de Pesquisas Espaciais, based on interpretation of satellite imageries for the following reference dates: 1975, 78, 80, 83 and 1988. The study covers a total area of 478,815,000 ha including the following states: Acre, Amapa, Amazonas, Para, Rondonia, Roraima, Maranhao and Mato Grosso.

Source: FAO - FOREST RESOURCES ASSESSMENT 1990 PROJECT

Table 9: SUMMARY TABLE FOR FOREST COVER AREA AND DEFORESTATION RATES FOR SIX COUNTRIES

Country	Forest Cover Area			Annual Rate of Deforestation	
	1980	1990	2000	1980-1990	1990-2000[1)]
	(thousands of ha)			(ha)	
Brazil Norte [2)]	349.000	338.600	323.500	1.040.000	1.510.000
Costa Rica	1.960	1.450	1.180	51.000	27.000
Thailand	16.600	14.000	12.100	260.000	190.000
Indonesia	121.000	108.600	99.500	1.240.000	910.000
Nigeria	14.800	10.500	7.300	430.000	320.000
Liberia	4.800	3.900	3.200	90.000	70.000

1) The calculations assume that model trends would continue.

2) including the Brazilian states: Acre, Amapa, Amazonas, Para, Rondonia, Roraima

Source: FAO - FOREST RESOURCES ASSESSMENT 1990 PROJECT

4.2 CURRENT RESOURCE ISSUES

4.2.1 Resource Depletion

World Resources Institute estimates that more than 1 billion people are "periodically disrupted by flooding, fuel shortage, soil and water degradation and reduced agricultural production caused directly or indirectly by the loss of tropical forest cover".

There are also direct economic losses. The World Bank estimates that about 200 million people depend on the tropical forests for their livelihoods; their future prospects dwindle along with the forests. Meanwhile, tropical forests generate US $ 8 billion in export revenues per year - but from a rapidly dwindling resource.

Logging contributes relatively little to the reduction in forest cover though some logging operations cause much more damage than they need to in extracting logs because it is cheaper and they can get away with it. Tax policies can reduce this. For example, it is less of a problem in Sarawak than in Sabah because Sarawak imposes heavier royalties on smaller trees and more valuable species.

Indigenous forest dwellers usually cause minimal damage to the forest. Poverty drives the landless agriculturalists into the forest. They burn trees and illegally occupy cleared land, and when that is exhausted burn some more. Migrants often follow the logging roads and find degraded forests easier to clear.

Saving the tropical forests has become a global issue. But are these forests the patrimony of whichever country happens to possess them to cut or keep? Or are they different, say, from tin or diamonds - a unique resource that the international community can claim it has the right to preserve?

The reality is, that tropical countries need timber export earnings, land to plant cash crops and land to settle rising populations. These are the factors that determine the rate of deforestation.

The fact remains that the forest per se is not an end in itself. If other uses can generate more output and employment without damaging the environment, it is hard to argue conservation's case. What is clear, however, is that some forest destruction has had serious negative impact.

Tropical countries can, at least in theory, choose to leave their remaining forests untouched. Few, if any can have this as an option for the land transformed to other uses can provide cash, jobs and a home for an ever-growing population. Forests can be cleared, the timber turned into immediate cash and the land turned into agricultural plantations. Or, countries can follow a middle course: extracting economic value from their forests through logging, but conserving them at the same time. However, this requires long term planning by governments and willingness to enforce strict logging rules to keep settlers out of production forest. This is where international assistance, co-operation and understanding, can have a positive and lasting impact.

The problem and the potential solutions revolve around land use. Now that it is harder to refute the economic and environmental value of forests, the task of deciphering which of the competing claims on the forests makes the most economic sense has become crucial. With increasing urgency, tropical countries must address the question: how much of their remaining forests should they keep and do the tropical countries have a duty to the rest of the world to keep them?

In Peninsular Malaysia for instance, conversion to plantation crops, which accounts for almost 90 percent of the deforestation there in the past decade, has been a success. Jobs and wealth have been created, and more than 1 million ha of cash crops, such as rubber and oil palm, have been planted. But this has been achieved at the price of the forests: 30 percent of the natural forests disappeared between 1910 and 1980, and since 1985 an estimated 1.4 percent of the remaining forested land are being cleared each year.

The question is not how much traditional forest is "needed", but how to prevent short-term needs, whether of commercial loggers,

government treasuries or of land-hungry peasants, from impinging on the best long-term economic advantage from appropriate land use.

"Foreign countries only see the need to preserve the forest. Here I have difficulties. How much do we need to preserve? Indonesians understand the need to preserve forests to prevent erosion and control flooding. The most difficult issue is in the preservation of genetic resources because in situ, genetic resources have no value. ... Our problem is that we deal in the future, while Indonesia's priorities are in the short term." [Emil Salim]

Deforestation has many causes and slowing the destruction requires global and national actions. Structural changes are needed to increase the price of timber products to reflect their replacement cost rather than their extraction costs and create financial incentives for conservation.

"Environmentally sound techniques are not against commercial interests, that is what we are trying to show. We do not want to hinder development but channel it into the right environmental direction." [World Bank economist in Jakarta]

"Frankly, we are a profit oriented company, and if that means destroying the environment within legal limits, then we will do it." [business man]

The funds from international agencies and bilateral aid projects going to initiatives and investments designed to slow the rate of deforestation have doubled in the past three years to US $ 1 billion. But the rate of deforestation has never been greater.

"The technical solutions are known. The failures are political, socio-economic and managerial." [Poore]

4.2.2 Action to Restrict Resource Utilization

A motion has been put before the European Parliament to regulate the trade in tropical wood to promote forest management and conservation. The motion calls for effective regulations and for the inclusion in the European Community Budget of a Tropical Forest Management Fund to finance action.

The motion seeks to introduce control over international trade between the E.C. and the exporting countries, and suggests that this control has support in the provisions for export quotas for certain products within the 1984 Convention on International Trade in Endangered Species and Wild Flora and Fauna. The proposed Regulation looks for import licensing by E.C. based on annual quotas negotiated with its trading partners.

The Regulation being sought would allow five years for the preparation of plans, demonstration of commitment to implementation and for negotiation of "appropriate levels" of E.C. imports. After five years imports of tropical hardwoods and specified products would be controlled by quotas. No attempts should be made to establish quotas with producer countries which have not prepared forest management plans, and imports from them would be suspended.

A community-wide system of import licensing would be used to operate quotas. The proposal would not apply to trade with countries which import, process and re-export. The basic objective is "to ensure that the forests in which the tropical hardwoods occur are managed by the third country which is a Party to the Plan on a basis which will ensure a sustainable yield of tropical hardwood to the third country on a long term basis, and which will avoid destructive over exploitation and loss of biological diversity." The producer countries themselves would issue certificates showing if the goods comes from forests managed under Forest Management and Conservation Plans.

Two environmental bills have been submitted to the US Senate with proposals to ban the import of timber and timber products from countries which do not practise sustained yield forest management. The

House of Representatives has received a bill which proposes that duty free status be removed from countries which do not carry out reforestation.

WWF has called for the European Economic Community to set up a Tropical Forest Fund of 500 million ECU. The fund forms part of a package of measures proposed in a report, authored by the Institute for European Environmental Policy.

The WWF Proposal also suggests the following actions by EEC:

- Restructuring of the Community's trade in tropical hardwoods by imposing quotas based on sustainable production of timber. And also providing financial support for the development of environmentally sound forest practices in the producing countries;

- Participating more actively in ITTO and TFAP;

- Making grater use of the existing European Development Fund to provide more resources for tropical forest projects;

- Reforming the Lomè Convention to include a tropical forestry protocol.

Europe uses nearly one third of all tropical timber entering international trade and many European companies control logging concessions in tropical forests. EEC holds considerable influence in ITTO and in the TFAP and EEC represents the single largest source of development aid.

A petition, initiated by the World Rainforest Movement and presented to the United Nations, proposes an immediate ban on all imports of tropical timber and wood products from the virgin rain forests. It calls for a special session of the General Assembly to halt the destruction of tropical rain forests which, it claims, is 'threatening the very survival of life as we know it on earth'.

Two Australian unions have been trying to stop the use of imported tropical timber at construction sites in the Melbourne area. The Australian Government has condemned the action, as violating the GATT.

4.2.3 Response by Producers and the Trade

At a meeting in Manaus 5-7 May 1989, six heads of states, from Brazil, Colombia, Ecuador, Guyana, Peru, Surinam, and Venezuela and the foreign minister of Bolivia, signed a document backing up each Amazon basin nation's sovereignty over the use of its own territory.

Indonesia, Malaysia and Singapore have been responding against environmentalists who are trying to persuade developed countries from buying tropical forest products. Other ASEAN countries are expected to join the campaign.

Malaysia called in August for a joint response from the ASEAN to the US and European environmentalists campaigning the region's rain forests.

Brazilian officials are concerned that mounting world criticism and the growth of the green lobby is out-performing the ministry's own diplomatic efforts in securing foreign governments' support for loans from international agencies like the World Bank.

One example came in late 1988 when the West German Green Party forced a debate in the Bundestag over the need for tougher enforcement of environmental provisions in a long-delayed $ 500 million power sector loan for Brazil.

While many in the Brazilian government deeply resent foreign criticism, worldwide clamour over forest destruction in the Amazon and Indian rights continue to increase.

Brazil has taken several steps to counter these attacks, launching a national ecological awareness campaign and will host the UN conference on ecology scheduled for 1992.

European Timber Trade Federations have been lobbying EEC and National Governments to win political support for the tropical timber surcharge, which was proposed last year, and to prepare the ground for, among other things, consistent European legislation beyond 1992.

The most serious obstacle to the surcharge is to be found in GATT. An agreement has been reached in GATT to reduce import duties on a wide range of tropical agricultural and forestry products. This Agreement includes some categories of timber and went into force in Japan in April. USA and E.C. had then not decided on a date for implementation.

The International Hardwood Products Association is (in February, 1989) to establish an Environmental Action Fund for research and the collection of information on this industry' role in the diminishing of tropical forests.

There has been similar positive response from Industries in Japan. The Japan Lumber Importers Association (JLIA) had established an Environment Sub-Committee. Mitsubishi had also done the same and became a corporate member of WWF Japan. Both JLIA and the Japan Plywood Manufacturers' Association (JPMA) had announced voluntary contributions to ITTO's Special Account.

5. COUNTRY NOTES

BOLIVIA

In 1987, the Bolivian government created a 2.6 million acre (approximately 1 million ha) buffer zone of controlled development around the 135 000 acre (54 000 ha) Beni Biosphere Reserve. The area is home to native Indians and 13 endangered animal species. In return, Conservation International bought $ 650 000 of Bolivia's $ 4.5 billion heavily discounted debt certificates for $ 100 000.

The aim with this first debt-for-conservation swap was to demonstrate that conservation can work in harmony with agriculture, forestry, fisheries and other economic development projects.

Two months before the debt agreement was signed, the Bolivian government granted seven lumber companies permission to set up saw mills in the Chimanes forest.

Under Bolivia's 1953 Land Reform Law, Indians are entitled to individual plots of land, but the Moxos are asking for 500 000 acres (200 000 ha) to be owned and managed collectively. This, they say, is the only way they can preserve and protect their part of the Chimanes forest as an integral ecosystem.

The lumber companies are opposed to the request by the Indians for a single, integrated territory. Conservation International is supporting the companies and is suggesting that the Natives be given separate areas forming an Indian "archipelago" within the Chimanes forest. "The Indians should not be left alone and isolated."

The Conservation International did not meet with the Indians living in the Chimanes forest before signing the debt-for-nature swap.

BRAZIL

On 7 March, 1989 Brazil launched "Our Nature", an environmental protection programme for the Amazon region. The package includes

strong environmental legislation, extensive analyses of soil and hydrology, intensified control by a new Federal Agency, national ecological education and plans to encourage emigration to fringe areas of the rain forest in an attempt to relieve population pressure on more vulnerable areas.

The centerpiece of the new plan is an extensive mapping and zoning study to identify those parts of the Amazon basin which are suitable for development and those areas which should be conserved at their current status.

The plan also establishes several new parks and reserves. It restricts the use by goldminers of mercury, which has severely polluted groundwater in some areas. It also suspended financial incentives for farming and ranching which have encouraged the clearing of extensive forest areas.

The Programme also includes a new government system to monitor and control more closely the health of the 2 million sq miles of Brazilian Amazon and a ban on the export of unprocessed wood.

A quote from Our Nature:

"There is a pressing need in the country for the creation of a competent service to prevent and fight forest fires, otherwise we will continue losing - every year - $ 40 billion in burnt wood and suffering considerable environmental damage, with irreparable loss of resources."

Officials have estimated that the mapping and zoning project alone will cost about $ 100 million. The Programme plan proposes the establishment of a special fund to provide financing.

It is estimated that in the past ten years about 600 000 sq km of the Brazilian forests have disappeared. 1988 Satellite data, according to Brazilian Institute for Space Research, shows that deforestation has affected 5 percent of humid tropical forests of the Amazon basin, or just over 250 000 sq. km.

Fires, in Brazil is blamed for contributing a substantial portion of the atmospheric carbon dioxide. However, figures from this year's dry season appears to confirm that there is a trend of diminishing burning of the forests. Rain, heavy fines and reversal of federal policies are combining to slow the burning, according to environmentalists.

"In 1989, there has been a considerable reduction in burning." [Alberto Setzer of the Brazilian project to monitor forest through satellite] Mr. Setzer reported that fires during the 1988 dry season destroyed 37 percent less forests than in 1987 and the trend appears to continue.

The forests of the Amazon basin has been under assault by settlers and developers for 400 years. Time and again, the forest has defied predictions that it was doomed.

Brazil has a total population of 144 million of these an estimated 12-14 million are landless peasants.

"We can not be condemned to having a large part of our territory prevented from being developed, particularly when the developed world is responsible for the greatest ecological disasters."...."We have the formidable task of creating 1.7 million new jobs each year." (Deputy Foreign Minister, Paulo Tarso Flecha de Lima)

At the beginning of 1989 Brazil's foreign debt amounted to $ 115 billion. USA, France and the Netherlands have offered to swap some of that for preservation of parcels of the Amazon territory, but the President of Brazil has ruled out debt-for-nature swaps.

Brazil's approach is that economic development, not ecological preservation, is the priority in a nation in which an estimated 60 percent of the citizens survive on less than $ 90 per month.

As the potential consequences of rain forest destruction became more widely known, saving the Amazon was accorded high priority and importance in 1989.

CAMEROON

In Cameroon 7 million hectares have been approved as concession forests for timber harvesting. About 400 to 450 thousand hectares are harvested annually with around 2 million m^3 of log production. Though inventories have disclosed the existence of over 300 potentially marketable timber species, harvesting is very selective, with 15 species accounting for about 80 percent of the total output. Moreover, the largest share of the total supply is accounted for by only three species: Obeche (Triplochiton scleroxylon), Sapele (Entadrophragma cylindricum) and Eiki (Lophica alata).

In the period 1990 - 2000, the demands for sawnwood products and wood based panels in Cameroon are expected to grow by 4.8 and 1.5 percent respectively. Though Cameroonian exports of sawnwood are on the rise, the industry is not appropriately meeting the present domestic demand.

The Government of Cameroon is studying and undertaking a series of measures to promote investment in the forest industry sector, including:

- revision of the forestry code to render it more flexible;
- simplification of procedures for the granting or renewal of timber harvesting permits;
- revision of the investment code, which already provides for considerable benefits for investors, with a view to reinforcing these advantages;
- tax reduction;
- encouraging the creation of industrial units through joint venture arrangements with foreign partners.

CONGO

Congo's development strategy gives high priority to the efficient utilization and processing of the country's timber resources on a sustainable basis. Within the framework of the Structural Adjustment

Program, the government has since 1985 taken several measures to strengthen forest industries, including:

- a special credit line to the forest sector;
- tax relief for imported equipment used in timber harvesting and processing;
- exemption of internal tax on oil products refined in the Congo, and discount on purchase of fuels and lubricants for forest operations;
- special rates for transport of timber species selected for promotion;
- various public grants to forest enterprises for their recovery.

However, economic difficulties experienced by the country reportedly precluded granting of credit to the forestry sector in the past two years, in the planned (state and semi-public) as well as in the non-planned (private) subsectors.

In spite of national legislation, which makes it mandatory to process locally at least 60 percent of total timber production, output of the sawmilling industry is declining. The output of sawnwood in 1988 (57.411 m^3) was about 5 percent and 25 percent below the production of 1987 and 1986 respectively. Similarly, the production of veneer, though increased in 1988 to about 56,000 m^3 (20 percent over 1987), is still some 13 percent below the production level recorded in 1984 and 1985.

The declining trend recorded in the production of sawnwood and veneer in the period 1986-1988 is attributed to closure of several sawmills and one veneer mill belonging to the state.

GHANA

The annual cut from the forest reserves increased from 578 000 m^3 in 1984 to an estimated 1.15 million in 1988. The inventory project carried out by ODA of UK indicate that the reserves are capable of a sustained annual yield of 1.25 million m^3.

At the beginning of this century the high forest zone of Ghana stood at 8.2 million ha. With the surge in population, much has been converted to farm land and left as fallow.

The scale of deforestation outside the reserves is such that the Forestry Commission estimates that it accounts for more than 30 percent of the timber industry production.

Ghana's re-emergence as an increasingly organized timber exporter has, effectively, been achieved since 1985, when international financial aid, mainly through the World Bank, allowed timber production and milling sector to expand exports.

Ghana has identified wood processing as one of the industrial activities where the country has comparative advantage and is stimulating further processing, particularly through expansion of the considerable unused capacity of the primary conversion and downstream processing levels. However, production projections for 1989 and 1990, made by the Timber Export Development Board, indicate no substantial growth in local manufacturing, in contrast to log production and exports, which in 1990 are expected to grow by 13 percent and 110 percent respectively over 1988 levels.

In the first quarter of 1988, Ghana's export of hardwood lumber and wood products was 260 000 m^3 In the same period of 1989, these exports had been reduced by nearly half to 143 000 m^3.

A major difficulty in promoting Ghanaian wood products in overseas markets has been that Ghana is known simply as a source of logs and lumber.

INDONESIA

Indonesia showed rapid growth in timber exports which stood at US $ 1.61 billion in 1986-87 and reached US $ 3 billion in 1988. The forestry sector currently accounts for about 15 percent of total exports.

The concessions, or HPH, cover 56 million ha on leases averaging 20 years. Almost 200 of the 544 concession holders violated regulations that stipulate selective tree cutting and payment of a levy for replanting, according to an estimate by the Ministry. Loggers are supposed to pay a replanting levy of about US $ 4 per m^3. The control is very difficult and there is only one forest officer per 20 000 ha of forests.

The World Bank estimated destruction of the forests at one million hectares per year, or 1 percent of the country's forest cover. Farmers clearing land are responsible for half the annual destruction of the forests; loggers destroy another 20 percent. According to FAO, Indonesia loses 500 000 ha annually to slash-and-burn agriculture and logging.

Indonesia is also losing at least $ 1 billion a year from inefficient use of forest land, poor harvesting methods and fire, according to the World Bank. The land is becoming degraded, threatening production of raw materials that Indonesia needs, as it tries to depend less on oil for export earning.

The Bank recommended that the Government introduce incentives for better farming methods and a more efficient timber industry.

Indonesia is at a turning point. Resources such as forests, land and water are now becoming scarce and must be managed more effectively if the benefits derived from such resources are to be sustained. The destruction of Indonesia's tropical forests is putting the country's economy at risk and must be slowed, the World Bank warns.

Indonesia has, so far, set aside 30 million ha, or one-fourth of its 125 million ha of jungle, as protected forests and has set aside 10 percent of its land for conservation or protection. The government also plans to spend $ 300 million each year to replant 300 000 ha of depleted forests.

Indonesia is seeking foreign aid to restore 20 million ha of deforested land.

Indonesia has agreed not to increase its capacity for plywood production.

Indonesia has decided to ban export of teak lumber. The ban will take effect in early 1990.

LIBERIA

Forests and forestry activities in Liberia are overseen by the Forestry Development Authority (FDA). FDA is giving priority to:

(1) gaining control of natural forest management in the next decade;
(2) improving control of public revenue collection from the forestry sector;
(3) gradually reducing the export of established species to a more sustainable level, based on a clear forest management plan;
(4) encouraging a gradual development of the domestic wood products manufacturing segment - especially with regard to lesser used species;
(5) gaining industrial plantation capability through pilot plantation trials with a range of species in relevant locations;
(6) enhancing the capabilities of the FDA to manage/sustain these developments in the long term.

In 1988 Liberia reviewed and amended its standard Forest Concession Agreement, including the provision requiring concessionaires to export a minimum of 5 percent of their total exports in the form of processed products. The new regulations call for an increase in this percentage to 10 percent by early 1990.

Several concessionaires have recently established modern sawmills that can produce export quality sawnwood. However, in the past, and still today, the small differences between log prices and sawnwood prices, in markets importing Liberian timber products, often discourages local processing.

MALAYSIA

Efforts to overcome difficulties in shipping logs from Sarawak and Sabah to Peninsular Malaysia is progressing, and trial shipments, involving 7,000 m^3 of light hardwood logs, were imported through Kelang and Kuantan Ports in 1989.

Production of mouldings for export in Peninsular Malaysian set a new record of over 116 thousand m^3, valued at M$ 132 million (about US$ 50 million), in 1989. Major markets for Malaysian moulding are Australia, Japan, Taiwan Province of China, Korea and United States.

In Sarawak the state government is enforcing forest policies towards a gradual decrease in log exports in favor of development of local industries. The log export restriction policy made effective in July 1988 requests logging companies to make available 10 percent of annual production output for domestic processing. In addition, logs for local processing are exempted from 80 percent of the standard royalty rates. In 1988, 75 additional timber processing plants were set up in the State (12 sawmills, 1 veneer/plywood mill, 4 dowel/moulding mills, and 58 furniture mills/shops), bringing the total number of timber processing mills to 430. More recent news refer to approval during the first-half of 1989 of 42 additional wood-based production units in the State.

In 1988 and 1989 Sarawak substantially increased production of sawnwood (mostly ramin) in response to strong demand from Italy, which faced decreasing supplies from Indonesia, as a consequence of that country's high taxation on export of ramin sawntimber.

The State of Sabah is also committed to further development of downstream wood-based industries to diversify its economy. The curtailment of log export quota in Sabah proved to be an efficient tool for promoting local processing, besides contributing to stabilization of prices of export logs. Also, the preferential rate of royalties for logs for domestic processing, imposed by the Government, provided the industry with annual net revenues of the order US$ 40 million.

PHILIPPINES

In early December, 1988 the Secretary of the Department of Environment and Natural Resources (DENR), Fulgrencio Factoran, ordered the closure of 96 sawmills and wood processing plants and banned the movement of all logs in Agusan del Norte, Agusan del Sur, Bukidnon and Misami Oriental provinces. This left some 50 000 workers without employment.

The total forest area in the Philippines has decreased from 16 million ha to 5 million ha, yet licenced loggers still cut 8.5 million m^3 of timber each year, and that does not include losses to slash-and-burn farming and forest fires. The forests are shrinking at an average rate of 100 000 ha per year. Agusan del Norte once had 157 000 hectares of untouched forest, now only 39 200 ha remain.

Sen. Aquilino Pimentel wants a total ban on logging for 25 years, while Sen. Heherson Alvarez has called for selective bans over three years.

The Haribon Foundation, an environmental group, is urging a nationwide campaign to ban commercial logging in provinces with less than 40 percent forest cover.

A long term (25 years) Master Plan for Forestry Development (MPFD) is under preparation. The goal is "to ensure, within 25 years, that the forest resources of the Philippines, which should be no less than 50 percent of total area, are adequately forested and brought into an environmental condition for optional and sustainable production for a variety of goods and services for present and future generations with special emphasis on the poorest segments of society". Specific goals of the Plan are:

- preservation of the remaining virgin and mossy forests,
- sustainable production of timber and other forestry goods and services,
- enhancement of environmental stability,
- establishment and development of tree plantations,

- protection of ethnic cultural communities,
- promotion of economic stability and social equality.

Objectives of the MPFD in order of priority are:

a. protect the forests from further degradation,
b. rationalize and improve land use within forest land,
c. increase productivity of the forest land and increase employment,
d. rehabilitate degraded productive systems.

The implementation of the Master Plan is expected to result in an even, sustained flow of high quality logs of 3.2 million m^3 per year during the first 25 years, increasing to 4.8 millon m^3.

THAILAND

On January 12, 1989, the cabinet approved two decrees to revoke over 270 private sector concessions, awarded in 1972 for 30 years, covering over 15 million ha. The decrees stated that fair compensation would be paid to companies affected. The move by Prime Minister Chatchai Choonhavan's government followed floods in November, 1988 in Southern Thailand when at least 350 people were killed.

The decrees were contested in parliament in April/May, 1989 but were not rejected.

Industry maintains that the logging ban is illegal and unenforceable and blamed illegally cut logs for the flood related devastation. Thailand's Judicial Council has ruled in the past that logging concessionaires have rights similar to those of land owners.

Laos lifted, almost simultaneously with the closing of Thailand's logging concessions, a ban on log export to Thailand.

At the time of introducing the ban Thailand imported as much as 1 million m^3 per year to supplement the 3 million m^3 produced domestically.

Local prices for construction timber have increased with, in some cases, over 200 percent since the ban on logging in the southern provinces was introduced in December 1988. In an effort to slow down price rises, the government reduced import duties on logs from 7 to 1 percent and on processed wood from 12 to 2 percent.

The government sought new sources of imported timber. Deals were made with Myanmar (Burma) and the Government in Laos.

Some environmentalists are concerned that the ban on logging in Thailand is merely shifting the deforestation problems to other countries in Southeast Asia.

The forest cover of Thailand shrank from 66 percent in 1950 to little over 29 percent in 1985, according to the Royal Forest Department. The Department says that only about 28 percent of the country is now forested, way below the 40 percent level that experts consider desirable. However, what exactly remains of the natural forests today is a subject of debate.

Partly as a result of population pressures about 8 million ha of forests were cleared during 1961-73, which translated into a 680 000 ha annual average. The pace quickened to 1.6 million ha in each of the succeeding four years.

Phairote Suwannakorn, director-general of the Royal Forest Department, said (in October, 1989) that 6 million people are estimated to have encroached on national forest reserves and must be relocated. Many are poor farmers and land-less laborers who see the forest as a last frontier of hope for a better life.

Thailand's rubberwood resources, estimated at some 3 million m^3 annually, will sustain the growing panel and furniture industries.

The Asian Development Bank will provide a grant of US $ 320 000 to help develop an effective reforestation programme.

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APPENDIX

ITTO PRODUCING MEMBER COUNTRIES PRODUCTION OF

HARDWOOD SAW LOGS, SAWN HARDWOOD AND PLYWOOD, 1987-1988 (m^3)

	Products	1987	1988
Africa	sawlogs	7 803 353	8 737 000
	sawnwood	1 999 000	2 053 411
	plywood	164 381	179 537
Cameroon	saw logs	2 091 000	2 000 000
	sawnwood	565 000	568 000
	plywood	10 000	8 000
Congo	saw logs	694 000	751 000
	sawnwood	60 000	57 411
	plywood	4 800	4 956
Côte d'Ivoire	saw logs	1 959 000	2 542 000
	sawnwood	775 000	780 000
	plywood	45 000	53 000
Gabon	saw logs	1 222 000	1 300 000
	sawnwood	106 000	106 000
	plywood	75 581	75 581
Ghana	saw logs	1 027 353	1 137 000
	sawnwood	390 000	439 000
	plywood	26 000	26 000
Liberia	saw logs	810 000	1 007 000
	sawnwood	103 000	103 000
	plywood	3 000	12 000

	Products	1987	1988
Asia/Pacific	sawlogs	82 887 304	86 384 919
	sawnwood	31 602 000	33 241 000
	plywood	8 009 000	8 976 057
India	saw logs	15 812 000	15 812 000
	sawnwood	14 834 000	14 834 000
	plywood	360 000	360 000
Indonesia	saw logs	25 000 304	27 565 919
	sawnwood	8 200 000	9 750 000
	plywood	6 100 000	6 800 000
Malaysia	saw logs	34 580 000	36 000 000
	sawnwood	6 260 000	6 600 000
	plywood	857 000	1 216 057
Papua New Guinea	saw logs	2 000 000	1 800 000
	sawnwood	--	--
	plywood	9 000	9 000
Philippines	saw logs	3 346 000	3 159 000
	sawnwood	1 233 000	1 033 000
	plywood	592 000	500 000
Thailand	saw logs	2 149 000	2 048 000
	sawnwood	1 075 000	1 024 000
	plywood	91 000	91 000

	Products	1987	1988
Latin America/ Caribbean	sawlogs	29 615 300	29 565 800
	sawnwood	9 798 000	9 818 400
	plywood	1 237 244	1 559 018
Bolivia	saw logs	310 000	310 000
	sawnwood	140 000	140 000
	plywood	9 100	18 000
Brazil	saw logs	25 200 000	25 200 000
	sawnwood	7 800 000	7 800 000
	plywood	1 080 000	1 360 000
Ecuador	saw logs	2 580 000	2 610 000
	sawnwood	1 263 000	1 278 000
	plywood	85 000	120 000
Honduras	saw logs	26 000	26 000
	sawnwood	3 000	2 400
	plywood	8 000	9 018
Panama	saw logs	279 000	279 000
	sawnwood	45 000	45 000
	plywood	12 000	12 000
Peru	saw logs	1 177 000	1 097 500
	sawnwood	528 000	534 000
	plywood	43 144	40 000
Trinidad and Tobago	saw logs	43 300	43 300
	sawnwood	19 000	19 000
	plywood	--	--
TOTAL OF 3 REGIONS	saw logs	120 305 957	124 687 719
	sawnwood	43 399 000	45 112 811
	plywood	9 410 625	10 714 612